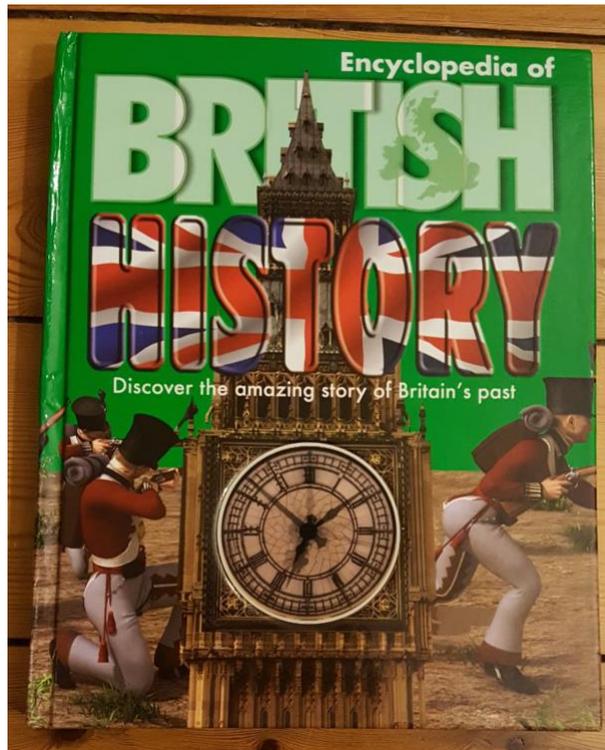


What challenges are raised by the dissemination and/or communication of knowledge?



The first object is my copy of Encyclopedia of British History, which informs readers about the chronological list of historical events and figures connected to Britain.

The knowledge communicated in the book implies to readers that historical knowledge is simply a series of dates, places, names, events and conflicts. However, history should be a source that enhances more than just my factual knowledge, but also my sense of responsibility and understanding of diversity, migration and national identity. This book's limitation of knowledge stifles the true understanding of the reader due to the prescribed format of this encyclopedia. As a sole source of historical knowledge, this text does not encourage readers to think critically about how history is presented, but instead simply depicts history in a constrained and biased manner. The book predominantly illustrates other cultures as aggressive or militaristic. Although full of factual events, it fails to explore the differences between nations, such as their leadership regime and religious influences, and societal experiences of those nations within the specific historical periods they are mentioned. The book glosses over intricate cultural details of each era and leaves an impression that conflict is central to our understanding of history. This encyclopedia's shortcomings result from a long-standing methodology that has been taken to educate children about history.

I selected this particular book as a good example of a printed text that I have read, which left me with tunnel vision and a lack of sufficient insight to establish a mental map of British history. Therefore, the major challenges raised from communicating historical knowledge through just one text are twofold; it can create a narrow perception and fails to establish a more expansive awareness of the subject matter.



My second object, I found whilst researching media influences on society, is a satirical cartoon portraying media bias of visual imagery when relaying accounts of events. The cartoon depicts an incident between two individuals, one about to stab the other, but when framed through the television camera the impression given to the viewer is that the roles are reversed.

“A picture is worth a thousand words” is an idiom frequently used to justify the use of images as a simple and effective way of disseminating knowledge. However, filmed or photographic imagery are subjective, and therefore unreliable, because of camera angle, lighting and selective framing influences and the context in which it is presented.

When mass media uses images as a primary or supportive method to communicate knowledge, the viewer is unable to challenge its reliability as it is unknown whether the image is a complete or partial account. It is difficult to make conclusions about what is truly happening when not all the facts may be accessible or visible. The cartoon questions the truthfulness of events depicted through television images - as facts shown through imagery may look like one thing but may actually be something completely different. Television has become a powerful medium through which to present a certain view of knowledge to audiences because it uses two sensory modalities (vision and auditory) that can both be edited to present an alternate perception. If only the viewer could step out from behind the camera to view the whole picture.

I chose this image because when I first saw it, it made me question media images. There is some irony here as the message itself is presented through the medium of an image. The influence of imagery usage by media is significant and sometimes provides a distorted view and narrowed knowledge of the actual

subject matter, resulting in mistrust. My own dependency on images, has made me a victim of media's depiction of events.

National Aeronautics and Space Administration



SYSTEM FAILURE CASE STUDIES

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Lost In Translation

The signal from NASA's Mars Climate Orbiter disappeared on Thursday, September 23, 1999. After a nine-month journey from earth, the spacecraft was moving into orbit around Mars when communications stopped. Ground software had miscalculated the spacecraft's trajectory. Instead of lightly skimming the Martian atmosphere, the spacecraft was orbiting more than 170 kilometers below its target altitude. Heat and drag from the atmosphere presumably destroyed the satellite.

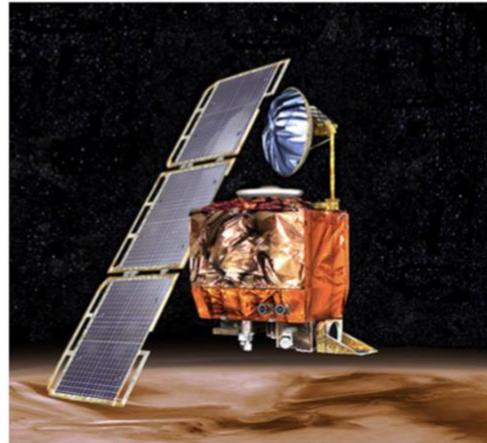


Figure 1: Artist's conception of the Mars Climate Orbiter and its asymmetrical solar array.

ii

The final object is the 1999 event in which NASA's Mars Climate Orbiter was lost, resulting from it entering Mars' atmosphere too lowⁱⁱⁱ. The explanation given for the incident placed accountability for the loss on an error in the transfer of information^{iv} between the spacecraft team in Colorado and the mission navigation team in California^{v,vi}. An investigation indicated a navigational error was due to the units of measurement used in communication from Earth and received by the probe. They were sent in imperial form, but the probe was only programmed to utilise metric data^{vii}.

Where the communicator and recipient of knowledge both use valid unit measurement forms, neither can be deemed to be incorrect. Yet, challenges arise where the communicator's dissemination of knowledge is dependent on the transposition across mediums in order that its contextual meaning is neither lost nor misunderstood by the recipient. This is a particular risk when disseminating scientific knowledge as differing interpretations may result where there is an oversight in its conversion to the required form. The communicator of the knowledge remains responsible for either applying the relevant process to transpose mathematical data into the required form or advising the recipient that the obligation to apply the relevant process rests with them. When communicating knowledge, it would be ignorant not to accept that there is no global standard unit form used by all.

I chose this event, as I have learnt from my chemistry studies the importance of stating the correct temperature unit measurement, which has three formats (Celsius, Kelvin and Fahrenheit). This mission's failure was due to an oversight in the communication of knowledge leading to miscalculations and subsequent loss of scientific opportunity (costing \$327million)^{viii}. With an aspiration to work in science, I have come to appreciate the importance of being alert to the diverse unit forms used.

My objects show the existence of challenges that arise through the form in which knowledge is communicated. What stands out is that the recipient is rarely challenged to look beyond the source for greater clarity or expansion of information.

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