Common Sense Computing: An Approach to Community Outreach with IT

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ABSTRACT
This poster paper describes a series of 2-3 minute radio segments called "Common Sense Computing" designed to provide common sense explanations of computing technology. Computers and computing touch the daily lives of most everyone today. However, the world of computing can be frustratingly complicated and arcane. "Common Sense Computing" is dedicated to making computing more interesting and relevant to individuals through straightforward analogies to the physical world. The motivation for this work is the observation that a growing segment of our society relies on computing technologies an appreciation for the limitations and risks. I describe the format and topics that I have found most effective over the past year of producing segments and airing them on a local radio station.

Categories and Subject Descriptors
K.3.0 [**Computer and Information Science Education**]

General Terms
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1. INTRODUCTION
As a instructor of computing courses, I frequently have opportunity to speak with students, parents, prospective students, college staff and other community members about their computing questions. I have observed a set of some common concerns. First, many people are well versed in the details of using specific pieces of software, but have fundamental misconceptions about how the underlying technologies work. Second, people are quite concerned about the risks from computer viruses and other malware. I decided to experiment with addressing these common concerns in a series of weekly broadcasts on a local radio station. The series of 2-3 minute radio segments is called "Common Sense Computing" and is designed to provide common sense explanations of computing technology [1]. In this poster paper, I describe what I have learned in the process about community outreach in this format.

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2. FORMAT
I experimented with several different formats for the radio show. From the beginning, I produced 2-3 minute segments on computing technologies. I modeled the series after similar informative, engaging, interstitial series often heard on public radio stations such as the Weather Notebook [2].

The Weather Notebook is nationally syndicated radio show about "weather and everyday life". It consists of 2 minutes of light-hearted weather wisdom. They explain weather phenomenon, address common misconceptions about weather patterns and discuss issues of concern such as global climate change. The two-minute segments deal with scientific topics, but in a common sense and engaging manner.

Although shows like the Weather Notebook deal with technical and scientific topics, they are still of general interest because weather affects everyone's daily life. Similarly, computers and computing touch the daily lives of more people everyday. A growing segment of our society relies of computing technologies without a good basis for understanding the risks and limitations.

At first, I paired these short, educational segments with an opportunity for listeners to call in with questions. I tried a call-in show where I would answer listeners' questions. However, I found that this was not particularly effective. Most questions were detailed questions about how to use a particular piece of software. As a result, the answers were rarely interesting to a general audience. I found it much more effective to provide high-level explanations in the form of clear analogies. In the next section, I describe key messages and topics I have addressed.

3. KEY MESSAGES
Based on questions and feedback from community members, I have focused on addressing several key areas of question and concern.

Users want to understand at a high-level how the computing technologies they use work. For example, I have produced segments on what it means to program a computer, how an email gets from your computer to the intended recipient, and what the parts of a URL mean. Users also want to understand the limits of technologies they rely on. For example, I have explained how easy it is to forge an email so that listeners know not to rely absolutely on the sender's name for identification.

Users want to understand how to make their computer system more secure. I have focused on helping users develop a general

understanding of how attackers gain a foothold in their system. For example, I wrote one radio segment explaining to users that all programs they run on their computer run with their full privileges. I explained that if they can delete one file, then any program they run could delete all their files. If they can send one email, then any program they run could send thousands of emails with copies of a virus. I explained that any time they open an email attachment or click on a web link they are potentially running a program with their full privileges. Similarly, most users do not understand how an idle computer system that is attached to the network can be attacked. I explained that they need to watch for server software that may be running on their computer listening for commands over the network. I explain how each such program is a possible avenue of attack.

I try to focus on helping listeners put the risks of computing technologies into perspective. In the realm of physical security, we lock our doors even though we know attackers could break the window. Similarly, the series emphasizes that computer security is not a matter of preventing all attacks but rather a matter of matching the level of deterrents to the value of the resource being protected. It also encourages a broad view of computer security that includes not only prevention, but also monitoring for illegitimate access and recovery in case of attack.

4. REFERENCES

[1] Common Sense Computing, http://www.commonsensecomputing.org, Viewed July 1, 2005.

[2] The Weather Notebook, http://www.weathernotebook.org, Viewed July 1, 205.