

2016-17 Global Issues Problem Solving Topics

Practice Problem 1 – Educational Disparities

Education is considered to be the pathway to an informed, future-focused population. In many countries, education is publically funded by the central government or by state governments, with options for privately funded schools. In some countries, school funding/regulation is largely local and tied to property taxes. Other countries struggle to fund education at all. In addition to differences in funding, other economic and social factors contribute to educational disparities: family earnings, health status, gender, political participation, and social class.

Who should provide educational funding? Should intervention occur in communities or countries where social factors influence the quality of educational opportunities? Already, some international programs such as International Baccalaureate or international exams like Cambridge and PISA claim to give a fair indication of educational achievement around the world, but do results help or harm educational equality? As connectivity spreads around the world, how will universal access to interactive and personalized networks of education evolve? Will access to these virtual networks equalize opportunities in the future?

Practice Problem 2 – It's All in the Genes

The genes of organisms can be altered using biotechnology techniques. New genes can be inserted into plants and animals to create new varieties and breeds or to lessen certain genetic activity such as susceptibility to disease. Since 1970 GM has helped produce greater numbers of crops with higher nutritional value and has been prominent in animal agriculture. Critics claim there are serious ethical, ecological, and economic issues with GM techniques. For example, GM crops can cross-pollinate with non-GM crops creating unpredictable characteristics in plants. Bioherbicides and bioinsecticides can be added to crop seeds, but are not always effective. Resistant weeds now infest 75 million acres of land across the world. Domesticated animals are being genetically modified to produce proteins that have applications for human medicine – proteins to control blood clotting or kill cancer cells, for example.

What will be the long-term impact of genetic modification of plants and animals? If plants and animals are genetically modified to resist current pathogens, will new, more resistant pathogens develop? Already, GM has led to international controversy and trade disputes, protests, and restrictive regulations on commercial products containing genetically modified organisms.

Qualifying Problem – 3D Printing

3D printing is an emerging technology that was first used in arts and hobbies. Because of its widespread applications, 3D printing is now being used in business, medicine, and industry. In biochemistry, engineers create 3D printed body parts. NASA has a 3D printer on the International Space Station. The European Space Agency (ESA) is looking into the feasibility of building a base on the moon using 3D printing. 3D printers are already inexpensive enough to use at home and universal enough for schools to include them as part of their technology or “maker” programs. The technology continues to develop at a fast pace and many breakthroughs are on the horizon. Experts predict there will be improvements to printing speed and quality and that 3D printed food and 3D bioprinting will soon be the norm.

What are the implications for global industries when people might be able to print anything they need at home? What are the implications for intellectual property rights when people are able to download patterns for whatever they want to print, whether it is physical, food, or biological? What if people can print their own weapons or vehicles? How might 3D printing evolve - 4D printing? Nanotechnology?

State Bowl – Identity Theft

Identity theft is a form of stealing someone’s identity. Most often, identity thieves steal personal financial information, buy things for their own gain, and pay for none of it. Frequently, identity thieves gain access to personal information through business and government databases that are not secure. Dates of birth, full names, bank account details and identification numbers are part of the information sought by identity thieves. Stolen identities can be used to fund other crimes such as illegal immigration, terrorism, or drug crimes. It can be extremely difficult to find and prosecute identity thieves as they are often from different countries than the individuals whose identities they are stealing and they obtain personal details online. Victims of identity crime can be held responsible for crimes committed using their identity and may have to fight for years to clear their names. In addition to the damage done to individuals, identity crime costs governments large amounts of money every year. Great collaboration between global governments and organizations will likely be needed to combat identity theft in the years to come. Individuals and businesses will also need to protect themselves.

How should individuals and organizations work together to protect identities from theft? How will identity thieves adapt their practices as more time and effort is invested in protecting identities? What information will be the most valuable to thieves in the coming years and decades?

The International Conference topic will be announced in March.