The Importance of Teaching Metadata Concepts in the Business Communication Course

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This paper addresses the topic of metadata and the reasons why it should be taught in Business Communication classes. Metadata is information about computer generated documents that can be inadvertently transmitted to others. The problems associated with metadata have become more acute over time as word processing and other popular programs have become more receptive to the concept of collaboration. As more people become involved in the preparation of documents, the more the likelihood of inadvertent disclosure, which can lead to ethical and legal implications for the business or employee who transmits the document(s). Many computer users are unfamiliar with metadata and the implications of creating and disseminating metadata. Business Communication teachers should take the lead in addressing this issue by teaching students what the concept of metadata is, how it is created, and what the implications and risks are for distributing documents that contain metadata. This paper will define metadata, discuss how it is created, describe how it can be removed from a document, and provide some examples of how metadata has legally implicated or embarrassed individuals and companies. Because the majority of employees in today's businesses use Microsoft Office software, the scope of this paper will focus on using Microsoft Office 2007 to create documents containing metadata.

Introduction

Technology has forever changed the way business communicates. Unfortunately, users of technology often adopt technological innovations without understanding all of their legal and ethical ramifications. Indiscriminate use of e-mail by company officials has been a godsend to plaintiff's lawyers, in many instances being an important factor in multi-million dollar (and larger) judgments (Varchaver, 2003, p. 58). According to the National Law Journal, 60-70 percent of all corporate data resides in or are attached to e-mail; 99 percent of all documents are in digital form; three out of every four lawsuits involving Fortune 500 companies utilize electronic company data ("Ready….or Not?", 2007, p. 4).

The purposes of this paper are to:
- define what metadata is,
- discuss how it is created,
- describe how it can be removed from documents, and
- explain why it is important that Business Communication faculty should address the problems related to metadata when teaching the writing component of this class, and, finally,

- describe how metadata concepts can be taught.

The scope of the paper will focus on using Microsoft Office 2007 to create documents containing metadata.

Conclusions will be given concerning the teaching and use of metadata at the end of the paper.

What is Metadata and How is it Created?

Metadata is commonly defined as "data about data" (Silvernail, 2007). Others refer to metadata as hidden data that isn't always obvious in the visible document and is an integral part of most word-processing software, such as Microsoft Word (Steele, 2006). In January 2006, the Florida Bar Board of Governors described metadata thusly, after first admitting that a number of its members were, up to that point, unaware of its existence:

> Basically, metadata is information a word processing or document
> creation program keeps about the history of that document. This
> history includes changes, deletions, additions, which persons have
>   accessed the document, and electronic notes that have been attached
>   at various times. Such information is not visible on the screen, but it
> can be held in the background. And this information usually
> accompanies the document when it is electronically transmitted
> (Blankenship, 2006).

Microsoft has been trying to alert users to the potential problems associated with the creation and storage of metadata in documents for years. According to Microsoft (2007):

> Whenever you create, open, or save a document in Microsoft
> Word, the document may contain content that you may not want to
> share with others when you distribute the document electronically.
>
> Here are some examples of metadata that may be stored in your
> documents:
>
> • Your name
> • Your initials
> • Your company or organization name
> • The name of your computer
> • The name of the network server or hard disk where you saved
>   the document
> • Other file properties and summary information
> • Non-visible portions of embedded OLE objects
> • The names of previous document authors
> • Document revisions
> • Document versions
> • Template information

• Hidden text
• Comments

How to View Metadata

Metadata information can be viewed from a saved word document (in Microsoft Word 2007) by following this path: from the Office Button go to Prepare, then to Properties, from there go to Advanced properties under the Document Properties button. Advanced Properties brings up a dialog box with five choices: General, Summary, Statistics, Contents, and Custom, each of which reveals different types of information. For example, Figure 1 below shows some important information about the date of creation, modification and access of a Word document (A),

A   B   C
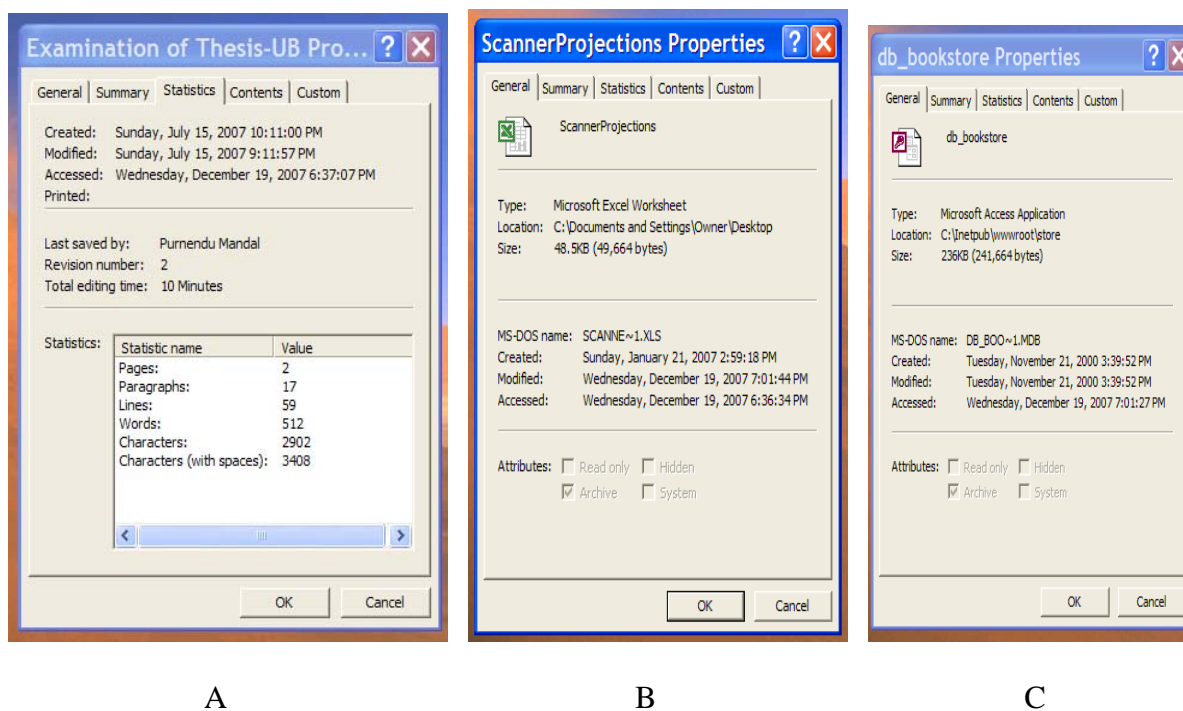
Figure 1: Document Properties (A-Word, B-Excel, C-Access)

an Excel document (B) and an Access database (C).

The Ubiquitous Nature of Metadata

Metadata is a fact of life in most companies. In a survey involving about 100,000 Word documents collected from various Web sites around the world, it was observed that every document contained hidden information. Half of the documents had up to 50 hidden words, one-third up to 500 words hidden, and 10 percent had more than 500 words concealed within them (Ward, 2003). The hidden text revealed various types of information – general information to specific personal information such as Social Security numbers and data about the internal network the document traveled through.

Why It's Important that Metadata Concepts be Taught in Business Communication Classes

The problems associated with metadata have become more acute over time as word processing and other popular programs have become more receptive to the concept of collaboration. As more people become involved in the preparation of documents, the greater the likelihood of inadvertent disclosure, which can lead to ethical and legal implications for the business or employee who transmits the document(s).

Many computer users are unfamiliar with metadata and the implications of creating and disseminating metadata. Therefore, since most universities require Business majors to take a Business Communications course as one of their core classes, it is important that Business Communication teachers inform their students about the consequences of creating and distributing metadata in the files and documents that are shared or sent to others.

Many employees create, distribute, and receive documents created in MS Word, Excel, and PowerPoint. In the Business Communication course, the emphasis is on creating written documents, such as resumes, memos, letters, and reports. Additional emphasis is given to creating PowerPoint slide shows for use in giving formal business presentations. The following section of this paper addresses how one can send and share documents, created with any of the Microsoft programs, confidently without fear of transmitting metadata.

Before having the students complete a writing assignment or give a presentation using PowerPoint, the Business Communication teacher should demonstrate how to find and remove hidden metadata and personal information from a document or presentation, how to track changes and comments, and how to prevent changes from occurring to the final version of a document. In fact, after demonstrating how to use these metadata features, the teacher should have the students write their first memo incorporating these features.

The next section explains how to remove personal information from a Microsoft document. Even if students don't collaborate with someone else on a document, it is important that they know how to remove their own personal information, which could be incriminating.

How to Remove Personal Information from a Word Document

You can now automatically remove personal information from a Word document when you save the document. To turn this option on, follow these steps:

1. Click the **Office Button**.

2. Click **Prepare** from the pull-down menu.
3. Click **Inspect Document**. The options available are **Comments and Revisions**, **Document Properties**, **Custom XML Data**, **Headers and Footers**, and **Hidden Text**.
4. Select the option(s) that you want inspected, then click **Inspect**.
5. After the document has been inspected, click **Remove All items found** if any items were found that you don't want revealed.

How to Remove Personal Information from a PowerPoint Presentation

To remove personal information from a PowerPoint presentation, follow these steps:

1. Click the **Office Button**.
2. Click **Prepare** from the pull-down menu.
3. Click **Inspect Document**. The options available are **Comments and Annotations**, **Document Properties and Personal Information**, **Custom XML Data**, **Invisible On** – **Slide Content**, **Off-Slide Content**, and **Presentation Notes**.
4. Select the option(s) that you want inspected, then click **Inspect**.

Business Communication teachers should also show their students how to track changes and comments to a Word document. This is especially important for students to know because they collaborate on projects (i.e. case studies and presentations) in many of their upper-level Business courses and they will probably collaborate with others when working as a professional after graduation.

Microsoft gives a comprehensive overview of tracking changes and comments for a document in its Help menu for Word 2007. Some of these features include inserting and deleting a comment, showing or hiding comments or tracked changes, reviewing tracked changes and comments, and turning on or off change tracking.

How to Insert a Comment into a Word 2007 Document

You can insert a comment inside balloons that appear in the document margins. In print layout view or Web layout view, markup balloons show markup elements, such as comments and tracked changes, in the margins of your document. Use these balloons to easily see and respond to reviewers' changes and comments.   You can also hide comments from view.

The steps to insert a comment into a Word 2007 document are:

1. Select the text or item that you want to comment on, or click at the end of the text.

2. On the **Review** tab, in the **Comments** group, click **New Comment**. (See Figure 2)

Figure 2: New Comment icon

3. Type the comment text in the comment balloon or in the **Reviewing Pane**.   To respond to a comment, click its balloon, and then click **New Comment** in the **Comments** group. Type your response in the new comment balloon.

How to Delete a Comment

If you don't want comments to appear in your document during a review, you must clear your document of comments by deleting them.

1. To quickly delete a single comment, right-click the comment, and then click **Delete Comment**.

2. To quickly delete all comments in a document, click a comment in the document. On the **Review** tab, in the **Comments** group, click the arrow below **Delete**, and then click **Delete All Comments in Document**.

You can also review and delete comments by using the Reviewing Pane. To show or hide the Reviewing Pane, click **Reviewing Pane** in the **Tracking** group. To move the Reviewing Pane to the bottom of your screen, click the arrow next to **Reviewing Pane**, and then click **Reviewing Pane Horizontal**.

Showing or Hiding Comments or Tracked Changes

To prevent one from inadvertently distributing documents that contain tracked changes and comments, Word displays tracked changes and comments by default. **Final Showing Markup** is the default option in the **Display for Review** box.
You can display all changes in a document in different ways. For example, you can set Microsoft Office Word to display tracked changes by type of edit — such as insertions and deletions or formatting changes. You can also display only the comments. You can turn off balloons for comments and tracked changes to display all comments and changes inline. You can even display only the changes made by the author or by a specific reviewer.

To quickly display tracked changes and comments, click **Show Markup** in the **Tracking** group on the **Review** tab.

Clicking **Show Markup** displays or hides all of the markup (comments and tracked changes such as insertions, deletions, and formatting changes) for selected reviewers in the document. When you display all markup, all types of markup are selected on the **Show Markup** menu.

Reviewing Tracked Changes and Comments

In Microsoft Office Word, you can track each insertion, deletion, move, formatting change, or comment that you make so that you can review all of the changes later.

The Reviewing Pane displays all of the changes that currently appear in your document, the total number of changes, and the number of changes of each type.

As you review tracked changes and comments, you can accept or reject each change. It is important to remember that until you accept or reject all tracked changes and comments in a document, even hidden changes will appear to viewers in documents you send or display.

On the **Review** tab, in the **Tracking** group, click **Reviewing Pane** to view the summary at the side of your screen. To view the summary across the bottom of your screen instead of on

the side of your screen, click the arrow next to **Reviewing Pane**, and then click **Reviewing Pane Horizontal**.

To view the number of each type of change, click **Show Detailed Summary**.

Turning On or Off Change Tracking

You can customize the status bar to add an indicator that tells you when change tracking is on or off. When the Track Changes feature is on, you can view all of the changes that you make in a document. When you turn off the Track Changes feature, you can make changes to a document without marking what has changed.

How to Turn On Change Tracking

1. On the **Review** tab, in the **Tracking** group, click the **Track Changes** image. (See Figure 3)
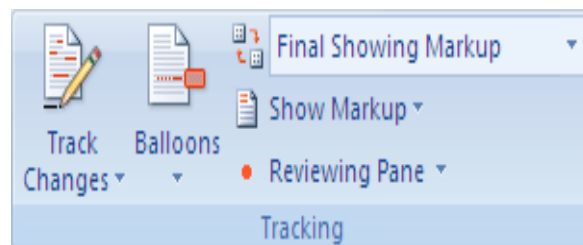

Figure 3: Turning On Change Tracking

 To add a track changes indicator to the status bar, right-click the status bar and click **Track Changes**. Click the **Track Changes** indicator on the status bar to turn Track Changes on or off.   It functions as a toggle switch. (See Figure 4.)

Figure 4: Track Changes Indicator on the Status Bar

How to Turn Off Track Changing

When you turn off change tracking, you can revise the document without marking what has changed. Turning off the Track Changes feature does not remove any changes that have already been tracked.

To remove tracked changes, use the **Accept** and **Reject** commands on the **Review** tab in the **Changes** group.

1. On the **Review** tab, in the **Tracking** group, click the **Track Changes** image to turn it off. Or click the Track Changes Indicator on the Status bar if you added it as described earlier.

All of the following metadata features can be explained and demonstrated for the students in the Business Communication class after first telling them what metadata is and why it's important that they know about this concept. The following examples of real metadata "bloopers" will explain how the misuse of metadata can be harmful to the company sending it or very embarrassing to the individual receiving it.

Metadata Cautionary Tales

Teaching students and others, such as faculty and members of the business community, about metadata is more than a simple exercise of show and tell. The non-expert computer user will likely give as little regard to this information as they do to the issue of computer security in general. To help impress them with the implications of metadata, some real life cautionary tales should be beneficial.

One way to get a student's attention is by giving examples dealing with people about whom they have heard. Perhaps the most notorious person to have been brought down by his ignorance of metadata is Dennis Rader, the infamous BTK killer, who eluded police for 30 years. He may have been a clever killer, but he lacked computer savvy. Rader asked the police whether there was any way for them to trace him if he put his writings onto a floppy disk. Naturally, the police said they could not. As set out on the Web site for the United States Department of Justice's National Criminal Justice Reference Service: "the case of the Wichita, Kansas BTK serial killer was solved by using metadata to link a computer disk mailed to a television station with a computer in the BTK killer's church" (Etter & Henshaw, 2006).

Three more mundane examples of blunders involving metadata are to be found at the American Bar Association's Web site:

> October 2000: The Wall Street Journal reports that a candidate running for the U.S. Senate began receiving anonymous emails containing messages written in MS Word criticizing and attacking the candidate. A savvy aide looked at the document properties and discovered they were authored by the chief-of-staff of the opposing party.

> February 2003: A dossier on Iraq's security and intelligence organizations, cited by Colin Powell and published by 10 Downing Street, is discovered to have been plagiarized from a U.S. researcher on Iraq. Since the dossier was published on their website in MS Word format, researchers also discovered the four people in the British government who edited the document. They were subsequently called to Parliament for a hearing.

> March 2004: SCO Group, seller of UNIX and Linux, sent out a warning letter to 1,500 of the world's largest companies threatening legal liability for using Linux if they failed to obtain a license from the Utah-based company. After filing suit against Daimler-Chrysler, metadata in a MS Word document revealed that

the SCO's attorneys had originally identified Bank of America as the defendant (Reach, 2004).

While there is no duty to create evidence, such as metadata, to help a potential plaintiff for a suit that does not yet exist, the law, however, is violated when an individual or company is being sued, or reasonably expects to be sued, and destroys evidence, including its own metadata. In legal parlance this is referred to as spoliation (Black, 1979), and it was an integral part of the lawsuit that ultimately sealed the fate of the Arthur Andersen accounting firm in the wake of the Enron collapse. Given the inevitability of a lawsuit emanating from that collapse, the jury considered the document destruction policy of Arthur Andersen a smoking gun.

As stated by the U.S. Supreme Court:

On October 10, Odom spoke at a general training meeting attended by 89 employees, including 10 from the Enron engagement team. Odom urged everyone to comply with the firm's document retention policy.   He added: 'If it's destroyed in the course of [the] normal policy and litigation is filed the next day, that's great. . . . [W]e've followed our own policy, and whatever there was that might have been of interest to somebody is gone.

Metadata has been discovered by the legal community and it is now a routine part of the discovery process. All companies should be aware that, if possible, it will be used against them in a court of law.

Conclusion

Communication "is the process of transferring information from a sender to a receiver. The essence of communication is sharing – providing data, information, and insights in an exchange that benefits both the sender and the people with whom you are communicating" (Daft, 2003). This is even more paramount in a business setting because effective communication is vital to the overall success, not just of the organization, but to the employee as well. "Evidence of the importance of communication in business is found in numerous surveys of executives, recruiters, and academicians. Without exception, these surveys" reinforce what Business Communication professors have been teaching their students for years: that communication ranks close to the top of skills needed for business success (Lesikar, Flatley, & Rentz, 2008).

While college students are being taught that effective communication skills are vital to personal success and professional advancement (Fisher, 1998), so is a clear understanding of the litigious climate that exists today for most businesses. A typical US firm faces 305 lawsuits annually, doling out $12 million to defend those cases – excluding settlements or judgments (Mullins, 2007). Unknowingly creating invisible information [metadata] within a corporate document, and then sharing this information with a potential plaintiff who may be able to use this data against the firm in court is not only unconscionable but preventable. Faculty who teach Business

Communication courses today should teach the basics of metadata: what it is, how it's created, how to delete it, and why it's important to know about this concept.

Metadata, which is a normal outcome of collaborative writing, has both positive and negative ramifications. To IT professionals, metadata is a useful tool as it provides an index to company computer archives aiding in maintenance and retrieval. Conversely, fragments of other files or previously deleted information may be inadvertently attached or invisibly embedded into the saved document (Ward, 2003). Therefore knowledge imparted at the collegiate level can not only help to exploit the usefulness of metadata but to prevent its unintended creation and release.

Because information sharing and the interpersonal data exchange process have become more fast-paced and complicated, thanks to the phenomenon of hidden data in electronic communication, it is almost obligatory to incorporate the concept of metadata into Business Communication classes. According to the Association of Business Communication' website, the "Association for Business Communication (ABC) is an international organization committed to fostering excellence in business communication scholarship, research, education, and practice" (http://www.businesscommunication.org/about/about_abc.html).

In practice, the creation as well as the prevention of metadata dissemination is an important and vital concept to teach in Business Communication classes. Electronic communication has become a way of life for organizations wishing to share data effectively as well as efficiently (Lesikar, Flatley, & Rentz, 2008). The Florida Bar Association identified several options available to the corporate communicator who wishes to minimize the negative repercussions resulting from inadvertent metadata creation and/or sharing. One such technique is the use of Adobe Acrobat Portable Desk Format (PDF) document creation software instead of Microsoft Word programs. Anecdotally, this is the preferred technique currently utilized by several governmental agencies.

Utility "scrubber" programs provide another level of protection for use with Microsoft Word documents. Furthermore, Microsoft has been so vocal about problems associated with the creation and storage of metadata that it created a web page support link to not only alert users to the problem, but to provide a step-by-step tool to guide in the removal of hidden information (Libbenga, 2004).

Therefore, by teaching college students about the concept of metadata -- how it is created as well as the risks and implications associated with its use in the workplace -- Business Communication teachers are not only teaching a relatively new concept which most students aren't aware of, but they're also teaching students how to protect themselves and their employers from lawsuits and potential embarrassment.

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