A Question of Accessibility:  
Exploring Barriers to the Free Flow of Information

資料取得性的問題：
探討資訊自由流通的障礙

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【Abstract】

In theory, the concept of freedom of access to information is ideal, particularly since democracy warrants the free flow of information. However, in practice this seldom occurs, especially among various classes and groups, and across several geographical boundaries. There are many factors and obstacles which hinder or prohibit the flow of information. This paper explores some of the main barriers to the free flow of information and identifies ways in which they may be alleviated or removed through the use of technologies.

【摘要】

理論上，資訊自由取得的概念是理想的，尤其因為民主制度正保證了資訊自由流通。然而這樣的情形在實務上卻很少發生，尤其見於不同的階層與群體間，及不同的地域間。障礙或阻礙資訊流通的因素繁多，本文探討了一些自由流動資訊的主要障礙，並提出使用科技來減輕或消除這些障礙的方法。

Introduction

The major barriers which affect the flow of information may be divided into three categories – personal, economic, and legal. Personal barriers are those in-built obstacles that are unique to an individual (Tedd,
Barriers of this type stem from socialisation or experiences, and determine how an individual functions within a society. Examples of these barriers include information illiteracy, computer illiteracy, physical or mental disabilities, geographical boundaries, language differences, time, education, social status and political affiliations. Economic barriers relate to the cost of accessing information for the individual, while legal barriers are those imposed by the state’s legal machinery and include, for instance, laws against libel, sedition, slander, and treason.

Tedd et al. (2009) assert that there is the right not only to receive information but also the right to impart information without restriction (p. 2). This concept underpins several legislations, namely, the Universal Declaration of Human Rights (Article 19), the European Convention of Human Rights (Article 10 (1)), the International Covenant of Civil and Political Rights (Article 19) and the Declaration of Freedom and Information adopted by the Council of Europe Committee of Ministers on 29 April 1982 (p. 6). Freedom is understood as the condition of being free or unrestricted. However, with respect to information flow, there is no such thing as unrestricted access to information irrespective of the society. Furthermore, even in democratic societies, legislations may dictate access to information, thereby regulating this access.

Katz (1988) offers that information flow is “the amount of information flowing through formal (measurable) and informal (non-measurable) channels” (p. 131), whereas Tedd et al. (2009) suggest a more precise meaning: “the flow of information between the producers, distributors, and assimilators of information” (p. 3). Thus, information is transmitted between the sender and receiver through information carriers. The latter includes, inter alia, books, magazines, newspapers, radio, television, films, telephone and Internet hosts. Varying accessibility of these information carriers to people and societies propels the discussion of barriers to information.

Levels of Barriers to Information Flow

Tedd et al. (2009) identify two levels of the main barriers to information flow, namely, at the point of production and at the point of use or access barriers. The former refers mainly to output, time and institutional barriers, while the latter refers to information handling skills of users, personal or psychological, geographical, ability or disability, cost, technological and linguistic barriers. As it relates to output, users seek to optimise a sub-set of information that meets their needs. However, they are sometimes greeted with so much information that it becomes impossible for it to be effectively used by them – the result of information overload.

With the overwhelming quantities of information, users often have a limited time in which it may be consumed. This introduces the barrier of time. To maximise time, users must sieve through vast quantities of information and set priorities for usage. They must exercise their power of choice. Choices are administered by both the senders and receivers of information as to the quantity and quality that should be disclosed or retained (this stems the dispute of the ‘right to know’ versus ‘the right to privacy’), the format of delivery and receipt of information (the debate is usually print versus electronic), and whether the information should be available for free or a fee.

Technology seeks to overcome at the point of production and at the point of use or access barriers by implementing devices whereby users can store and peruse information at their convenience. Websites can be bookmarked, the Uniform Resource Locator (URL) may be deposited on storage devices or the information may be printed. Quicker access to the information required may be facilitated by CD, DVD ROMs, and other electronic devices which allow users...
to cue from one link to another. Nonetheless, the information contained in these sources lacks currency, and are subjected to the durability of the source. In addition, these technologies command access to a computer, printer, DVD and CD player, and instructions in their use.

**Personal Barriers**

Personal barriers may be as a result of illiteracy, unawareness, the inability to articulate coherently, shyness in approaching information professionals, the perception that the required information is non-existent, or poor comprehension of the information received. Hence, even though society is rife with information and information resources, an unequal awareness among users of the nature and location of available information may be an impediment to access. These conditions speak also to the information literacy skills of the researcher. According to the definition by the Association of College and Research Libraries (ACRL), a division of the American Library Association (ALA) in the United States of America (US), to be information literate, a person must be able to “recognise when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (2000). Information illiteracy may result from information deprivation among some groups.

An ability or disability barrier is another factor that may either debar or curtail the flow of information to an individual. Cunningham and Coombs (1997) define disability as “a physical or mental impairment that substantially limits one or more of the major life activities of such an individual, a record of such an impairment or being regarded as having such an impairment” (p. 2). Disabilities may include vision, mobility, hearing and speech impairments, learning disabilities, and traumatic brain injuries. Vision impairments are categorised into various forms, and these usually hinder the individual’s ability to read printed materials, computer screens and keyboards.

Two groups of persons who may be considered among the mobility impaired are those confined to wheelchairs and those with no hand usage. The former group of persons usually experience difficulty in gaining entry into facilities to access information. Furthermore, there is the additional setback of being able to manoeuvre even after gaining successful entry. Persons with no hand usage are limited in using standard computer input and output devices.

Technology has assisted in facilitating the flow of information to disabled groups. For instance, information is accessible through the use of Braille, talking newspapers and special photocopiers which ‘read’ the text for the blind and partially sighted. Moreover, with environmental adjustments and the appropriate Adaptive of Assistive Technology the flow of information can be perpetuated. Adaptive or Assistive Technology is computer software and hardware that has been modified to be accessible by persons with disabilities. Some of the hardware and software used, include speech recognition, memory aiding, touch screen and eye-tracking devices, joysticks, trackballs, big visual cursors and large keyboards. Organisations such as Apple and Ability Hub focus on providing and locating the tools which are necessary for special needs groups to access information. Other organisations such as the Information Access Laboratory in the US, assist students with disabilities in their educational pursuits through the development of innovative technologies (Information Access Laboratory, 1998).

In their effort to comply with the standards of the Accessibility for Ontarians with Disabilities Act (AODA), 2005, libraries in Ontario, Canada endeavour to become:

more accessible to everyone by ensuring that users can enter the library facility and successfully navigate within it; communicate effectively with staff who are trained to respond to specific requests for accommodation; access print and electronic resources using a variety of assistive devices; and fully participate in events
and other activities held in the library (Chittenden & Dermody, 2010).

The Act establishes accessibility standards to effect the achievement of equal and equitable access and use of resources, including those in libraries, to all Ontarians.

**Economic Barriers**

Cost is another major factor which appears at both levels of the barriers to information. The ALA presents the view that cost should not infringe on or interfere with the provision or delivery of information and resources for any users of a publicly supported library. In the document *Economic Barriers to Information Access: An Interpretation of the Library Bill of Rights* which was adopted by the ALA Council on June 30, 1993, the association states:

Library services that involve the provision of information, regardless of format, technology, or method of delivery, should be made available to all library users on an equal and equitable basis. Charging fees for the use of library collections, services, programs, or facilities that were purchased with public funds raises barriers to access. Such fees effectively abridge or deny access for some members of the community because they reinforce distinctions among users on their ability and willingness to pay.

Moreover, cost is a determinant for both the individual and institution in their purchasing habits of traditional and contemporary sources of information as well as specific information technologies. This factor is also extended to the country as a whole. The individual and the institution may opt for a print-based source over, for example, an online source. With the online source, there is the cost for access to the information in addition to the cost of the telecommunications. Furthermore, the exorbitant fees of electronic sources permit access on subscription basis.

Feather (1988) notes that “online databases starkly illuminated the financial dimension of the market-place” (p. 71). He also informs that there was a demand but the potential customers had insufficient resources to purchase the product. Therefore, the CD-ROM was developed, thus bringing supply and demand into balance within the financial limitations of the customers. In his updated work, Feather (2008) emphasises:

The hardware needed for access to CD-ROM is comparatively inexpensive, and is both cheap and easy to maintain compared with the high capital and running costs of online access. CD-ROM has the effect of removing the telecommunications element from the information technology equation. This is of the utmost importance in developing countries, where the telecommunication infrastructure is often weak, and the technology for transmitting digitised data often does not exist (pp. 120-121).

Cost deters some information poor countries from investing in Integrated Communications Technology (ICT).

As posited by Tedd et al. (2009), the investment in ICT is a crucial factor in establishing and retaining a competitive edge in macro-economic terms. These writers mention numerous inequalities of information access, which can result in information imperialism – data flowing in abundance between Western Countries but a lack of collaboration with the Third World. Therefore, the flow of information is either denied or clouded. Users can manipulate the information carriers as a way of overriding the cost factor. For instance, the consumer book market has a clear socio-economic bias towards the wealthier and better educated members of a society. However, television and radio may transcend those boundaries. Essentially, broadcast information is easier to absorb and cheaper to receive than printed information. The cost of technology has been significantly reduced, thereby facilitating the access to a wider source of electronic information.
Geographical Barriers

Geographical obstacles to information occur as a consequence of the residence of the individual and the inaccessibility to various information providers. These limitations can be classified as local (urban versus rural areas), regional (states or countries in close proximity), and international (developed countries versus developing countries). The latter is often referred to as the information rich and information poor. The information rich are those persons with access to abundant resources of information and the ability to retrieve and utilise the information obtained. The information poor are the complete opposite.

The level of education of a group, the type of resources, technological and telecommunications infrastructures determine the categorisation of information rich and information poor. This is highlighted in the 1995 work by Haywood *Info-Rich, Info-Poor: Access and Exchange in the Global Information Society*. This author posits that an information divide results “where access to higher education is symptomatic of access to interesting information-based work opportunities, and the pursuit of rich and abundant life choices, while exclusion from higher education generally reduces access to information rich environments . . .” (pp. 22-23).

Tools such as the computer, telephone and radio are extremely useful to the flow of information. Through the use of computer technologies, access is granted to the bulk of information stored electronically, where updating, revision, and correction of information can be a continuous process. Internet technologies afford information to be transmitted so that delivery is virtually instantaneous. Furthermore, users can exploit the services of electronic mail and instant chat. It is important to note though that the value of the Internet as a good resource to accessing information is often compromised by the lack of proper telecommunication services to remote areas. The consensus seems to be that education among the service population, in addition to a good balance of telecommunication and technological resources is needed if technology can assist in removing geographical barriers to information.

The advent of electronic libraries has helped to eliminate some geographical barriers. Access to bibliographies, indexes, various publications and even databases is facilitated by this means. Moreover, with the introduction of electronic publishing, the inconvenience of travelling to libraries is diminished. In many poor places, however, users still have to travel to a library or some other facility where computers are available for use in order to access needed information.

Language Barriers

“The most prevalent and specific intellectual barrier is a linguistic one” (Tedd et al., p. 11). This is a limitation to the recipient of the information because of the inability to understand the written or spoken message. An individual greeted with a linguistic or language barrier may become frustrated and relinquish the source or seek an alternative source instead of attempting to find a translation of the document or a translator.

A study conducted by Fisher et al. (2004) reveal that migrant Mexican workers faced serious challenges in locating and assimilating information which was necessary for active participation in their daily existence. This was so because most of the documents which they needed to access were written in English and their native language was Spanish. The writers also discovered that many of the older immigrants relied on their children to interpret and conduct their everyday transactions for them.

Technology has made progress in alleviating the language barrier which has been affecting migrant workers. According to Fisher et al. (2004) “… availability of cutting edge technology and training is positively affecting the lives of the people in these communities by giving them the opportunity to increase their literacy levels, technology and job skills in
addition to creating a sense of community.” Today, search engines such as Google and Altavista offer further assistance through the facilitation of translation features as part of their service to Internet users.

Zhang’s discourse *International Students and U.S. Academic Libraries Revisited* identifies three major challenges which international students experience when trying to access information from US academic libraries. According to that writer, language, communication and technology barriers prevent these students from effective use of library services. Brown (2000), Kumar and Suresh (2000) and Wang and Frank (2002) are also commentators on the subject of barriers to information access which are experienced by international students in US academic libraries.

**Institutional Barriers**

Institutional barriers are limitations to information access designed by individual organisations and the government. As it relates to individual organisations, barriers to information may range from the refusal to invest in ICT to curtailing the flow of information on the grounds of commercial confidentiality. In the latter instance, only a selected few, mainly senior members of staff or certain departments are privy to ‘sensitive’ information. The government sometimes utilises legislations to withhold information ‘for the public good’ and ‘for the public health’. The objective, in these instances, is to protect the individual, society, and the state.

In Britain, according to Robertson (1993), “the average adult has private information about himself or herself on over two hundred separate files and by 1982 Government departments alone boasted 220 different computerised data banks” (p. 116). The individual’s personal record is scattered among “school and NHS records, tax and VAT returns, insurance, mortgage and credit ratings, social-security files, motor-vehicle licences, police records and the like” (p. 116). Further, Robertson (1993) quotes Lord Browne-Wilkinson as saying “if the information obtained by the police, the Inland Revenue, the social-security service, and other agencies were to be gathered together on one file, the freedom of the individual would be gravely at risk” (p. 116).

The computer, because it can link and match scraps of information from various data sources has the potential to be used as an instrument in the sullying of an individual’s integrity. Robertson (1993) notes that this ability to store personal data in various locations on the computer is actually ‘to build up an incomplete jigsaw of the individual on record” (p. 117).

**Legal Barriers**

Legislation is required to protect the individual’s personal data. The United Kingdom (UK) Data Protection Act, 1998, speaks to prohibiting the abuse of personal data. A news item on November 14, 2010 headlines “Google ‘breached data protection act’ in UK.” According to Christopher Graham, Britain’s Information Commissioner, Google “broke the law when Street View cars collected personal data from unsecured wi-fi networks.” The Internet giant was accused of “deliberately collecting millions of passwords, websites (URLs) and emails for commercial gain.” Google had recently launched a Street View mapping cars in Ireland. The Internet service provider was not penalised after pledging not to repeat the violation (Breakingnews.ie., 2010).

Copyright; Intellectual Property; and Defamation acts are other forms of legislations in the UK and US which are designed to protect the individual. However, the enforcement of these laws may be confined to a specified territory. For instance, in November 2003 when damaging information on Prince Charles was circulated, the local media, through an injunction from the British High Court was prevented from disclosing the details of the allegations. However, the Prince was not afforded this protection on the Internet. Through a link to an Italian Press, the information was
made available to all web users. Additionally, Google was very effective in removing the linguistic barriers for those people who did not speak or understand Italian.

Under the UK Official Secrets Act, which was implemented to safeguard national security, the British government in 1987 tried to prohibit the publication of *Spycatcher*, which was authored by a former British Intelligence Officer, Peter Wright. The UK Law of Sedition also aims to safeguard national security, while the Race Relations Act was implemented to protect groups within a society. Robertson (1993) believes that irrespective of the legislations, British society still has access to information which contains obscenities through the use of technologies. “The main battleground has shifted to television drama – *EastEnders* and the plays of Dennis Potter and the late-night movies on Channel 4, and the imminent invasion of alien porn from outer space through the satellite dish” (p. 212).

Censorship restricts the free flow of information to a society. Through acts such as the UK Obscene Publications Act, 1959, or policies of individual institutions, the state and other entities are able to obstruct the free flow of information. A case in point - the publication, *The Satanic Verses* was banned under the Blasphemy Law of several Islamic nations. Furthermore, several publications are banned from institutions annually through their individual collection development polices. This does not only relate to books. In July 2002, the Saudi Arabian Government blocked approximately 2000 websites. Most of the blacklisted sites were either deemed sexually explicit, about religion, on women’s history or about bathing suits (BBC. Saudis, 2002).

Google.com was banned in China, in September 2002. The rationale verbalised by the Chinese foreign ministry spokesman was: “Obviously there is some harmful information on the internet [and] not everyone should have access to this harmful information. The whole world now is exploring a way to manage the Internet and China is also working on this” (BBC. Google, 2002). The Internet Content Provider in an effort to allow free access to its Chinese users automatically redirected them to its Hong Kong’s search engine. This action displeased the Chinese government, who insisted on being able to censor information accessed via the Internet within China. After years of negotiations, Google in March 2010 agreed to stop the automatic redirect.

More recently, in August 2010, two Gulf States, citing security concerns, announced bans on some functions of the Blackberry mobile phone. Saudi Arabia prevented the use of the Blackberry-to-Blackberry instant messaging service. Additionally, the United Arab Emirates (UAE) intended to block such functionalities as sending e-mails, accessing the Internet, and delivering instant messages from one Blackberry handset to another, in October 2010. However, the ban was not put into effect after Blackberry’s maker Research in Motion proved to the UAE’s Telecommunications Regulatory Authority that it was “compliant with its security needs” (BBC. United, 2010).

**Conclusion**

The role of technology in the flow of information is seamless. Technology can both facilitate the flow and also create barriers to information. Persons may have difficulty in understanding how to use it or may be unable to keep abreast of the dynamic changes as there is a lack of standardisation. Furthermore, this difficulty can be compounded by technophobia. Computer packages can still be inflexible and unsophisticated. In addition, there may be instances whereby software changes may be incompatible with an individual’s computer. However, software and hardware is sold with manuals which provide instructions as to usage. There are also help screens and FAQs to facilitate easy access to information. In some public settings, guidance to individuals in need is provided by
information professionals who are trained in the use of the technologies offered.

There will always be barriers to the free flow of information. These may occur as a result of personal or economic factors which affect an individual. Alternatively, they may be imposed by the society or the state’s legal machinery for the protection of a people. As highlighted by this paper, not all barriers are insurmountable. Technology has played a very effective role in alleviating and removing some of the barriers to allow access of information. Libraries are also playing their part in making information more accessible to those who experience challenges occasioned by barriers which restrict the free flow of information. “Information is power.” In most cases, researchers are disadvantaged when there are barriers to information access. They are empowered when there is free flow of information.

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