WIKIS, BLOGS AND THEIR USE IN THE WATER/WASTEWATER WORLD

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ABSTRACT

It would be difficult to find anyone who spends time on the Internet who has not heard of weblogs, better known as "blogs". Wikis are less well known, though Wikipedia, the free online collaborative encyclopedia is helping to change that (www.wikipedia.org). Both tools are regarded as a new communication channel and the "voice of the people". Up until very recently their use in the business world to manage knowledge, collaborate or implement new processes was nil and often dismissed.

But being dismissive about blogs and wikis because of how they are most often used today is a mistake (PCs and web browsers weren't considered as serious business tools at first either). What is important is how they *could* be used. With so many utilities across the nation experiencing massive infrastructure upgrades and the exodus of their most informed employees (due to retirement) both occurring at the same time - - being able to manage knowledge, collaborate and immediately document new processes are more important now than ever before.

This paper explores how these two forms of what is termed "emergent technology" are being used in the business world. This use is then extrapolated to how they might be used in our world of water and wastewater, including a case study of a wastewater treatment plant using a blog as a communication/learning tool for their EMS for Biosolids program.

KEYWORDS

Blogs, Discussion Boards, Emergent Technology, EMS for Biosolids, Integrative/Adaptive Learning, Learning Organizations, Self-Organizing Tools, Shared Knowledge, Wikis

INTRODUCTION

Change is occurring at an ever-increasing rate in every facet of our lives. The workplace is no exception. Ever changing regulations, tools and technological advances demand that organizations and employees of these organizations be constantly learning new skills and adapting to new work environments. How this information is shared, documented, updated, and integrated into the daily work life becomes increasingly complex. Add to that our reality in water and wastewater world of having to deal with major portions of our treatment plant's infrastructure being upgraded or rebuilt while experiencing twenty percent (or more) attrition due

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to the employees of the baby boomer generation reaching retirement age, and you have a real headache. Leaders need to constantly decide when to turn to new technology to assist with these demands and when to rely upon tried and true practices.

This paper explores the possible use of two online tools known as Wikis and Bogs. It is hypothesized that, given the right conditions, either can serve as viable tools for learning and communicating key and/or complex information within an organization.

Definition/History of Wikis and Blogs

Wiki-wiki is the Hawaiian word for quick. Wiki Wiki Web sites (Wikis) are sites designed for users to be able to make additions or edit any page of the site. They often have a common vocabulary, and consider themselves a "Wiki" community. Wikipedia, www.wikipedia.org, a free online dictionary that anyone can edit, is a prime example of a wiki. A wiki enables documents to be written collectively in a very simple markup language using a web browser. A single page in a **wiki** is referred to as a "wiki page", while the entire body of pages, which are usually highly interconnected via hyperlinks is "the wiki"; in effect, a wiki is a very simple, easy-to-use user-maintained database for searching information.

A “blog” is short for weblog, an on-line web-zine or diary (usually with facilities for reader comments and discussion threads) made accessible through the World Wide Web. It is a web site that contains dated entries in reverse chronological order (most recent first) about a particular topic. Functioning as an online newsletter, blogs can be written by one person or a group of contributors. Entries contain commentary and links to other Web sites, and images as well as a search facility may also be included. Blogs took off in 1999 after blog development applications such as Pitas, Blogger and GrokSoup were released. The template-based software made it easy to create an online blog and continuously add entries without having to write the pages in HTML. Blog hosting services make it even easier to create a blog. All the development is done through the browser, and no software downloads are required.

By the end of 2005, there were more than 20 million blogs, and there are sites that track and index them (visit www.technorati.com and http://blogsearch.google.com). After the 9/11 attacks in New York, blogs were used to convey information, thoughts and feelings faster than any previous method. On controversial issues as well as mainstream subjects, blogs can quickly reach people around the world. The "blogosphere," which is the world of blogs, has become such a forum for public expression that it is being routinely crawled for reactions and opinions about products, politics and issues of all kinds.

METHODOLOGY

For the first few years of their existence, wikis and blogs were only found in the private world. There was little, if any, use of either of these tools in the corporate world. Recently, however, this has begun to change. Corporations initially began to use blogs as a way to communicate their products in rich and robust detail to potential customers. And even more recently, corporations are using blogs as an internal communication and/or training tool. As can be expected, most of the high tech corporations such as IBM, Google and Microsoft all now have

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blogs operating both within and outside their corporate firewall as a way to increase the flow of information among their diverse work groups.

Closer to home, in the public sector, the U.S. Central Intelligence Agency (CIA), has begun to look at using these two emergent technology tools. Their officers must operate in real-time worldwide decision and implementation environment. This means they need to figure out ways to give their officers more autonomy in the context of information sharing. "*The rapidly changing circumstances in which they (CIA officers) operate take on lives of their own, which are difficult or impossible to anticipate or predict. The only way to meet the continuously unpredictable challenges ahead is to match them with continuously unpredictable changes of our own.*"[1]

The description of the CIA's work environment doesn't read too far from our own rapidly changing world of water and wastewater treatment. On both the regulated and the regulator side of the equation, we are faced with several overlapping phenomena that make it critical to communicate, train and continually update information to our employees in real time. Many treatment plants are in the throes of massive infrastructure upgrades and expansion. At the same time, many of our most senior and knowledgeable employees are reaching retirement age with some utilities reporting twenty percent or more annual attrition. As a result, we must manage and archive their tacit knowledge before they leave and then, somehow, communicate it to their replacements. And, given the dwindling number of potential new employees in the U.S. workforce, public utilities are in fierce competition with the private sector to attract the skilled younger workforce. The need to train employees and keep them apprised of process and other changes in real time is greater than ever.

Perhaps in our own continuously unpredictable world, it is time to look at using wikis and blogs to address some of our needs?

Creating a Blog Site

A test blog site was created within the Metro District's firewall. A template found on www.hostforest.co.uk was selected because it was free, licensing agreements were not required, and it appeared relatively easy to install and use.

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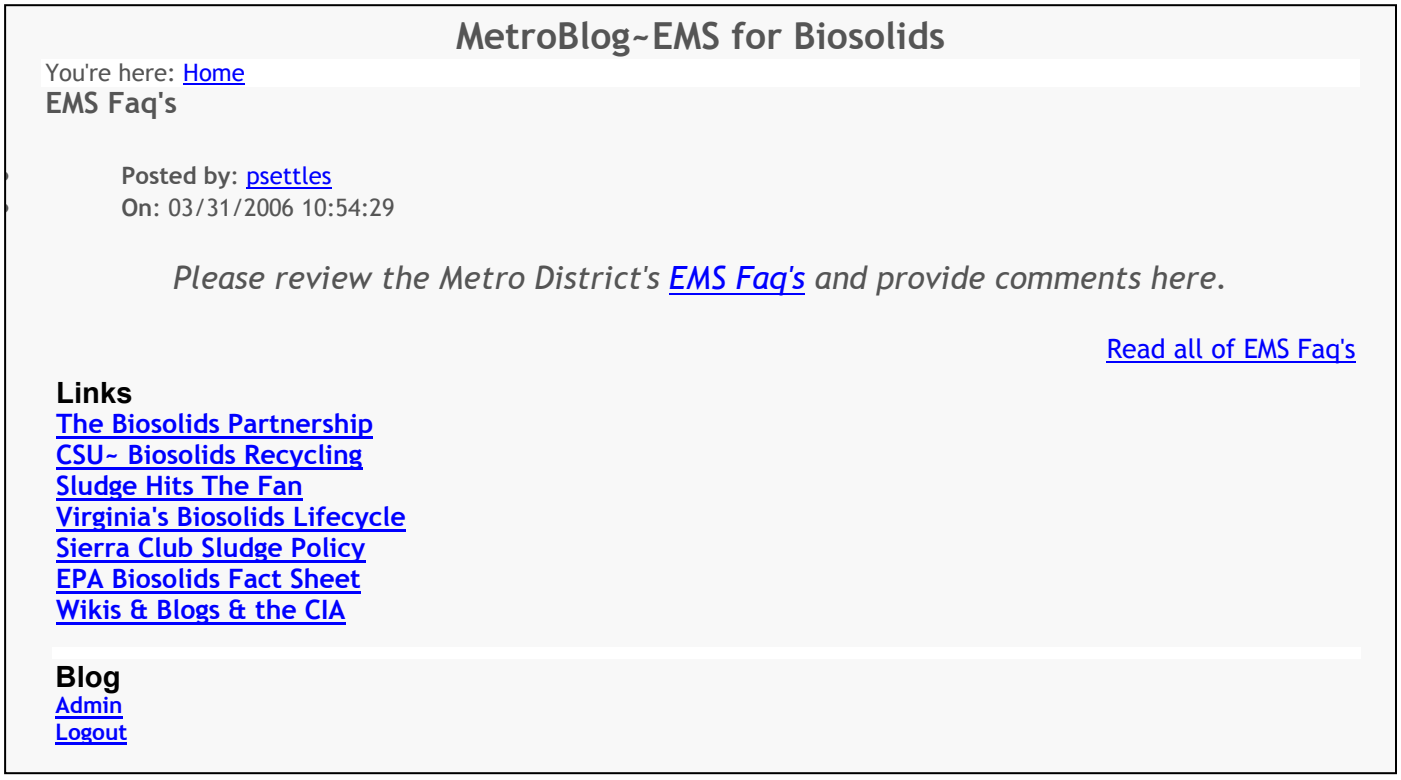
Figure 1. MetroBlog Home Page



Hypothesis

Employees who are allowed to share information and act upon it within a simple set of guidelines will emerge as a community that continuously and dynamically reinvents itself in response to the needs of the organization.

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Developing a Beta Test

To test this hypothesis, a finite community of employees linked together with a common goal or need was required. A diverse group of employees were selected as the target audience (AKA: "bloggers") for test blog site focused on the EMS for Biosolids program in place at Metro Wastewater Reclamation District (MWRD), a publicly owned treatment plant located in Denver, Colorado. Continuous improvement is key to their EMS (Environmental Management System) and to achieve this requires employees to integrate the principles of the program in their daily work life.

Leadership guru, Peter M. Senge writes that in the increasingly dynamic, interdependent, and unpredictable world, it is no longer possible for anyone to "figure it all out at the top." The old model, "the top thinks and the local acts," must now give way to integrating thinking and acting on all levels. The key to organizational longevity, according to Senge, is the ability to run "experiments in the margin," to continually explore new organizational opportunities for improvement.[2]

This new model is inherent in a continual improvement management program such as an EMS. Somehow, employees must integrate the program's vision, principles and code of good practice in their daily work life. Employees can attend training sessions on an organization's EMS, watch videos and answers questions on quizzes, yet still not really "own" their role in the program. It was thought that implementing a blog focused on the production of quality biosolids in general, and the Metro District's EMS for Biosolids program in particular, might prove to be the long term, continually updated, real time communication and training tool that such a program required.

One feature that is crucial for a blog site is the ability for the bloggers to communicate freely among themselves; thereby making the information shared their own. Free form thought is the essence of blogging. Because of Colorado's Open Records Act, however, it was not possible to allow bloggers to say whatever they pleased. The self-editing ability of the bloggers was vital. But, in the spirit of blogging, the only guideline imposed upon the bloggers was to remain professional (i.e. no profanity) yet candid in all of their remarks.

Sixteen employees from all departments across the organization were selected to be test bloggers. Administrative and plant employees were selected as were both senior and entry-level employees. Also, both long-term and recently hired employees were also represented in both the test group of bloggers and their control group counter part. Employees from both the test and the control group completed a questionnaire related to biosolids in general and to the Metro District's EMS for Biosolids program in particular. Then an orientation meeting was held with the test bloggers to cover guidelines, expectations and other test related information. The test ran for eight weeks with bloggers required to log on and interact with the site at least twice a week. At the conclusion of the test, bloggers and control group were given a post questionnaire. Members of each group also attended a round table discussion/debrief session.

Table 1 is a sample chart used to identify blogger and control group members and to compare scores of each group's pre and post test questionnaire scores.

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RESULTS

At press time the final results of this study are unknown. Limited staffing resources delayed the initiation of the test. At press time the test was 2 weeks underway with six more weeks to go.

Early feedback from this test suggests that providing a blog site where employees can freely discuss and dissect new material does help with integrating the information. As the discussions becomes more candid and more fluid, the depth of questions and the richness of the responses also increases.

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Table 1 – Selection chart with pre/post scores

Employee/Blogger Exempt (E); /Non Exempt (NE)	Pre Score % Correct	Post Score % Correct	% Change +/-
Adm – E			
Adm - E			
Adm - E			
Adm - E			
Adm - NE			
Adm - NE			
Adm - NE			
Adm - NE			
Plnt Fld - E			
Plnt Fld - E			
Plnt Fld - E			
Plnt Fld - E			
Plnt Fld - NE			
Plnt Fld - NE			
Plnt Fld - NE			
Plnt Fld - NE			
Employee/ Control Group (non-blogger) Exempt (E); Non Exempt (NE)	**Pre Score % Correct**	**Post Score % Correct**	**% Change +/-**
Adm – E			
Adm - E			
Adm - E			
Adm - E			
Adm - NE			
Adm - NE			
Adm - NE			
Adm - NE			
Plnt Fld - E			
Plnt Fld - E			
Plnt Fld - E			
Plnt Fld - E			
Plnt Fld - NE			
Plnt Fld - NE			
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Actual final results will be provided as a separate handout at WEFTEC 06 ~ Session 52.

DISCUSSION

Andragogy, the study of how adults learn, reveals that adult learners must be given a chance to "wrestle" with, dissect and challenge new information before they can truly know it[3]. Providing a mechanism, such as a blog site, where employees can have free form dialog on a given topic creates that needed component of adult learning. The outcomes from participating on a blog site are similar to those participating in small group discussions in the context of a training class. What is different, however, is that this discussion takes place without the employee having to be scheduled into a class. Also, as the words that are shared are maintained for a period of time, what was "said" can be "heard" in asynchronous time and archived for future reference. A classroom discussion is recalled only through the flawed memories of those participating in the discussion.

The challenge in implementing this study was obtaining the time commitment needed for the test and group. As the outcomes were so dubious, and the employee's time such a limited commodity, it became difficult to agree on an 8-week period in which all 16 participants would be available to participate a minimum of two hours per week. In a real blog-for-learning setting, however, it would not be necessary to garner this commitment. Schools across the country are recognizing the huge gains to be had by hosting a web blog. Harvard Law School hosts over a hundred blogs on wide variety school related topics[4]. The student actively participates in the discussions 24/7 - - when the learner is available, alert and motivated.

CONCLUSIONS

Due to the 24/7 nature of the wastewater business, it is a chronic challenge trying to schedule training at a time that matches the employees' availability, alertness and motivation cycles. This becomes especially problematic when needing to train employees on 2nd and 3rd shifts. E learning has become a great tool for addressing some of these challenges, but the inherent complaint is that the rich discussions that can take place in the classroom setting do not occur as readily online. Blogs can serve as a powerful way to connect employees in asynchronous time to dissect, wrestle with and come to really know a topic.

Blogs can also be put to use to discuss new treatment processes, significant events, and unexpected changes with all impacted individuals in their own time. The inherent informality of blogs supports the true learning. Adults learn best when relaxed and engaged.

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REFERENCES

[1] Andrus, D. Calvin, Ph.D. (2005) The Wiki and the Blog: Toward a Complex Adaptive Intelligence Community; *Studies in Intelligence*, **49**, 3.

[2] Senge, Peter M. (Fall 1990) The Leader's New Work: Building Learning Organizations; *Sloan Management Review*; pp 23.

[3] Swanson, Richard A and Holton, Elwood F. (Aug 2001); *Foundations of Human Resource Development*; Berrett-Koehler Publishers, Inc.; San Francisco, CA.

[4] www.blogs.law.harvard.edu

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