Really Simple Syndication (RSS): An Educational Approach

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Abstract: Today's post-secondary students are technologically savvy and they expect faculty to use myriad web technologies for course delivery. This includes taking advantage of email, course web sites, and online learning communities. However, expectations now also include RSS, blogs, web- and pod-casting, extending the classroom experience to provide active learning materials anytime, anywhere, and in multiple modalities. This contribution outlines the novel use of RSS technology for a course announcement system at Purdue University. It begins by describing RSS technology and discussing the different possibilities for RSS within classroom. It also describes the specific RSS application for real-time course announcements, detailing its creation and implementation. Initial student feedback is also presented.

Keywords: RSS, web, information dissemination.

1   Introduction to RSS

While the concept for RSS emerged in 1997 with the release of channels in Microsoft's Internet Explorer 4.0 browser, the first version of RDF Site Summary (RSS) emerged in 1999. It is also identified by several other names including Really Simple Syndication, Rich Site Summary, Real-time Simple Syndication, and others.

While it has suffered from "the name game," like many XML-based technologies, it has been comparatively slow to grab a practical foothold on the Web. Although many news and advertising sites are now using RSS for real-time distribution, the base of consumers receiving RSS feeds remains primarily early adopters. A recent nationwide phone survey of over 1,300 Americans, conducted by Pew Internet & American Life Project (2005), showed that only nine percent of those online knew what RSS feeds were and understood the possibilities that they presented. However, the generation who grew up on computer technology is now quickly adding to the base of people receiving RSS feeds. In fact, 12 percent of Internet users in the United States ages 18 to 29 already have a working knowledge of what the term RSS means (Pew Internet & American Life Project, 2005). Additionally, the explosion of wireless technologies has helped to fuel this growth. According to BusinessWeek Online (2006), the number of RSS feeds grew from 307,000 in January of 2004 to over 13 million in August of 2005. This is more than 20 times the number of new feeds emerging during the same period. A SlashDot survey (Hrastnik, 2005) predicts that RSS will continue to grow dramatically in the coming years.

As an Internet technology, RSS is most widely used for the instant organization and distribution of a wide variety of information that are available on the World Wide Web (WWW). Asmus, Bonner, Esterhay, Lechner and Rentfrow (2005) comment that due to the simple and easy-to-use interface, RSS has become an essential web publishing vehicle. RSS works by allowing content distributors to syndicate brief snippets of content and post it as an RSS (XML) file on the Web. Most RSS files include a title, brief description, and a link where the user can follow-up to retrieve the "full-story." Those who wish to receive RSS content use special applications called RSS aggregators to "subscribe" to RSS feeds. Once subscribed to a feed, the consumer is immediately notified in some manner when a new item is added to an RSS feed by its publisher. In this way, RSS feeds provide an active

information mechanism on the Web whereby consumers can know immediately of distributors' information, rather than having to constantly return to a web site for recently released information.

There are a variety of standalone RSS aggregators, and some browsers such as Mozilla Firefox and Internet Explorer 7, include RSS functions within them. It should also be noted that RSS consumption is not limited to desktop applications alone–PDAs, cell phones, and other wireless devices can be set up to receive RSS feeds. While the original goals of RSS may be loftier, the *de facto* use for RSS feeds has become a mechanism for creating content summaries of web sites to which users subscribe and receive notification. Passivity is the biggest limitation of web sites–users must access the site to see what is new. RSS, much like Ajax, Flash, and Silverlight applications, is one of many technologies that provide an active method for attracting traffic and individual consumer attention and is gaining popularity for this specific purpose.

2 Classroom Need

The use of RSS feeds in a classroom also allows for a more collaborative learning environment and enhances communication between educators and students, creating new networks of knowledge. Having a variety of resources available in one, easy to use location, RSS encourages sharing among peers and creates large repositories of knowledge that can benefit all users and subscribers (D'Souza, 2006). RSS feeds can keep track of discussions and conversation topics, wikis, newsgroups, interests, and web site updates, as well as build connections with others who have similar interests. The combination of all of these items helps students to build a deeper understanding of the presented concepts and enhance their comprehension of the materials above and beyond what is offered in the classroom, creating a more dynamic learning (West, et al., 2006).

Although RSS feeds were initially utilized by readers to create individualized syndicated news pages (Asmus, et al., 2005), their increasing popularity have brought the potential opportunities to the attention of educators. RSS feeds can serve several uses in a variety of educational settings and provide technology-driven students with a plethora of opportunities to individualize their plans of study. With the content published in RSS feeds being immediately available to those with Internet connections with a few clicks (West, Wright, Gabbitas, & Graham, 2006), the possibilities for RSS in classrooms are endless. From the distribution of course related materials to keeping up-to-date with new research related to the course topics, RSS feeds give students and educators alike the ability to skim the newest and most relevant content quickly (Cold, 2006).

One of the most popular uses of RSS feeds in educational settings is to enable and improve student research. With the ability to gather multiple sources on one page, RSS can be a powerful research tool aiding educators and students in performing in-depth research with a few simple clicks (Asmus, et al., 2005). It allows students to conduct their research as both individuals and collaboratively by sharing and combining feeds across various sources and encourages the sharing of information (Cold, 2006). A properly setup RSS feed aids the research process by notifying subscribers and saving the most recent posting of information and current events. They have been compared to conducting research 24 hours a day for seven days a week, only the RSS feed is doing all of the work for the researcher (Richardson, 2005).

The ability of RSS to provide single-click access to the most current information eliminates the student's need to visit the required web sites regularly and increases their productivity by cutting down on search times for relevant subjects and news. This technology is also ideal for sharing classroom news, announcements, and updates so that students have easy access to the provided information, creating "personalized learning objects" for each class (D'Souza, 2006). Like all web sites, course web sites suffer from passivity. Educators who use the Web for content distribution would say that student attention and motivation is more difficult to obtain due to the hectic schedules many of them have. While most instructors post announcements to their course web sites, it is questionable how many students actually come to the web site to read the announcements and how many of them actually read the announcements once there.

Realizing this problem, the authors decided to implement RSS technology into the courses that they teach. In the spring of 2006, the six courses under the authors' purview were modified to include an RSS feed that was used for course announcements to determine the impact on student awareness.

3   Aiding Student Learning

The use of online materials, and their ability to be available to students any time, any place provides a novel opportunity for course instructors to appeal to all students no matter their learning style (Hardaway & Will, 1997). Carver, Howard, and Lane (1999) note that students learn through a variety of learning styles, each as different and unique as the students themselves. This is not a new concept within the classroom and by creating adaptive materials instructors can aid more students in comprehending the presented materials. Using adaptive hypermedia, such as hypertext, in a course, helps support a variety of learning styles including verbal, sequential, global, and sensing (Carver, et al., 1999). Traditional classroom and laboratory instruction periods have systematic, and sometimes dry, approaches in order to cover the necessary materials in the time period allowed. The use of hypertext provides learners, who may have a difficult time adapting to the traditional methods, the ability to review the materials outside of the classroom. The ability to jump around within the content, explore areas that need to be clarified, or examine hierarchical structure allows students to comprehend the content more efficiently and effectively (Carver, et al., 1999).

With the new abilities course instructors have to incorporate technology and online elements into course work, they also have the ability to present new and significant opportunities for students to improve their educational experience and environment (Hardaway & Will, 1997). Through the use of multimedia tools like RSS, instructors are providing students with access to classroom materials online that allows them to replay the overall classroom experience. This helps to extend the students' learning beyond the time spent within the classroom or laboratory setting with the instructors, furthering their knowledge and ability to comprehend what has been presented to them. These multimedia tools can also be of assistance by allowing students to catch up on assignments and missed work due to poor attendance or poor note taking (Hardaway & Will, 1997). Additionally, the linking ability embedded within RSS feeds allows a learner to quickly, in one click, navigate to the exact location being highlighted by the feed item – removing the need to navigate the entire website to find what one is looking for, which could be a hindrance to some learners.

A study conducted by Carver, et al. (1999) found that students are more likely to use the hypermedia tools that are provided to them to further their learning if those tools are available outside of the classroom and in their home environments. This means that if students can access the technology in locations such as their rooms, they will be more likely to use it to their benefit. Hypermedia tools that require additional equipment or software that is only available in the classroom environment are often avoided by students and are rated poorly in their usefulness to enrolled students (Carver, et al., 1999). Tools like RSS feeds are available to students through the use of the same web browsers they use to browse the web or check their email. With no additional software or equipment being needed, students can personalize their RSS feeds and experiences to fit their needs and individual learning styles.

4   RSS Course Announcement System

The selected course for this study, CGT 141/C&IT 141, is a required 100-level course for all Computer Graphics Technology (CGT) students entitled *Internet Foundations, Technologies, and Development*. Covering topics such as: various authoring tools, web design, graphical and multimedia formats, commerce, implementation and security issues; the course offers basic introductions and "explores the history, architecture and development of the World Wide Web" (Purdue University, 2006). Course announcements were updated on the main web page and RSS feed simultaneously throughout the semester. New announcements (feed items) were posted approximately once or twice per week. The following portion of the contribution details the specifics of the RSS system created by the authors. The system includes both the interface components as viewed in the browser as well as the ASP scripts that were used to modify the RSS (XML) file.

4.1   The Course Announcement RSS Document

An RSS document is written in a consistent and repetitive format that aggregators and feed readers can easily parse into useful headlines. Listing 1 shows the frozen structure of a RSS 2.0 document.

```xml
<?xml version="1.0" ?>
<rss version="2.0">
  <channel>
   <title>CGT 141</title>
   <link>http://www2.tech.purdue.edu/cgt/courses/cgt141/</link>
   <description>Announcements for CGT 141</description>
   <language>en-US</language>
   <copyright>Copyright 2006 Purdue University</copyright>
   <docs>http://blogs.law.harvard.edu/tech/rss </docs>
   <lastBuildDate>Sun, 29 Jan 2006 12:13:01 PM EST</lastBuildDate>
   <item>
          <title>Midterm Exam</title>
          <description>February 28, 7-8 PM in WTHR 200</description>
          <link>http://www.tech.purdue.edu/cgt/courses/cgt141/</link>
          <guid isPermaLink="false">8</guid>
          <pubDate>Wed, 11 Jan 2006 08:00:00 EST</pubDate>
   </item>
  </channel>
</rss>
```

Listing 1: An RSS 2.0 document from the course management system.

The root or document element of an RSS file is the <rss> element that includes the version attribute and associated "2.0" value. Nested inside the document element is one <channel> element that contains all necessary sub-elements, including the items that make up the feed headlines. The <channel> element is arguably unnecessary given that only one can exist within the document, providing the same affect (that of being a document element) that the <rss> element offers. As noted by Hammersley (2005) and Orchard (2005), three elements are required inside the <channel> element: <title>, <link>, and <description>.

4.2   Displaying Announcements on the Course Home Page

While a minor part of the system, the authors desired to be able to have the announcements that were in the RSS feed display in the browser as shown in Figure 1. To accomplish this, ASP code was included in the course home page as shown in Listing 2. Figure 1 depicts the main web page for the course, where the course announcements could be read online. However, an RSS link appears in two places as well – once on the page itself and once as the autodiscovery icon in the address bar. A demonstration was also performed at the beginning of the semester to show students how to subscribe.
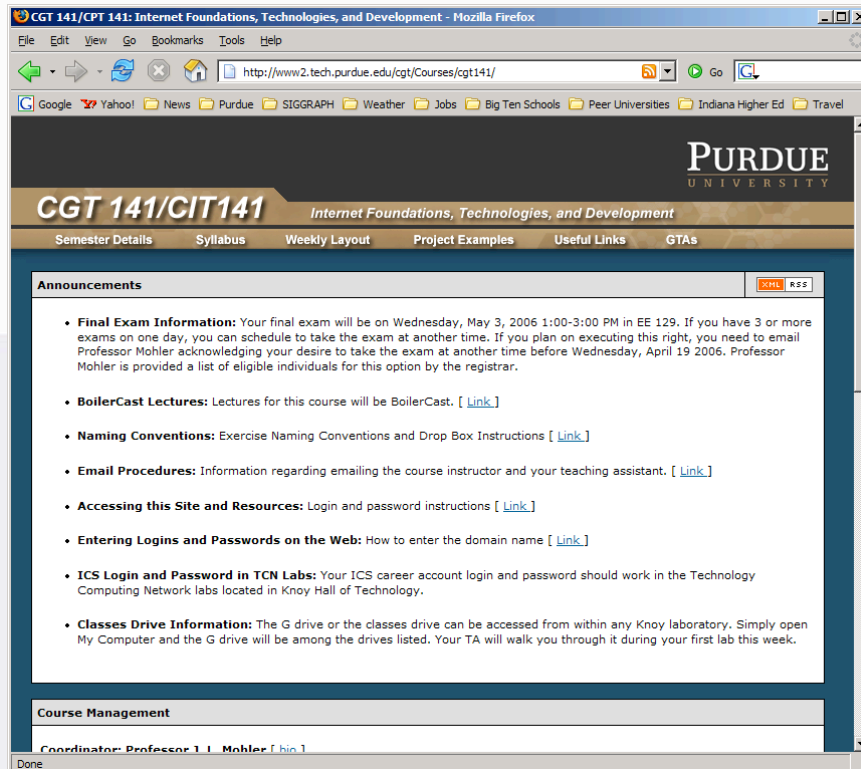
Figure 1: Announcements are integrated from RSS feed into the course home page.

```
<%
 Set objXML = Server.CreateObject("Microsoft.XMLDOM")
 Set objLst = Server.CreateObject("Microsoft.XMLDOM")
 Set objAnn = Server.CreateObject("Microsoft.XMLDOM")
 objXML.async = False
 objXML.Load (Server.MapPath("141_RSS.xml"))
%><ul><%
 Set objLst = objXML.getElementsByTagName("item")
 noOfItems = objLst.length
 For i = 0 To ( noOfItems - 1 )
  Set objAnn = objLst.item(i)
  Response.Write("<li><strong>" & objAnn.childNodes(0).text & ":</strong> " &_
  objAnn.childNodes(1).text)
  currentPage = "http://" & Request.ServerVariables("SERVER_NAME") &_
  LCase(Request.ServerVariables("URL"))
  If objAnn.childNodes(2).text <> currentPage Then
     Response.Write(" [ <a href='" & objAnn.childNodes(2).text & "'> Link </a> ] </li><br />")
  Else
     Response.Write("</li><br />")
  End If
 Next
%></ul>
```

Listing 2: ASP Code to extract the RSS items and write them in the course home page.

4.3   UI for Editing the RSS Feed

To edit the RSS feed for each course, there were two HTML pages. The authors designed this system so that other faculty could use it and would not have to know how to write RSS (XML) or other web code. Figure 2 shows the initial interface screen for editing the RSS feed items. From this page the user can add, modify, or delete items in the feed.
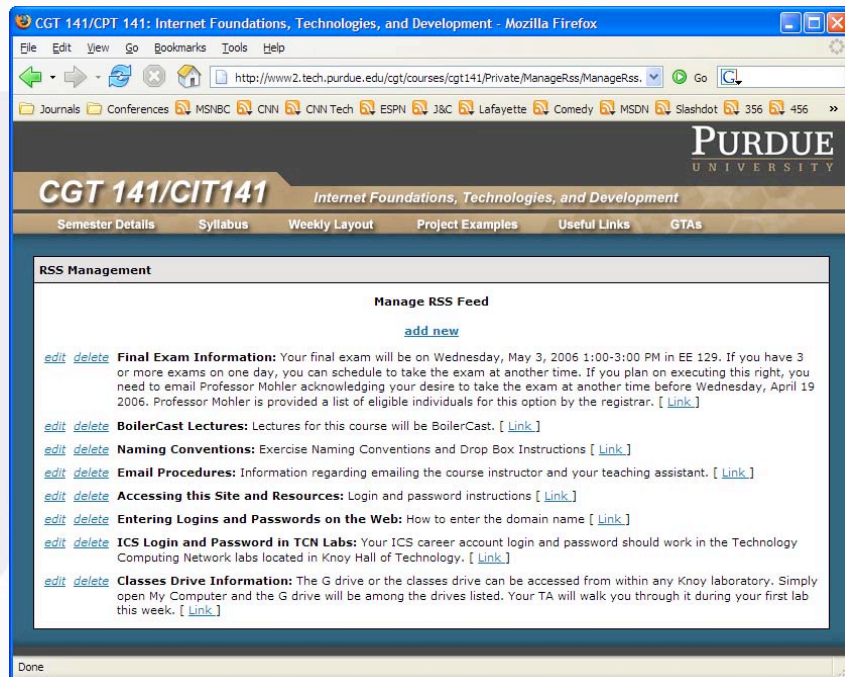

Figure 2: The user chooses to edit, delete or add a new feed item via an HTML page.

If users choose to edit a feed item, they are presented a form such as is shown in Figure 3. If they choose to delete an existing feed item, they are prompted to ensure they wish to delete it. If they choose to add a new item, they are presented an empty form similar to that shown in Figure 3. Both of the interface screens shown in Figures 2 and 3 use the same ASP script to manipulate the data. The screen shown in Figure 2 uses code similar to that shown in listing 2 and thus will not be reviewed again. The code for taking the input from the form in figure 3 and writing it into the RSS feed is described in the next section.
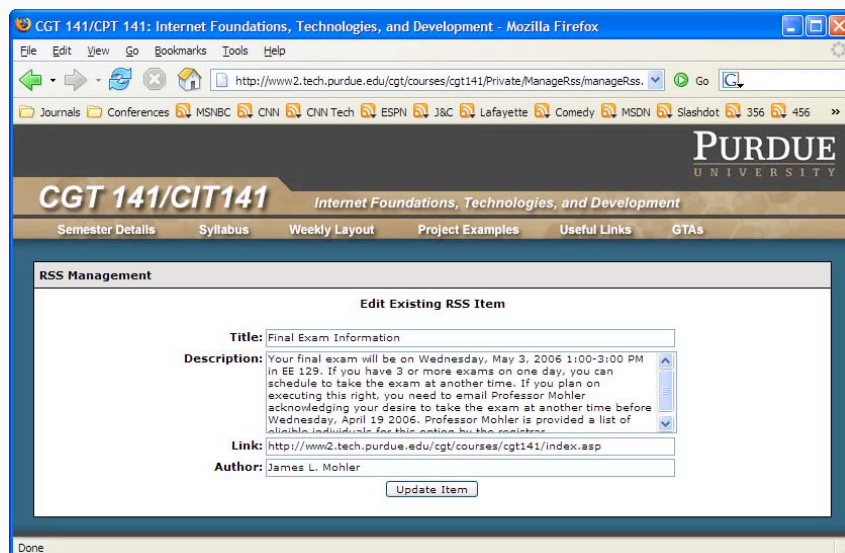
Figure 3: An HTML form is presented if the user chooses to edit a specific feed item.

4.4   Building the Feed with ASP

Active Server Pages (ASP) provides functionality for interacting with the XML Document Object Model (DOM) via instantiation of an instance of the Microsoft XML Core Services Msxml2.DOMDocument class. Using the XML DOM, Listing 3 demonstrates how an additional element can be appended as a child of the <rss> element with relative ease. The inherent issues present with this approach are twofold. First, this example appends the <item> element as a child to the document element of the RSS file, at the same level (sibling) as the <channel> element when it should be a sub-element (child) to <channel>, as noted by Hammersley (2005) and Orchard (2005) earlier.

```
'Create new RSS elements
Set oItem    = oXML.createElement("item")
Set oItemTitle = oXML.createElement("title")
Set oItemDesc  = oXML.createElement("description")
Set oItemLink  = oXML.createElement("link")
'Initialize the new RSS elements with values
oItemTitle.text = "Example 1"
oItemDesc.text = "Simple Append Without Formatting"
oItemLink.text = "http://www.tech.purdue.edu/cgt/"
'Append the <item> element to the XML file
oXML.documentElement.AppendChild(oItem)
'Append the subelements to the <item> element
oItem.AppendChild(oItemTitle)
oItem.AppendChild(oItemDesc)
oItem.AppendChild(oItemLink)
```

Listing 3: Performing a simple XML append using ASP.

```
<?xml version="1.0" ?>
<rss version="2.0">
  <channel>
    <title>CGT 141</title>
    <link>http://www2.tech.purdue.edu/cgt/courses/cgt141/</link>
    <description>Announcements for CGT 141</description>
    <language>en-US</language>
    <copyright>Copyright 2006 Purdue University</copyright>
    <docs>http://blogs.law.harvard.edu/tech/rss </docs>
    <lastBuildDate>Sun, 29 Jan 2006 12:13:01 PM EST</lastBuildDate>
    <item>
        <title>Midterm Exam</title>
        <description>February 28, 7-8 PM in WTHR 200</description>
        <link>http://www.tech.purdue.edu/cgt/courses/cgt141/</link>
        <guid isPermaLink="false">8</guid>
        <pubDate>Wed, 11 Jan 2006 08:00:00 EST</pubDate>
    </item>
  </channel>
  <item><title>Example 1</title><description>Simple Append Without
Formatting</description><link>http://www.tech.purdue.edu/cgt/</link></item></rss>
```

Listing 4: Unformatted result of Listing 3 showing inappropriate appendage.

Second, this example does not retain the formatting of the XML document, stringing the appended text together on a single line scrolling off to the right. Attempts at appending to a child node of <rss> results in an error message stating that the operation cannot be performed with a Node of type Element. Instead, appending can only occur at the document element level. As a solution, the management application builds a memory-resident *view* of the RSS feed, appending the new item in sequence prior to the existing items, thus allowing aggregators to display the new item first in the list. Listing 5 shows the code that performs this. The resulting RSS feed from Listing 5, unlike the previous example, contains the new <item> inserted within the existing channel as the first item in the list (compare to Listing 1). Formatting and indentation from the XML file are also preserved to ensure the document remains easy to read as a plain text document (see Listing 6).

```
strChannel = chr(9)&"<channel>"&chr(13)&chr(9)&"</channel>"&chr(13)
oXML.LoadXML(strChannel)
Set oChannel = oXML.documentElement
oXML.Load(Server.MapPath(XMLFile))
Set oRoot  = oXML.documentElement
'Copy beginning elements inside of <channel>
Set objNode = oRoot.SelectSingleNode("channel/title")
oChannel.appendChild(objNode)
Set objNode = oRoot.SelectSingleNode("channel/link")
oChannel.appendChild(objNode)
Set objNode = oRoot.SelectSingleNode("channel/description")
oChannel.appendChild(objNode)
'...
'Create the new <item> then load the XML formatted text literal as an XML document
sTab3 = chr(9)&chr(9)&chr(9)
sTab4 = chr(9)&chr(9)&chr(9)&chr(9)
sItem = chr(13)&chr(13)&sTab3&"<item>"&chr(13)&sTab4&"<title>"&title &_
"</title>"&chr(13)&sTab4&"<description>"&description&"</description>"&chr(13) &_
sTab4&"<link>"&link&"</link>"&chr(13)&sTab4&"<guid isPermaLink='false'>"&guid &_
"</guid>"&chr(13)&sTab4&"<author>"&author&"</author>"&chr(13)&sTab4 &_
"<pubDate>"&pubDate&"</pubDate>"&chr(13)&sTab3&"</item>"&chr(13)
Set oXML2 = Server.CreateObject("Microsoft.XMLDOM")
oXML2.LoadXML(sItem)
'Append the new item to the memory-resident channel
oChannel.appendChild(oXML2.documentElement)
'Append the pre-existing <item> elements to the memory-resident channel
Set oItems = oXML.getElementsByTagName("item")
noOfItems = oItems.length
For i=0 To (noOfItems - 1)
  Set oAnn  = oItems.item(i)
  Set objNode = oRoot.SelectSingleNode("channel/item[guid='" &_
                oAnn.childNodes(3).text & "']")
  oChannel.appendChild(objNode)
Next
'Remove the old channel and append the new channel
Set objNode = oRoot.SelectSingleNode("channel")
oRoot.removeChild(objNode)
oXML.save(Server.MapPath(XMLFile))
oRoot.appendChild(oChannel)
oXML.save(Server.MapPath(XMLFile))
```

Listing 5: Building the RSS feed in memory and appending the channel.

```
<?xml version="1.0" ?>
<rss version="2.0">
 <channel>
  ...elements omitted for brevity...
  <item>
        <title>Example 2</title>
        <description>Appending a memory-resident channel</description>
        <link>http://www.tech.purdue.edu/cgt/</link>
        <guid isPermaLink="false">9</guid>
        <pubDate>Mon, 30 Jan 2006 12:31:45 EST</pubDate>
  </item>
  <item>
        <title>Midterm Exam</title>
        <description>February 28, 7-8 PM in WTHR 200</description>
        <link>http://www.tech.purdue.edu/cgt/courses/cgt141/</link>
        <guid isPermaLink="false">8</guid>
        <pubDate>Wed, 11 Jan 2006 08:00:00 EST</pubDate>
  </item>
 </channel>
</rss>
```

Listing 6: Resulting RSS feed with new item appended.

5 Findings

The following sections detail a study conducted to determine use of the RSS system by students in the authors' courses. When the RSS Course Announcement System was first implemented, initial anecdotal comments collected from students suggested that many of the students had subscribed to the course feeds and found them to be worthwhile. To further validate this, the authors conducted surveys in the fall 2006 semester.

5.1 Initial Survey

At the beginning of the 2006 fall semester, the authors posted an online survey to determine the level of usefulness and effectiveness of the RSS feed for CGT 141/C&IT 141 course announcements. This survey assumed that student participants were are at the beginning of the course and had minimal exposure to the RSS feed used in CGT 141/C&IT 141 and other similar courses. Approximately 240 students, ages 18 to 22, were eligible to take part in the initial survey. Of those 240, 133 students successfully completed the entire survey by answering all questions to the best of their ability, returning a response rate of 56 percent. These students ranged in class levels from freshmen to seniors with 22 females, or 17 percent of the participants, and 111 males, or 83 percent of participants, responding. Participants were asked a variety of questions regarding RSS feeds. Questions included, but were not limited to, whether or not participants were familiar with RSS feeds, how often they used RSS feeds, their personal proficiency with RSS feeds, and individual feelings on RSS and the use of RSS for the course in which they were enrolled.

Initial results show that just over one fourth of the participants, or 39 percent, indicated that they had a previous knowledge of what a RSS feed was. This coincides with the findings of the Pew Internet & American Life Project survey (2005) that indicated very few participants in a similar age range, 18 to 29, already had this similar knowledge. Additionally just over half, approximately 56 percent, of those same 52 students indicated that they had previously used a RSS feed to gather the important information they needed, but only 27 percent used this technology at least once per week. The majority of participants also commented that they felt the RSS feed integrated into CGT 141/C&IT 141 course could be very beneficial if a proper introduction in how to use RSS feeds was available. Other students indicated that since they were unfamiliar with the concept of RSS feeds

they could not accurately judge the potential benefit of the integrated RSS feed to deliver the course announcements.

5.2 Secondary Survey

At the conclusion of the 2006 fall semester the authors posted a second online survey, a post-use survey, to determine the extended level of usefulness and effectiveness of the provided RSS feed for CGT 141/C&IT 141 course announcements. Students enrolled in this fall semester were given a short introduction into the capabilities of RSS, its use within this particular classroom setting, and the potential effectiveness as well as exposure to the CGT 141/C&IT 141 RSS feed for the entire semester. This second survey assumed that student participants were are at the end of the course and had minimal exposure to RSS feeds outside of the enrolled CGT 141/C&IT 141 classroom environment. The same 240 students from the initial survey, ages 18 to 22, were also eligible to take part in the secondary survey as offered. Of those 240, 203 students successfully completed the entire survey by answering all questions to the best of their ability and returned a response rate of 85 percent, a 29 percent increase in participants from the initial survey. Again these students ranged in class levels from freshmen to seniors with 32 females, or 16 percent of the participants, and 171 males, or 84 percent of participants, responding. Participants were asked similar questions to those in the initial survey regarding RSS feeds. These questions again included, and were not limited to, whether or not participants were familiar with RSS feeds, how often they used the RSS feed for this course, how often they used RSS feeds for other information and resources, their personal proficiency with RSS feeds, and individual feelings on RSS and the use of RSS for the course to which they were enrolled in.

The final results showed that three-fourths of all participants, or 75 percent, indicated that they now understood and had a working knowledge of what a RSS feed was with 30 percent of all participants indicating that they have been using an RSS feed at least once per week for gathering information from available sources. Additionally 42 percent of all participants indicated that they used the CGT 141/C&IT 141 RSS feed to check for course announcements. Of those participants who noted that they used the provided RSS feed to check for course announcements relating to CGT 141/C&IT 141, 64 percent indicated that they also regularly use other RSS feeds at least once per week to gather the important information they need from other resources showing that checking the CGT 141/C&IT 141 RSS course announcement system had become a part of their weekly routine.

5.3 Survey Comparisons

Once the means and standard deviations were computed for the participant proficiencies in RSS technologies from both the initial and secondary surveys, a t-test was performed in order to determine if there was a significant difference between the two. For the t-test performed, μ_1 represented the initial survey mean and μ_2 represented the secondary survey mean for the given variable that was analyzed. Therefore the null and alternate hypotheses were:

$$H_o : \mu_1 = \mu_2 \qquad H_a : \mu_1 \neq \mu_2$$

The analysis from the participant data produced a t-value of 2.27 for proficiency in RSS technologies, which with ∞ degrees of freedom yielded a p-value between 0.025 and 0.01, which was significant at the .05 level. A 1 in 20 chance that any differences were not due to a reason stated in the hypothesis, but attributed to some other unknown reason, was adequate for this research project. Therefore the null hypothesis (H_o) was rejected since there was a significant difference shown between the participants proficiency in RSS technologies by the completion of the study.

Researchers also did a direct comparison of the data for the use of RSS feeds by the participants between the initial survey and the second survey at the end of the semester. The means and standard deviations were computed and a t-test was performed in order to determine if there was a significant difference between the two. For this second t-test that researchers performed, μ_1 represented the initial survey mean and μ_2 represented the secondary survey mean for the given variable that was analyzed. Again the null and alternate hypotheses were:

$$H_o : \mu_1 = \mu_2 \qquad H_a : \mu_1 \neq \mu_2$$

The analysis from the participants' data produced a t-value of 7.50 for the participants' use of RSS feeds, which ∞ degrees of freedom yielded a p-value less than 0.0005, which was significant at the .05 level. Therefore the null hypothesis (H_o) was rejected since there was a significant difference shown between the participants use of RSS feeds by the completion of the study.

6 Discussion

In comparing the results from the initial survey to the secondary survey posted at the conclusion of the fall semester, students showed an increased knowledge in RSS feeds and their potential to use this offered technology. The number of participants who indicated they understood the potential offerings of RSS increased from 39 to 75 percent of participants surveyed. The t-test performed by the researchers also showed a significant difference in student knowledge and understanding of RSS between the initial and secondary surveys. These results combined show that with just a short introduction to the topic and simple demonstration of how to use it, students were able to comprehend the concept of RSS as it was presented to them.

The researchers also found that the number of students who used RSS feeds increased between the initial and secondary surveys. The t-test performed by researchers showed a significant difference if the number of students who used RSS feeds for both the course and other sources. However a low percentage of the participants noted on the secondary survey that they took advantage of the specific RSS feed that was provided as a resource for course announcements. In the secondary survey, only 42 percent of all participants in the study noted that they used the RSS feed provided for checking course announcements. This low percentage of users could be due to the inactiveness of the feed. CGT 141/C&IT 141 is a course that has a limited number of announcements throughout the running of the semester, posting only a few announcements every couple of weeks. The researchers predict that a positive correlation would be seen between the frequency/number of announcements and the number of students who would take advantage of the RSS feed provided by the course. Future investigations are planned to examine this.

The minimum weekly usage of RSS feeds also had a very low return. The percentage of participants who used RSS feeds on a weekly basis only increased from 27 percent to 30 percent between the initial survey and the secondary survey. This shows that although students had the short introduction and demonstration to RSS within the classroom setting, they were still hesitant to adopt this technology as part of their daily online regiment. This low increase could also be associated with a variety of alternative causes.

7 Summary

This contribution has provided a novel implementation of RSS for course improvement. As stated, anecdotal student comments have indicated that the RSS feed for course announcements useful. Future work in this area will focus on tracking usage data to determine the number of students using the feeds and how often they click through the RSS feed to the main course web site. Further study and thought will be given to the idea of developing innovative ways of integrating RSS into the classroom in a manner that students benefit and learn from.

8 References

Asmus, J., Bonner, C., Esterhay, D., Lechner, A., Rentfrow, C. (2005). *Instructional design technology trend analysis.* Retrieved September 21, 2006: http://elgg.net/collinb/files/1136/2967/TrendAnalysisWeb.pdf

BusinessWeek Online (2005). *RSS keeps booming.* Retrieved April 13, 2006: http://www.businessweek.com/technology/tech_stats/rss050923.htm

Carver, C. A., Howard, R. A., & Lane, W. D. (1999). Enhancing student learning through hypermedia courseware and incorporation of student learning styles. *IEEE Transactions on Education. 42*(1). 33-38.

Cold, S. J. (2006, January). Using Really Simple Syndication (RSS) to enhance student research. *SIGITE Newsletter. 3*(1), 6-9.

D'Souza, Q. (2006). *RSS ideas for educators.* Retrieved September 21, 2006: http://www.teachinghacks.com/wp-content/uploads/2006/01/RSS%20Ideas%20for%20Educators111.pdf

Hammersley, B. (2005). *Developing feeds with RSS and Atom.* Sebastopol, CA: O'Reilly Media, Inc.

Hardaway, D., & Will, R. P. (1997). Digital Multimedia offers key to educational reform. *Communications of the ACM. 40*(4). 90-96.

Hrastnik, R. (2005). *Slashdot survey predicts dramatic RSS growth, while RSS "wars" continue.* Retrieved April 13, 2006: http://rssdiary.marketingstudies.net/content/slashdot_survey_predicts_dramatic_rss_growth_while_rss_wars_continue.php

Pew Internet & American Life Project. (2005). *Public awareness of internet terms.* Retrieved September 27, 2006: http://www.pewinternet.org/pdfs/PIP_Data_Techterm_aware.pdf

Purdue University. (2006). *CGT 141/CIT 141: Internet foundations, technologies, and development: Course syllabus.* Retrieved September 21, 2006: http://www2.tech.purdue.edu/cgt/courses/cgt141/syllabus.asp

Orchard, L.M. (2005). *Hacking RSS and Atom.* Indianapolis, IN: Wiley Publishing, Inc.

Richardson, W. (2005). *RSS: A quick start guide for educators.* Retrieved September 21, 2006: http://www.weblogg-ed.com/wp-content/uploads/2006/05/RSSFAQ4.pdf#search=%22RSS%3A_A_Quick_Start_Guide_for_Educators

West, R. E., Wright, G., Gabbitas, B., Graham, C. R. (2006). Reflections from the introduction of blogs and RSS Feeds into a preservice instructional technology course. *TechTrends. 50*(4), 54-60.