Why Educational Institutions Should Embrace Freeware

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Abstract: Educational systems have historically led the way for freely sharing knowledge. As the costs of education rise many are curtailed from continuing their pursuit of knowledge. To be successful as a student or educator, we rely upon our computers and our word processing and office suite program. Popular belief is there is only one choice, priority software. However, there are viable alternative office software solutions. These alternatives are offered freely to the world by the open source community. These alternatives are offered either entirely without cost or at minimal cost if technical support is needed. It is imperative that educators take the time to learn of the benefits of freeware and incorporate it into the educational system.

Introduction

Free software, especially for educational purposes, has been firmly established for years. Developing and sharing software freely was the cultural norm for software engineers. The freeware grassroots movement had its birth with Richard Stallman (inventor of the EMACS editor) and his GNU project. GNU was offered as an alternative to using UNIX, but over the years, the freeware movement has evolved to include office productivity suites (Stallman, 2008). Education has played an essential part in the early development of the Internet and freeware. The Internet began as the interconnection of computers within and between universities. Since its inception the Internet has been home to a number of free information exchange sites and free software organizations, among them are;

> ". . .the Internet Archive (see http://internetarchive.org), Project Gutenberg (see http://gutenberg.org), Wikipedia (see http://wikipedia.com), Creative Commons (see http://creativecommons.org), Sun Microsystems Global Education Learning Community (see https://edu-gelc.dev.java.net/nonav/index.html) and, as is the focus of this article, the OpenCourseWare Consortium (see http://ocwconsortium.org). The list of participating organizations grows every year as the principles of openness spread." (Caswell et al, 2008).

Early software programs addressed only operating systems. The growing dependency upon computers produced a need for additional types of software, including programs that are designed to improve the productivity of the user. Productivity suites are the group of software programs most familiar to students. They generally include a word processor program, a spreadsheet program and a program to create slide presentations. This software category is dominated by the commercial Microsoft Office package. The user is often unaware that they have a choice between proprietary software or freeware.

The critical difference between propriety software and freeware is the open source aspect of the program. With freeware, anyone can view the program and make corrections if they find an error, or what is commonly known in the computer field, as a bug. There is also the issue of costs. This paper will offer a review of theory and literature addressing why the rational choice of education should be freeware. It will also address the trend for software standardization, how to avoid documents that may become obsolete and some examples of institutions and businesses that have made the decision to migrate to freeware.

Theoretical Foundation

Max Weber studied bureaucracy extensively. In his studies he noted that the establishment of rational institutions could lead to an inevitable draw back, a situation he called the "iron cage" that envelopes rationality. This situation arises from the establishment of traditions and ideals that once established cannot be easily changed. Addressing education specifically, Max Weber notes that a system that is designed to promote specialized examinations and certifications is by nature in opposition to any democratic system.

> "Democracy also takes an ambivalent stand in the face of specialized examinations, as it does in the face of all phenomena of bureaucracy – although democracy itself promotes these developments. . . . On the other hand, democracy fears that a merit system and educational certificates will result in a privilege 'caste'. Hence, democracy fights against the special-examination system." [Gerth and Mills, 1946, 240].

We see this with the rise of capitalism in the software environment. The freeware community began with the concept that software should be freely shared, expanded upon, corrected and offered to the world. Yet corporations have overshadowed this intention with the establishment of proprietary software, for which users must pay licensing fees to acquire and maintain.

The propensity to favor proprietary software over free software is a symptom of this caste or elite nature of education. Education is no longer for everyone. These additional costs limit access to education and makes education available only to those of financial means.

Weber notes of the capitalistic nature "No one knows who will live in this cage in the future, or whether at the end of this tremendous development entirely new prophets will arise . . ." [Weber 1904-05/1992, 182]. Education has the unique opportunity to be the

new prophet Weber foresaw. Education should be the one institution that does not become so steeped in tradition that it cannot see the advantage and the possibility of change.

Literature Review

Whether we like it or not, technology affects how we live. Once nomadic tribes invented simple tools making it possible to live in one area, technology has precipitated social change (Lenski, 1966). Technology can also be a crux for conflict. This is a very common and old situation, as exemplified in the words of Machiavelli, in The Prince:

> "Innovation makes enemies of all those who prospered under the old regime, and only lukewarm support is forthcoming from those who would prosper under the new. Their support is indifferent partly from fear and partly because they are generally incredulous, never really trusting the new things unless they have tested them by experience." (Machiavelli, 2005).

The mindset of competition over new innovations continues with the introduction of each new invention. It has become commonplace, so much so that we don't believe that we can ever acquire good new technology without paying any price asked. This has been part of the American ideal since the inception of this country. Thomas Jefferson said, "The worst day of a man's life is when he sits down and begins thinking about how he can get something for nothing." With this deeply instilled in our American collective consciousness, it is no wonder that many shy away from the revolutionary idea of free software.

What we fail to see is how this blind devotion to ideals that are past their time limits our future possibilities. We have become slaves to competition for the sake of competition, rather than applying critical thinking when choosing a product. Georg Simmel notes "Competition, above all competition among the makers of the highest intellectual products, makes those who are destined to guide the mass subordinate themselves to it." (Simmel, 1955). Consumers seem to bond with the competition process, attributing greater value to the commodity according to the competition, not the value of the item. As a result, when the creator of an item offers their wares freely, it is believed that lack of competitive value has a direct correlation with the value of the item. This assumption is often made with the benefit of personal evaluation of the product.

A quality product that is offered freely is a revolutionary idea for a capitalistic society. Of course, social movements that affect social change are often the product of revolutionary thinking.   This country has seen many social movements that affect positive changes in society as a whole. A social movement is described as;

> "any broad social alliance of people who are associated in seeking to effect or to block an aspect of social change within a society. Unlike political parties or some more highly organized interest or pressure groups, such movements may be only informally organized, although they

may have links with political parties and more institutionalized groups . . .” (Jury and Jury, 1991).

Change is often born from oppression or deprivation.   For many computer uses, proprietary software creates an air of oppression. Richard Stallman, founder of the Free Software Foundation, states “It is better not to use computers than to use proprietary software.” (Tennant, 2008). Stallman voices the concerns of those who have joined the freeware social movement. Propriety software is seen as the oppressor, whose sole purpose is to subjugate the user. Richard Stallman goes on to say;

> "It's completely misguided to try to make something a big success if it's doing a bad thing," he said. "Proprietary software subjugates the user. It's an injustice. And the idea that it's good to get people using computers regardless of everything else is shallow and misguided. . .” (Tennant, 2008).

Stallman and other proponents of freeware have successfully organized a new social movement. Unlike the old social movements that addressed the social ills that accompanied labor, new social movements take on concepts such as intellectual property.

> These theorists were as interested in the changing contours of the larger society as they were with the new movements that responded to them; the emphasis on “newness” was as much about changes in social order as it was about new protest forms. Thus, just as Marxists argued that the “old” labor movement was a logical response to industrial capitalism, new social movement theorists argued that new movements were equally logical responses to a new social formation identified as post-industrial, information-based, postmodern, or advanced capitalist society. This insistence on examining the links between changes in social structure and social activism was the most distinctive aspect of NSMT” (Buechler, 2007).

Those that are willing to separate the competitive process that by nature inflates the price of a commodity and instead evaluate products purely on merit will find that alternative productivity suites are the better option for educational systems.

Is a change possible?

> *“A business can't afford to be married to any one solution. Why, then, is Microsoft Office a sacred cow in many organizations?” Jonathan Feldman, contributing editor to Network Computing.*

As Max Weber noted, once a bureaucracy becomes established, it would sooner breed inconsistency than make the rational changes needed for efficiency. The efficiency initially realized by the bureaucracy becomes an “iron cage” limiting the institution to habits and traditions that resist the change of progress. This can be seen nowhere more clearly than in the blind allegiance to entrenched proprietary software.   Consumers are often unaware that there are alternative software options available to them. The field of

education is in the unique position to take the lead towards freeware and teach those who follow how to benefit from it.

However, it would be naïve to believe that changing an ideology would be as simple as presenting logical reasons for the change. Jonathan Feldman shared his personal experience in spear-heading the change to freeware and the steps he found beneficial to affect the change. His nine steps to a successful migration include a fiscal analysis comparing available options. He suggests gaining the support of upper management. Feldman also notes that introducing the freeware software and showing how the individual will benefit could be presented in "lunch and learn" demonstrations. The process of migration needs to incorporate training and follow-up surveys, in order to address any concerns. This would be an ongoing process until the work place has migrated 100% to freeware office suites (Feldman, 2007).

Proprietary software is experiencing a global rejection due to its incompatibility and frequent changes. With the push towards standardization, eventually everyone will be looking for alternatives to proprietary software. The field of education can led the way for this change, by taking the lead in learning and incorporating freeware into its classrooms.

ODF Standards

The computer, as any other tool, should follow set standards. The importance of having software standards relieves the worries of documents becoming obsolete or the inability to read a document with any software package. The International Organization for Standardization (ISO) is a global federation of national standards bodies from approximately 100 countries. ISO standards are accepted worldwide as the method by which manufacturers and service providers can achieve maximum convenience and efficiency in the exchange of goods and services.

These standards govern a wide variety of activities, from medical devices to environmental management systems and standards for social responsibility. The ISO has also set standards for electronic documents, called the Open Document Format or ODF (http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=4348 5). The standards established in 2006 outline a common representation for text documents, spreadsheets, charts and graphs. These items are common objects in the delivery of education. It is imperative that educators understand the importance and impact of the ODF standards. Continued use of formats that do not adhere to these standards leaves the user open to the possibility of their documents becoming obsolete.

Institutions Recommending Change

Many institutions, governments and individuals have recognized the benefit of making the change to freeware. BECTA, the British Educational Communications and Technology Agency is the UK government's lead agency in setting technology policy for schools. It also provides advice to schools about technology deployment, and assists with procurement. With the introduction of Microsoft's latest versions of

Windows and Office, this agency conducted a review of the benefits for accepting the latest version of that software. In January 2007 the results of that review was published. BECTA found that the updates in the latest versions of proprietary software were not cost effective. This study also found that freeware was the better alternative to upgrading to the newest version of proprietary software. The decision to migrate to freeware is not a cost free decision; however, this agency determined that the educational system in England is better served by migrating from proprietary software to freeware.

The city of Munich, Germany is in the process of migrating away from proprietary software to freeware. This migration process is referred to as their "Declaration of Independence" and has been on-going since 2003. The City of Munich found the freeware alternative as a result of a proprietary software company's habit of continual and constant updating rendering earlier versions, obsolete. "The City commissioned a consultancy to study several solutions, both proprietary and open source, with regard to their cost effectiveness, technical feasibility and strategic implications. The result of this preliminary study phase from 2001-2003 was a tie between a Microsoft-based solution and an open source variety." Retrieved March 25, 2009 from http://www.osor.eu/case_studies/declaration-of-independence-the-limux-project-in-munich.

In the case of the City of Munich, costs was not the determining factor for choosing freeware, rather it is the freedom from proprietary software. In some situations, the short term costs for migrating to freeware were more costly than staying with the proprietary software currently used. However, freeware gives the city a freedom that is not available in proprietary software, the freedom to make software decisions that suit the needs of the city. Each department is able to create software packages unique to their needs. This migration more importantly offers the City of Munich the opportunity to standardize the city's heterogeneous IT environment.

In 2008, IBM Chief Information Officer, Mark Hennessy and Vice President Gina Poole issued a memo urging the firm's staff to migrate towards productivity suites that meet ODF standards. Like the City of Munich, IBM recognized the importance of using standardized software packages. Not only will this migration eventually free the company from routine expensive software upgrades, but it gives the user control over their digital records.

President Obama's new federal Chief Information Officer, Vivek Kundra, was previously CIO for the Washington, D.C. city government. In that role he led a migration to freeware to fight against government waste. He shifted 86,000 workers to a freeware suite of applications called Google Apps. Google Apps is a group of applications and tools delivered through a web browser. It includes such well-known offerings as Gmail. Google also provides spreadsheet, word processing and presentation software. Google Apps stores documents in Google's own servers, so the format of the original document is irrelevant. However, it can load and save documents from the user's own PC. It supports a number of formats, including the ISO ODF standard and Microsoft's legacy format. On March 5, 2009 Kundra was named to the top information technology post in the federal government taking the title Federal CIO (Chief Information Officer). This new office

will establish and oversee the enterprise architecture to ensure system interoperability and information sharing. The establishment of this position reinforces the need for institutions to examine their software choices with the ability to work with other software and that is something propriety software resists.

On an individual basis, the trend to use free software is also growing. A recent news article on CNET states that approximately 11 million people currently use Open Office, a free office suite product. "In other words, OpenOffice is not a niche geek phenomenon. With more than 46 million downloads of version 3.0 alone, OpenOffice could prove unpleasantly disruptive to Microsoft's desktop business." (Retrieved on March 25, 2009 from http://news.cnet.com/8301-13505_3-10195845-16.html?part=rss&subj=news&tag=2547-1_3-0-20)

In a different situation, small businesses have found themselves targeted by organizations designed to locate and fine businesses that may not have proper software licenses for proprietary software. The Ernie Ball Company, world-renown for their guitar strings, was the target of a software license raid. Although the company was out of compliance on only 8% of its 72 desktop PCs, the raid ultimately cost $65,000 in penalties, plus $35,000 in legal fees. The Business Software Alliance, a trade group representing proprietary software makers, then used the Ball Company in its advertisements warning others of the consequences of using unlicensed software.   The humiliated CEO of Ernie Ball Company, Sterling Ball, decided to eliminate the use of proprietary software. According to Mr. Ball, the company realized an $80,000 saving with this initial change. This does not take into account all the savings that are realized by not having to buy newer versions of the freeware. (Retrieved on March 18, 2009 from: http://news.cnet.com/2008-1082_3-5065859.html).

Conclusion

The change to freeware is a reasonable direction for any institution to take. Educators must lead the way and be willing to learn how to use the freeware, just as they learned to use the proprietary software. This opens the door to choice and alternatives, rather than being financially enslaved by the proprietary software companies. The benefits for considering free software are two-fold. First, it helps relieve the financial strain placed on educational institutions for the licensing. Second, it offers the student an inexpensive way to attain the vital computer skills needed in the 21st century.

With the problems, bugs and costs that accompany proprietary software, educators should welcome the new influx of freeware alternatives. Along with StarOffice and OpenOffice, open source free productivity suite software includes Zoho Office Suites, Ajax 13, or ThinkFree Premium. Educators have many options they should consider before deciding on which productivity suite they will implement.

President Obama challenged Americans to learn a new skill, educate themselves for the future. That future will inevitably be heavily dependant upon computers. The reliance on proprietary software will limit access to this educational goal.

Educational institutions and educators cannot afford to be slaves to the idealism of competition and capitalism. Instead, educators must keep an open mind when deciding if it is actually possible to get "something for nothing."

This paper has shown the benefits and the problems that face individuals and institutions when buying productivity software. With competitors willing to produce and freely share productivity suites that are comparable to the proprietary productivity suites, it behooves educators to at the very least investigate the possibility of incorporating the freeware into their institutions.

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