

Chapter 17

The Education Part of Green Computing in Higher Education and Beyond

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ABSTRACT

In order for the population as a whole to consider green computing an essential part of environmental responsibility, the average citizen must be made aware of the issues and motivated to act. Often the users of technology are not technically trained; hence, information must be presented in language suitable for a lay person in this area. This chapter addresses current efforts being made to provide this education. Resources available from the federal government, state governments, non-profit groups, trade associations, and colleges and universities are discussed. In particular, in preparation for this chapter, the websites of all 50 states were surveyed for appropriate information. The entire life cycle of computing equipment is covered so that businesses and individual households are able to obtain the information needed to make environmentally sound technology decisions.

INTRODUCTION

As this book indicates, there is a great deal of good information now available about how to accomplish green computing. However, unless those who purchase, use, and dispose of computer technology know and act on this information, the environmental cost is not changed at all. While some of the purchasers and users of computer technology are well informed about the environ-

mental consequences of their work, most of the general citizenry is not. However, it will take the efforts of a large portion of the citizenry to solve some of the environmental issues around information technology. This requires both education of the general public as well as motivation, all in a discipline which changes almost constantly. The federal government, state governments, non-profit agencies, trade associations, and colleges and universities are all working on the education and motivation issues. Many of these will be cited in the pages, which follow. These are all

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places where someone who is not in a technical field can go for current information, information which is technical enough but understandable for the lay person.

GUIDELINES FOR PURCHASING COMPUTER TECHNOLOGY

Where does the need for education start? Presumably, the process should start when someone decides to purchase a computer or other related electronic device. It is fine to encourage such people to “buy green,” but what does this really mean? Factors to consider are the use of fewer toxic constituents, use of recycled material in the new product, energy efficiency, ability to upgrade or disassemble easily and use of minimal packaging. The Green Electronics Council, a program of the non-profit corporation International Sustainable Development Foundation, manages the Electronic Product Environmental Assessment Tool (Green Electronics Council, 2009). Products registered in EPEAT must meet 23 required environmental performance criteria. Ratings are upgraded as additional criteria are met. The criteria cover such areas as the reduction and/or elimination of environmentally sensitive materials, materials selection, concerns addressing what happens when the item is no longer usable, ENERGY STAR specifications, end of life management, and packaging. The website provides a quick and easy way to get information about the rating of a particular product provided it is registered with EPEAT.

Often other sites will recommend this tool. For example, the State of Pennsylvania’s Department of Environmental Protection encourages its citizens to evaluate, compare and select electronic items based on their environmental attributes. It directs citizens to EPEAT to do this. Ohio’s Environmental Protection Agency also refers citizens to EPEAT as well as the federal government’s Energy Star program (Energy Star, 2011).

Recent research, however, adds a caveat for those who would quickly replace current equipment with more environmentally friendly equipment. Researchers from Arizona State University and Rochester Institute of Technology claim that up to 70% of the energy used in the lifetime of a laptop is consumed during the manufacturing stage. They suggest we would be better off designing devices that lasted longer and could more easily be upgraded, so that not so many would have to be manufactured (Deng, Babbitt, & Williams, 2011).

ENVIRONMENTALLY FRIENDLY USE OF COMPUTER TECHNOLOGY

Purchase of a computer which is more environmentally friendly certainly helps, but what happens after the purchase? Questions of proper maintenance, power conservation during use, and use in general should be considered. It is not hard to find a site on the Internet which encourages users of technology to power down when a device is not in use. However, the State of Maryland has done a particularly good job. There is a logo on the state’s home page entitled “Smart, Green, and Growing.” If one follows a link to information on lowering energy bills, there is good information on the savings achieved when a laptop not in use is unplugged (Maryland Energy Association, 2011). The Maryland Institute College of Art and the Maryland Energy Administration partnered to develop an energy-saving interactive mobile information station that demonstrates to users how to save money and reduce power consumption. The station is designed to educate and inspire as it travels around the state. This mobile display helps to reach people who do not resort to the Internet for information, and it certainly attracts one’s attention (Maryland Energy Association, 2010). New Jersey also makes it easy to find information. There is a “NJ Green” link on the home page, which quickly leads a reader to a site full of helpful ideas. Suggestions are made

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