**Google Earth Cyberspace**

Through the ages, humans have made use of information using various tools or individual perception and analysis. Cyberspace is the perception of a different world unbounded by physical limitations, where people communicate information.

Cyberspace changes in accordance with changes in environment, politics and technologies affecting society and interface that convey information.

Presently, Google Earth is a leading application based cyberspace technology where users can view the virtual globe through satellite imagery, maps, terrain and landmarks [1]. This Global Information System allows users to study geographical parameters such as latitude-longitude, aerial distance between two locations, roadmaps in 3D. Theoretically, the interface begins with specific user commands directed at a computer running the application. An appropriate response is generated from the application to display graphical information. Consequently, the generated information is displayed to the user, who has the choice to transfer data to a different party or process the information for personal use.

Google Earth is successful because the application is universally available for users in need of geographic data on specific locations [2]. It is dominant in its niche with a larger user base [3]. Moreover, the global, virtual environment is a new interface where users can adapt and explore. The information obtained by the application influences the roles and decisions of the user and society. The widespread use of Google Earth is helping to identify the best locations for many economic activities. For instance, industries can reduce cost of transporting raw materials and maximize profit by selecting an optimal geographic location with the aid of Google Earth. In addition, location selection for social services such health care facilities, community centers and day care benefit society and its users.

Sir Halford J. Mackinder, the father of modern geopolitics, states that “man and not nature initiates, but nature in large measure controls” [4, 2]. The environment is an untameable force, which affects the decisions and goals of individuals and society. Oil data exists in Google Earth due to political and economical interest in crude oil [5]. This information is also of interest to environmentalists, studying the impacts of oil and fossil fuels. Therefore, the geographic data and trends generated by Google Earth affect cyberspace and ultimately society.

The main purpose of collecting information is an element in cyberspace that remains unchanged, while the scope of understanding and methods changed. The environment and demographics serves as a guideline where Google Earth attempts model the physical layout of the global demographics.

Throughout history, humans have been inventing tools that help ‘steer’ themselves in the right direction [6]. People have relied on the position of stars and landmarks to track their current position and progress. Ultimately, the purpose is the gather data and measure distances in order to generate fundamental formulas and theories. During the Renaissance period, European urbanization is shaping new urban societies and liberation of the medieval towns with more networked trade relations [7]. In this age of discovery, European explorers extended their political and military domain into the New World and stated settlements in Canada. The urban development is evidence that people understood planning and demographics in this period. Furthermore, the field of mathematics is prosperous and respectable and often correlates with the fields of astrology and science. The cross staff, originally called the Jacob’s Staff, is a device that was originally developed to make astronomical measurements [6]. Its function is to gather measurements.

The motivation for obtaining information is different when comparing the era of the Renaissance with the present day. European urbanization and age of exploration is one of the driving forces that pushed for the change in the type of user for the Jacob’s staff, from Astrologists and Mathematicians to Sailors. Today, the motivations come from economic, political trends and the interest to optimize profits and resources.

In 1514, Johannes Werner suggested the Jacob’s Staff to be modified for navigation [6]. The environmental changes and movement of urbanization changes the cyberspace accustomed to explorers. Although the tripod existed in the same period, the Jacob Staff was the preferred choice for sailors because it is lightweight and has a more compact design than the tripod [8].

On the other hand, in 1976 the United States government began launching spy satellites with initials “KH”, which stands for “Key Hole” with during the Cold War [9, 10]. In 2001, a company named Keyhole, Inc developed the KML, the foundational file format to display geographic data [11, 5] This became a standard format for Google Earth, who acquired Keyhole Inc, in 2004 [9]. From a business point of view, Keyhole is a valuable addition to Google’s efforts to organize the world’s information and make it universally accessible and useful [12]. The improvements of Google Earth during this era is strictly technological. Introducing paid subscription of enhanced versions of the application, Google Earth Pro and Google Earth Enterprise, to businesses are a few examples.

Throughout history, the underlying purpose of gathering information from the surrounding environment has not changed, but the scope and methods used to do so have been modified dramatically over the past few centuries. For example, Google Earth allows the user to drill down and change the scope of the query for obtaining information, whereas the Jacob’s staff is only capable of measuring at a specific time and location. The variety of users for Google Earth is much broader than Jacob’s staff. The communication of the staff is limited only to the end user while Google Earth has the capability of storing, transmitting data to various locations.

On the other hand, the amount of information available to process in the new millennia has increased significantly compared to the past because the information technology revolution expanded our geographic horizons from a local perspective to a global community [2]. The changes in cyberspace often utilize old relationships to create new spaces [13]. The data obtained from the Jacob’s staff is a mere measurement the user interprets. The data generated by Google Earth is at a much larger scale, but it does not determine the statistical analysis of the data or correlation between data sets. The task is often done using other tools. Therefore, the future projection of the Google Earth cyberspace is a grand manipulation of data using old relationships that generates statistical analysis. The results are displayed clearly to the end user.

Before a technology is improved or developed, a purpose and technological foundation must be set. The use of existing technologies to implement new ones is the unchanging element in the context of changing cyberspace.

During the new millennia, the increasing number of Internet Hosts as well as availability of the personal computers sets a solid infrastructure for different forms of communication technology to prosper [13].

Historically, the Jacob’s staff was first used by Egyptians, then Jews and later the Arabs before adopted in Europe during the Renaissance [14]. In general, the most useful technology is often re-used and modified for ease of use or additional functionality. For example, one of the major issue with using the Jacob’s staff is the possibility of getting dazzled by the Sun. This problem was solved with the invention of the back staff, where the user does not look directly at the sun but the light that falls onto a target [15]. Similarly, Google Earth expanded its application to support observations in the sky and ocean [16]. The newest version of Google Earth contains 20 content layers with information from the world’s leading scientists, researchers and ocean explorers as a primary method to raise global awareness for marine conservation [16]. This change spawned a new demand for marine scientists to use the application in their research. The user community for the preservation of ocean will not diminish because oceanic exploration is much lower than twenty percent complete.

From a technological perspective, the similarities between Google Earth and Jacob’s staff include the use of existing technology and current standards at the time to change the functionality of the cyberspace. The Jacob’s staff undergone a series of modifications and adoptions, but the fundamentals remained intact. The user changed their understanding of using the staff based on new and improved elements. Likewise, Google Earth used existing KML formats and application frameworks based on the foundation of satellite imaging and the Internet. The differences lie in the implementation and interface of the technology. Jacob’s staff was re-invented from the field of Astrology towards the era of Exploration. The interface of Google Earth remained within the constraints of the application. In addition, the precision of the Jacob’s staff is dependent on the skill of the user [15], whereas the precision of Google Earth is dependent on the limitations of satellite and information technology.

There is a continuous trend of abstraction technology where users in cyberspace no longer require the manual dexterity for operating or manipulating physical objects. The industrial revolution is an intermediate period between the two cyberspaces where technology is replacing human control and precision [17]. According Parmenides’ perspective, “nothing comes from nothing”, the integration or use of existing technologies changes the cyberspace and ultimately the scope of our understanding of existing technology [13]. This is valid without considering spontaneous inventions or underlying goals of society, because it is difficult to measure or control these elements. The future for the Google Earth cyberspace may result in a simpler interface with complex abstractions and techniques to determine current user preference. Perhaps the user is only required to ask questions and the cyberspace will eliminate unrelated information. Moreover, the technologies with the strongest foundation and fundamental advantage will serve as the platform for this new cyberspace.

The context behind the purpose of Google Earth do not change over time, but environmental factors, politics and fundamental technologies affecting society can change cyberspace itself and our understanding of how it can be used in terms of scalability. The future projection for Google Earth is a more sophisticated manipulation of data and higher level of virtual abstraction to simplify user interfacing with widely accepted technologies that enhance the functionality in the cyberspace.

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