

# THE PROBLEM-SOLUTION PATTERN

## Which of these three versions do you prefer? How do they differ?

### Introduction A

<sup>1</sup>The threat of global warming has forced consumers to find 'green' alternatives to many of the everyday objects that we use. <sup>2</sup>One important object that is widely used for both entertainment and educational purposes is the book. <sup>3</sup>However, to feed our need for information and knowledge, the book and newspaper industries require the harvest of 125 million trees each year and emit over 40 million metric tons of CO<sub>2</sub> annually, equivalent to the annual CO<sub>2</sub> emissions of 7.3 million cars. <sup>4</sup>Moreover, considering the conversion into paper, printing and distribution of these printed media, one can easily understand why books have one of the highest per-unit carbon footprints. <sup>5</sup>These adverse environmental effects can

be avoided by replacing printed media with digital forms. <sup>6</sup>Electronic books can be downloaded from the Internet, and then read using special devices, known as e-readers. <sup>7</sup>An e-reader allows readers to store many books at once, and is lighter and more portable than the traditional book. <sup>8</sup>E-readers are not only being used by the general public but also by specific groups of people for their own special purposes, and the available banks of digital texts are constantly growing. <sup>9</sup>These specific groups include college and high school students, mobile professionals, and people with vision problems. <sup>10</sup>Therefore this report recommends adopting an e-reader for use by students and staff at the South Tapiola High School.

### Introduction B

<sup>1</sup>Books and other written media, such as newspapers and magazines, have become an important part of our social and intellectual life in modern society. <sup>2</sup>Indeed, without written media, making informed choices and educating each successive generation would become difficult tasks. <sup>3</sup>However, producing these media requires the harvest of 125 million trees each year and emits over 40 million metric tons of CO<sub>2</sub> annually, equivalent to the annual CO<sub>2</sub> emissions of 7.3 million cars. <sup>4</sup>Moreover, it has been estimated that the special storage requirements for books can account for a further 5 million tons of CO<sub>2</sub>

annually. <sup>5</sup>One solution to this problem is to replace printed media with digital forms that can be stored and read in 'e-readers'. <sup>6</sup>E-readers allow the reader to store many books at once, and are lighter and more portable than traditional books. <sup>7</sup>E-readers can not only be used by the general public but also by other groups of people for their own specific purposes, including college and high school students, mobile professionals, and people with vision problems. <sup>8</sup>South Tapiola High School has received funding from government and private sources to sponsor a pilot project studying the suitability of using e-readers as an integral component of its educational strategy.

### Introduction C

<sup>1</sup>Today, studying at the secondary level requires a growing number of books. <sup>2</sup>This has not only increased the costs of education but requires other means for transporting and storage of these media on school premises, such as school lockers and knapsacks. <sup>3</sup>E-readers could ease these problems by providing students with a single, portable, light-weight location for storing and reading their books, homework and assignments. <sup>4</sup>Unlike conventional textbooks, e-readers allow students to search through textbooks quickly for specific information, and many allow the student to highlight important text, to mark their last

location in the book, and more importantly, to determine the meaning of new vocabulary by right-clicking on a word for a definition or translation. <sup>5</sup>E-readers would also provide a central location for storage of all the student's textbooks and assignments. <sup>6</sup>To determine the effectiveness of e-readers in educational settings, the South Tapiola High School has decided to conduct a feasibility study before making any decision to invest in e-readers. <sup>7</sup>This report compares the benefits and drawbacks of implementing this new technology in Finnish secondary schools.

## Avalanche detection

**1** Avalanche release zone information such as location, extent and release height are essential for avalanche mitigation measure planning. **2** However, the identification of release areas is a very difficult task as the release mechanism of snow avalanches depends on many different terrain, meteorological, snowpack and triggering parameters and their interactions. **3** Furthermore, nearly no information on avalanche release areas exists in many alpine regions, such as the Indian Himalaya, mainly due to the very rough and poorly accessible terrain, the vast size of the region and the lack of avalanche records. **4** Thus, avalanche release information is urgently required for numerical simulation of avalanche events to plan mitigation measures, for hazard mapping and to secure important roads, such as the Rohtang tunnel access road near Manali, India. **5** By far the most reliable way to identify avalanche release areas is using historic avalanche records and field investigations accomplished by avalanche experts in the formation zones. **6** However, neither of these methods is feasible for this area due to the rough terrain, its vast extent and lack of time. **7** Therefore, we have developed an operational, easy-to-use automated potential release area (PRA) detection tool in Python/ArcGIS. **8** It uses high spatial resolution digital elevation models (DEMs) and forest cover information derived from airborne remote sensing instruments as input. **9** Such instruments can acquire spatially continuous data even over inaccessible terrain and cover large areas. **10** The tool was validated using a database of historic avalanches acquired over 56 years in Davos, Switzerland, and applied to identify the avalanche tracks along the Rohtang tunnel access road. **11** This tool, used by avalanche experts, delivers valuable input to identify focus areas for more detailed investigations on avalanche release areas in remote regions, such as the Indian Himalaya. In addition, it is a precondition for large-scale avalanche hazard mapping.

## PLAGIARISM

### Avoiding plagiarism (in-text citations)

**1** The production of biomass feedstocks and its conversion to bioenergy have numerous socio-economic and environmental impacts. **2** Although the first generation biofuels have been commercialized worldwide with mature technologies and markets, its sustainability has been questioned based on the competition with food crops and the effects on the environment and climate change. **3** Biofuel use represents an increasingly important share of global cereal, sugar and vegetable oil production. **4** By 2020, bioethanol share will increase to 13% of annual global corn production compared to 11% on the average over the 2008–2010 period, and 35% of global sugarcane production compared to 21% over the baseline period of 2008–2010. **5** The share of vegetable oil to be used for biodiesel production at the global level is expected to reach 16% compared to 9% over the baseline period of 2008–2010. **6** The outlook of OECD-FAO certainly raises concerns about the impact of biofuel on food prices and food supply. **7** A study of Fischer et al. predicted that biofuel expansion may further increase the price of agricultural commodities by 8–34% (cereals), 9–27% (other crops), and 1–6% (livestock) by 2020.

*Adapted from Ho, D.P., Ngo, H.H., Guo W. A mini review of renewable sources for biofuel. Bioresour Technol. 2014 Oct;169:742-749.*