

## **Looking Back, to Look Forward**

### **Looking Back, to Look Forward:**

#### **Using Traditional Cultural Examples to Explain Contemporary Ideas in**

#### **Technology Education by Kerry Lee**

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### **INTRODUCTION**

What should Technology Education look like for tomorrow's students? Should cultural values, history of a people, globalization, and environment be factored into Technology Education? Preparing for 21<sup>st</sup> Century Learners in a digital world has become a primary focus in education all around the world. All educational institutions are revising and revamping standards for teaching learners Technology Education. One debate is whether cultural history of Technology should be taught and how it should be taught? It is important because multiculturalism has spread throughout the globe in every classroom. This paper is written as a review of Kerry Lee's article which supports the need for cultural history to be taught in the field of Technology Education.

### **IDEAS IN LEE'S ARTICLE**

Scholars such as Kerry Lee argue that cultural history should be taught with technology. Lee points out that other scholars argue that technology should be taught naturally through core subject areas, not as a discipline within itself. This idea to teach

## **Looking Back, to Look Forward**

cultural history of technology within each subject area has been unsuccessful due to the fact that most teachers aren't historians especially not in the technology field, therefore, a surmountable amount of research on behalf of the teachers and students is necessary to teach these human aspects and its influences on technology in English, Math, Spanish, Health, Art, etc. Due to the time involved, the human aspects are never taught in relation to technology in various subject areas. In the real world, cultural history has a great deal to do with technology design. A designer has to be able to please his/her customer, and the culture is very much a part of the design process. For example, if a designer offends the customer due to ethnic insensitivity in his design, the customer will dislike the product. "In product design, the goal of cultural respect can be achieved by incorporating the historical and aesthetic values of users." (Moalosi, 2007)

Lee went on to emphasize the importance of knowing the history behind technology and its use, giving an example from the field of medicine. Lee refers to a skull trepanation which took place over 7,000 years ago. The tools to drill inside the skull were made of flint, poppies (plants) served as analgesics, and mushrooms were digested to prevent inflammation after surgery. Archaeologists' evidence proves this method was effective and survival rate was high. The science was not passed on and thousands of years later the methods were rediscovered at the expense of many lives. Today, drug companies have patents and guard their formulas, and once again, fail to pass on great knowledge that could save many, hoarding information for capital gains. Is this a reflection of a civilized world? Ignoring the past impacts the future, most times,

### **Looking Back, to Look Forward**

very unfavorably. “The students of today need to look at yesterday in order to make a better tomorrow.” (as cited in de Vries, 2006, Starkweather, 2006)

People all over the world view technology in different ways. Lee gives an example of a technology called a fofo’e used to peel bananas. Samoans used it to skin bananas in seconds. Bananas are a main source of food for the Samoan people. Though the fofo’e is of little use to the American culture, it is a valuable innovation to the Samoan people. Culture and design are always interwoven “as design does not take place in isolation but is embedded in its user’s culture” (as cited in Moalosi, Popovic, & Hickling-Hudson, 2010, p. 1).

Lee explains how 6 countries have come together to devise common standards in Technology Education to prepare young learners for a future in a digital world of globalization. According to Aki Rasinen, these six nations have realized that technological literacy is a universal goal. Certain skills are universal, such as the abilities to create technology products, assessment practices, safety practices, the role and history of technological development, problem-solving strategies, and evaluating and valuing the relationship between society and nature. These countries have realized that in every society in the world, cultures have intermixed into multicultural societies, and common value systems and social change have become the norm, for this reason, teaching culture, history, values, environment, and beliefs are necessary and inclusive while teaching Technology Education. “Understanding the interdependence between design and culture is a critical part of technology education. In order to know what one

## **Looking Back, to Look Forward**

wants and needs for the future, it is important to have a good historical and cultural understanding of technological change.” Technology is the bridge between nations.

Today’s Technology has opened a great avenue for global communication and collaboration, even among common folks. Ordinary people attend conferences with global leaders, and work with colleagues half the globe away. Social Media and Cloud Technology is in great demand, and the producers of these technologies are grossing millions/billions of dollars. Money still rules the world, and every technology developer wants to please the people at the top, “...those with the resources to enter the game and define its terms.” (Winner, 1993)

Should technology education be solely based on global needs that may only benefit the needs of the wealthy? For that matter, should technology govern the way we live and force us to adapt? When the Federal Communications Commission along with industry decided that analog television will be replaced by digital televisions and in 2009 industry no longer produced analog televisions, people were forced to replace their analog televisions with digital televisions and cable network. Without cable network, television broadcasts were limited to local channels only. The average American could not afford cable, although fortunately some technology designers came up with alternatives to cable network (i.e., Hulu and Netflix – past episodes of TV shows and older releases of movies, Redbox – latest movie releases and online television episodes and movies like Amazon Instant Video and NBC Live). These technology designers knew there was a need based on the cultural history: the great American pastime was

### **Looking Back, to Look Forward**

watching television (cultural history), and they recognized the need for an affordable way to get channels into their customers' homes. 'Designers who focus on the intelligence and values of the users, rather than the intelligence and values placed on the technology, will produce meaningful innovations.'"(Lee, 2010)

Lee does a great job of supporting the need for cultural history to be taught with Technology Education. Lee uses a variety of scholarly writings to argue the pros and cons of how cultural history should be taught by teachers. However, he did not have statistical data to support his argument. Technology Education has been in Universities and Colleges for at least 30 years. My college roommate was a Computer Science major who coerced me into taking a FORTRAN programming language class with her back in 1978. She was offered a job with NCR and later dropped out of college for full time employment. This decision paid off for her, she continued her education, is in middle management for Boeing International Corporation, and is now one year from retirement. I'm saying all this because I am unaware of anyone actually doing a study on the successes or failures of students who have pursued Technology Education over the last 30 years. Some successes are apparent, like the success of Mark Zuckerberg founder of Facebook. His success is attributed to his analysis of a cultural need for social networking of college students. His innovative genius was not taught in any school, he merely recognized a need. Perhaps a student is needed to compare the courses taught at that time with the changes to include the cultural history of Technology being taught today. Perhaps we are looking at one additional class for

### **Looking Back, to Look Forward**

cultural history of Technology to include today, because we are a multicultural society who has moved towards globalization in our daily lives. I understand the importance of cultural history in every aspect of life, however, I don't agree with devising it as a course in itself. Maybe a simple solution would be to have the Technology Education instructor assign a subject like calculators and have the students research the historical usage of calculators in other countries. Or perhaps have students look at the cultural differences in our own society and how technology is used. For example, ten miles apart are two very different high schools, one of which is comprised of low socioeconomic status learners, the other of middle class socioeconomic status learners. The high school which is comprised of middle socioeconomic status students, has used computer technology since the late 1980s, using Microsoft Office, Print Shop, and other software programs. The other high school comprised of low socioeconomic status students had no computers in their school. One day I carried a desktop computer into the library to show the students. I made a banner using Print Shop and these students were amazed and excited, for them it was new technology. Technology is also a matter of perception. What seems to be state of the art technology to some may be dated to others. It will depend on the culture of the people using the technology. The digital divide is prevalent in this case, and there is a real need to look at the cultural differences in how technology is used and learned within our own society and fix gaps that exist. The government has been trying to close such gaps in technology for the last 20 years. Technology Education is needed in efforts to bridge these differences. Now there are

### **Looking Back, to Look Forward**

national and international standards (ISTE NETS) to make sure all things will be equal. Another example is the lack of Technology Education and technology in different schools throughout the United States. I am currently working with a school that does not have access to the Internet. I am having difficulty finding grants that will fund network wiring for a private Christian school, due to the United States Constitutional laws of Separation of church and state. The state of Ohio E-Rate does not want to support this effort, so I am looking into private funding agencies. I don't agree that this should be an issue, because the school, though a Christian school, is in the business of educating children that are United States citizens.

Perhaps the best way to teach cultural history in Technology Education is to introduce a problem in today's society and have the students research the history of the problem and formulate solutions. For example, the inventions of such great things as aluminum cans and plastic cartons were state of the art technology over the years, however today we are facing overcrowded landfills and air pollution due to these wonderful technologies. The technologies were great, but we never considered that in time, they could be a big problem today because they are not biodegradable. Countries around the world have been solving the problem by recycling, the U.S. lags behind in this technology, culturally, we have are a disposable society without regards to the ramifications. (Sebrina Smith, 2010) We need to be taught to change our behaviors – Reuse, Recycle, Reduce. Industry has designed ways to recycle, and schools have been teaching the importance of recycling, we are improving but we have a long way to

## **Looking Back, to Look Forward**

go. “The students of today need to look at yesterday in order to design a better tomorrow.” (as cited in de Vries, 2006, Starkweather, 2006)

### **CONCLUSION**

Lee’s article does support teaching cultural history as a part of Technology Education. One of Lee’s shortcomings in her article, is she does not give an example of how to teach cultural history as a part of Technology. I agree it needs to be taught as part of a research project when choosing a technology of interest. I believe the best way for educators to teach cultural history is by posing problems that exist today in a given society and having students research the history of the problem, its effects on the culture, and formulate solutions. I, like Lee, do not feel it necessarily needs to be taught by every teacher in every subject area. Another one of Lee’s shortcomings in her article is she fails to look at the digital divide of our own country. This problem is evident and must be resolved if the American culture wishes to remain globally competitive with other nations. Lastly, Lee fails to find any statistical data to support including cultural history as part of the curriculum for Technology Education. There isn’t any data to show how teaching cultural history improved Technology Education. Perhaps this data may come in the future.

Technology, according to Wikipedia, “is the discovery and utilization methods of improving and/or adapting to the environment. Technology is a consequence of human applied science and engineering.” Lee defines Technology as, “People use technology,

### **Looking Back, to Look Forward**

create technology, and do technology. It can be a noun, adjective, or verb... Technology cannot occur without people, and therefore, value and culture are inherent influences on the features of technology". I see Technology as merely a method by which people adjust or improve the environment in which they live. I do believe that people all over the world should share technological discoveries and pass knowledge to everyone all over the world when these discoveries can benefit humankind, for example, cures for disease, solutions to environmental issues like air pollution and global warming. This kind of technology affects everyone on the globe, and everyone on the globe can do their part to improve the environment. These issues are not bound by any particular culture, they are universal.

I believe the best way to teach the cultural history of Technology is through Technology Education. It is important to teach the culture and history of people when educating students on technology. Tomorrow's technology innovators will create products that meet the needs of people from various cultures throughout the world. Technology knowledge will consist of applied science, cultural values, history, globalization, and environmental awareness. Innovation occurs naturally through this process, yet innovation is not taught, but is inherent within creative individuals. The research process, however, may be taught, and is a part of Education Technology today.

## Looking Back, to Look Forward

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