

## Exploring the CAFS HSC option: *Social Impact of Technology*

The Stage 6 HSC course for Community and Family Studies requires students to study one option from *Family and Societal Interactions*, *Social Impact of Technology* and *Individuals and Work*. The options are designed to provide students with the opportunity to extend their understanding of how the wellbeing of individuals, communities and families are affected by broader societal influences or factors.

This article explores the option, *Social Impact of Technology* and provides information about the structure and content of this option and suggested teaching and learning ideas. This option, as its name suggests, requires students to explore the impact of technology on the lifestyle and wellbeing of individuals, families, communities, and on the workplace. Approximately, 25% of total course time should be devoted to teaching this option.

### Defining technology

Building the student's understanding of technology is critical if they are to assess the impact of technology on individuals, families, communities, and in the workplace. Many students have a narrow view of what constitutes "technology". It is essential to broaden this understanding beyond their personal experiences.

One definition of technology is that "technology is people using knowledge, tools and systems to make their lives easier and better."\* As this definition suggests, technology is more than material objects or artifacts (hardware). Technology also includes the use of information and knowledge, problem solving processes, techniques methods and organisational systems (software). The common characteristic of all technologies, however, is that the human activity and energy is always concerned with finding solutions to meet human needs and wants.

#### *Student activity*

Brainstorm examples of technology. Group these into categories and discuss the criteria on which they were grouped.

Examine some definitions of technology. Ask the students to find a dictionary definition of "technology" and provide three or four other definitions of the technology from a range of sources. Clarify the meaning of each of the definitions and words within them, e.g. the meaning of terms including *organisational systems*.

Ask the students to re-examine and add to the brainstorm list by asking the questions:

- Does the list include objects, materials or tools?
- Does the list include techniques and methods?
- Does the list include organisational systems?

In pairs, ask the students to group the technologies listed according to the syllabus categories: technology as applied practical knowledge; technology as hardware, e.g. appliances, gadgets; technology as organisation of knowledge, e.g. communication systems. Invite the students to share their answers and provide justifications.

Examine the technology needed to develop and successfully complete a cochlear implant (implanting a device at the base of the skull behind the ear to assist people who cannot hear) to show the interrelationships between the types of technology.

Exploring the history of technology can also assist the students to appreciate advancements and changes in technology over time. Help to build a picture of changes in technology over time by referring to the different ages in civilisation and how the focus of technology changed with these ages in society, i.e. agricultural, industrial, information age, the molecular engineering age. For example, consider the *button*, and the enormous impact this simple device has had on clothing appearance and function, or consider banking life before automatic teller machines (ATMs).

### **Reasons for the development of technology**

It is a commonly held view that wherever there are people there are problems that need solutions. Solving problems is a key aspect of technology and it is important that the students analyse the context in which different technologies have emerged.

Designers of technology in some cases may have to invent or redesign a product for *social betterment*. Examples of this might include inventing a game for people that cannot see or hear or redesigning a toy so that it is fire safe. On other occasions the technology may have been developed in response to a *social problem*. An example of this is *open-heart surgery*, a technique developed to address the increasing problem of cardiovascular disease in society.

Designers may also want to *improve existing technologies*. These changes may also prove to have *economic benefits*. For example, improving the efficiency of car engines saves petrol money and frequent maintenance costs. Another example of technology providing *economic benefits* is the car assembly line, which produces more cars at minimum production cost.

Sometimes improvements in technology occur because of *competition between existing technologies*. For example, electrical appliance companies wanting to be the first on the market with a new and better DVD that allows consumers to record movies as well as view movies.

### ***Student activity***

Working in small groups, assign each group one or two reasons for the development of the technology using the categories listed above (page 46 of syllabus). Ask the students to refer to their list of examples of technologies and identify examples that would meet each criteria for development. Record student responses on butchers paper and display on the walls of the classroom. Ask the students to complete a poster walk, discussing any points of interest, areas of disagreement or contention, and examples of technology that may meet more than one criteria for development.

### **Technology and wellbeing**

This section of the option is designed to examine the contribution technology makes to individual wellbeing. *Wellbeing* is the degree of satisfaction and fulfilment experienced by individuals and groups throughout the lifespan from having their needs and wants met. The

forms of wellbeing addressed in this section of the syllabus are technical wellbeing, practical wellbeing and emancipatory wellbeing.

*Technical wellbeing* results from being able to manage and control our environment for reasons of comfort, effective use of resources and adaptation. Examples include air conditioners, solar power, recycling, smart houses, appliance technology, and lightweight materials.

*Practical wellbeing* results from helping people to do ordinary, everyday activities, business activities or work of the world. This includes wellbeing as a product of our ability to communicate across great distances in a global community. Examples include text messaging, emails, satellite technology, phones, fiber-optic cabling, potato peelers, bobby pins, pesticides and medication.

*Emancipatory wellbeing* results from giving people the freedom, support and ability to participate in a variety of situations. Examples might include reading glasses, sunglasses, sanitary napkins and tampons, mobile phones, velcro, water skis, an artificial limb, convenience food, transport including planes.

#### *Student activity*

Provide the students with definitions of each form of wellbeing. Ask the students to name two technologies that have contributed to each form of wellbeing and justify their answers. Note: It may be possible to have a technology that contributes to more than one category of wellbeing. Then, get them to identify factors that may affect access to and acceptance of technology.

To assist the students in finding suitable examples of technology and how they contribute to wellbeing provide a range of resources about different forms of technology at different workstations in the classroom, e.g. newspaper or magazine articles, videos or TV programs and Internet web site addresses. Get the students to examine these resources and reflect on how they have contributed to the wellbeing of individuals, families, communities or workplaces. Encourage the students to use conjunctives such as “because” and “therefore” or “as a result” when they are describing the technology and its relationship to wellbeing.

### **The impact of technology on lifestyle**

This section of the option requires the students to develop an understanding of how various technologies impact on the family, communities and work. By now the students are developing a good sense of a range of technologies. Each part within this section has a different focus. *Technology and families* focuses on the impact of technology on the relationships between people in families. *Technologies and communities* examines the impact of technology on community life now and in the future, whilst *technologies and work* explores the positive and negative effects of technology in the workplace and roles and responsibilities in adopting technologies in the workplace.

### **Issues related to technological development**

It is advisable to get the students to examine issues such as privacy, ethics that are related to technological development at the same time as they are investigating the impact of technology on wellbeing and lifestyle. It is difficult to separate the issues and provides a good

context for discussing these issues. For example, reproductive technologies and genetic engineering provide opportunities to examine *ethical* issues. Computer technologies, particularly email, provide opportunities to discuss *privacy* issues. Technologies related to finance, e.g. electronic banking, provide opportunities to explore *computer crime*. These issues also appear frequently in the media.

### **A technology case study**

Teachers who have taught this option have indicated that students are better off selecting a technology that has some personal meaning and relevance to them when completing their case study. For example, a student chose a *pacemaker* to study because a close relative recently had one fitted. This student had the interest and access to information, could interview the individual to establish the impact of the technology on their lifestyle and issues related to its use. Another student chose physiotherapy and related technology because one of their parents was a physio.

### **Useful resources**

The following resources will support teaching and learning for this option.

- \**Bergen County Technical Schools* web site at <http://www.bergen.org/technology/defin.html> This web site contains useful information that will help build an understanding of technology, particularly technological systems and some of the history of technology.
- *Great engineering achievements of the 20<sup>th</sup> century* at [www.greatachievements.org](http://www.greatachievements.org). This web site has information related to household appliances, health technologies, computer technologies.
- *City West IVF* at [www.ivf.com.au](http://www.ivf.com.au). This site has excellent information on in-vitro fertilisation (I.V.F.) and related technologies known collectively as Assisted Reproductive Technologies (A.R.T.).
- *World Book* at [http://www2.worldbook.com/students/feature\\_index.asp](http://www2.worldbook.com/students/feature_index.asp) has an article on cloning. Go to *other features* and click on *Cloning: Are Humans Next?*
- *ihome* at [www.ihome.com.au](http://www.ihome.com.au). Users may take a virtual tour of the home examining the technology features in the home from transport to entertainment to finance, food etc. This is excellent to assist students to make predictions about the impact of technology on community life in the future.
- The *Technocopia* web site at [www.technocopia.com](http://www.technocopia.com) examines new technologies in settings including home, work, play, life, and the future.
- Barry Jones (1995). *Sleeper's wake – technology and the future of work*. Melbourne: University Oxford Press.
- *Superhuman* video and accompanying book can be purchased from the ABC Bookshops. It examines technologies related to humans.

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