

INFORMATION OVERLOAD OR ATTENTION DEFICIENCY?

SAM BERNER

1.1 Brief description of the term information overload

The problem is discussed in daily newspapers, magazines, talk shows, on the radio and the net. It is variously referred to as information glut, information overload, information smog, infobog, Information Asphyxiation, and White Noise, etc. Defined as information received at such a rapid rate that it can not be assimilated, an excess can lead to information saturation. When this occurs, less attention is paid to each message and thus less information is received.. It is a problem experienced only by those lucky enough to have jobs, technology, and communication access. These "lucky" people may feel fortunate when reflecting that half the world's population has never attempted a telephone call. But they feel decidedly unlucky when contemplating the daily barrage of information that threatens to overwhelm them. Every day the info-rich receive "information" from newspapers, television, telephone calls, faxes, e-mail, and the Internet. Amidst all the noise, the info-rich are aware that important and valuable information is being conveyed. But how do they separate the redundant, uninteresting and outdated from the up-to-date, pertinent, and vital (Soni et al., 1997).

Robert M. Losee, in a 1989 article for the Journal of Information Sciences defined information overload as the "economic loss associated with the examination of a number of non- or less-relevant messages, as in related to information retrieval models." According to S. R. Hiltz and M. Turoff (1985) the concept of information overload defines situations where an individual is presented with an amount of data which exceeds his or her cognitive capacity.

Information overload is equated with "the proliferation of available data and publications and ever-more-comprehensive and widespread automated means of access to them" (Biggs, 1989). Moreover, research that purports to address the dilemma of information overload does not define or measure it in a fashion that supports its "taken for granted" cultural status. Solutions to information overload include renewed or revised input from the human intermediary (Biggs, 1989), or prioritizing operations performed in electronic environments (Losee, 1989). Studies suggesting solutions to overload are conducted in business settings and embrace decision-making theory and profit motives (Losee, 1989).

Klapp (1986) defines information overload as degradation of information. Degradation of information occurs when information is noiselike, irrelevant, and interferes with desired signals and when it is redundant, banal, or does not tell enough of interest.

One of several definitions of information overload is that there is too much information available in both print and electronic form so that when individuals attempt to sort out the appropriate, relevant and current information from everything else they develop feelings of helplessness (Hylighen, 1999)

A second definition of information overload is that the mere presence of more information than an individual could possibly assimilate, absorb and synthesize engenders feelings in individuals that the task of finding the information is an onerous one (Wilson, 1995). Put another way, information overload occurs when individuals are aware of relevant information but do not have the time to locate and use that information. Even using Web

tools like search engines to find information may result in data smog, that is, finding poorly constructed sites or sites of questionable authority.

The last definition of information overload is that as the explosion in information continues to grow in a seemingly exponential manner, the individual's ability to be selective in finding and retrieving information does not subsequently grow in tandem (Hopkins, 1995). The quality of information varies considerably because anyone can publish Web pages provided they have access to a Web server.

1.2 Origin of this phenomenon

The underlying history of "information overload" arrives with the introduction of the printing press and the resultant need, and first efforts during the Renaissance, to organise knowledge and collections. Organisation of the sudden proliferation and distribution of books into library systems happened in tandem with categorisation systems of collections being established by museums. Excellent examples in this respect are the curiosity inscriptions of Samuel Quiccheberg, considered the first musicological treatise, and Guillo Camillo's Memory Theatre of the 1530s. Quiccheberg's treatise offered a plan for organising all possible natural objects and artefacts, which he accomplished by creating five classes and dividing each into ten or eleven inscriptions. This treatise allows for explorations today of the institutional origins of the museum. Camillo, on the other hand, created a theatre that could house all knowledge, meant to give the privileged that accessed this space actual power over all of creation. The structure took the form of an amphitheatre and was composed of a viewer on stage facing seven tiers of seven rows-not of seats, but of drawers and cabinets containing text and objects (Meadow and Robertson, 2000)

There are different opinions about when people first started noticing data overload. What is obvious is that attentions directed more toward information overload as a serious problem by the end of the last century. Some researchers view it as a result of our entry to a new period called "Network period". This period can be characterized by a convergence of computer technology, telecommunication technology and media technology. (Bradley, 2000) This convergence together with accelerating of technological development resulted in increasing of the amount of medium, such as e-mail, fax machine, television and radio, and at the same time to decreasing time required for sending, receiving and processing data.

But this does not make this phenomenon (information overload) unique for this period, without it has been noticed by researchers from different disciplines, such as medicine, social science, and psychology long time ago. One of researchers who studied information overload was George Simmel (1858-1918). His studies on this issue showed that information overload does not occur in work places only, but we face it in our daily lives, too. For example he found this phenomenon among people living in large cities. According to him they try to limit the interface between themselves and their environment intentionally, this to avoid "indiscriminate suggestibility to protect themselves from an overload of sensations, which results in an incapacity...to react to new situations with the appropriate energy."(Wurman, 1989, p. 143)

Nowadays the most research on information overload is focused on work-related activities and especially decision making in information intensive organizations, where many believe that an overload of information occurs mostly.

H. M. Schroder, M. J. Driver, and S. Streufert (1967) are three researchers who studied information overload related to decision-making. They presented a model, which describes the effect of information overload on individual. According to this model every one possesses a limit for information processing. An increasing of information received by a decision-maker results in improvement of the task performance. This until the amount of information exceeds the decision-maker's capacity to process them. Also the level of information processing follows a U-shaped curve plotted against information overload.

Library and information science literature about information overload is relatively thin (Tidline, 1999). From 1976 to 1996, the term appears only four times in the indexes of Information Science Abstracts. Fifteen citations in Library Literature's online index led to few articles useful for defining and examining information overload. Miller (1978) summarizes relevant research on information overload (with references to concepts and names familiar to information professionals: information theory, Toffler, Gasset, and Vannevar Bush), discusses its form and effects, and shares results of his own experimental research to demonstrate the effects of overload on "modern man." Miller found that many forms of information overload exist and that they are becoming more common and stressful. People differ in how they adapt to overload based on their particular circumstances. Furthermore, "[w]hatever modes of adjustment they select exert influences on the norms of social behavior in their cultures"

1.3 The scope of the problem: infoglut as a "new" disease

This onslaught of digital and pulp verbiage effects anyone who has a connection to the world wide web, electronic mail, voice mail, or a fax machine. Technology, with all good intention, was supposed to make the human organism more efficient. Concurrently, it has also managed to waste our time each week. In serious cases people can suffer from sleep disturbances, loss of appetite, sexual drive, and experience severe mental fatigue.

Psychologist David Lewis, describes a new phenomenon - *Information Fatigue Syndrome*. Symptoms include: rise in absenteeism, lack of focus when at work, loss of confidence and decision making abilities, irritability and ill temper (Nellis, 1997).

Miller's (1978) observations about the form and effects of "information input overload" on the individual include the following:

- * when input increase continues, output eventually decreases and is accompanied by a state of confusion;
- * habit and familiarity with how information is coded affects rate of carrying out tasks and of processing information;
- * time factors and channel overlap affect information processing; and
- * overloads of information may have some relationship to schizophrenic behavior, indicated by use of withdrawal or escape as coping mechanisms.

Klapp (1986), who suggests that boredom and anxiety are key responses to information overload. Information overload is a result of boredom based on satiation. Satiation comes from:

- (1) too much stimuli;
- (2) habituation, which results in a loss of responsiveness due to loss of novelty; and
- (3) desensitization--a loss of sensitivity to increasingly strong stimuli (p. 36).

Information overload also results from "bad redundancy" (repeated receipt of useless information) and noise. Techniques for coping with information overload embrace extremes of "selective exposure" and attempts to scan everything. For Klapp, overload manifests itself in culture as a widening gap between social problems and their solutions where meaning lags behind increased amounts of information. "Meaning lag" is based on the "rapid accumulation and diffusion of information beyond human capacity to process it." Klapp emphasizes the human need to ponder, wonder, and dream in order to put information into perspective and implies that such a holistic approach is a solution to meaning lag (pp. 105-15).

Waddington (1996) reports that based on a survey of 1,300 managers in the U.S., Britain, Australia, Singapore and Hong Kong, a study funded by the International News Agency Reuters, found that information anxiety is now a part of most executive's lives. Most suffer regularly from headaches as well as poor emotional control; many also report enormous frustration when they know that the information they need is out there, but do not know how to access it or cannot get their hands on it quickly enough. IFS sufferers report mental anguish, physical illness, a detrimental impact on personal relationships, and a compression of leisure time or an inability to fully enjoy it.

1.4 End-user solutions to the problem

In an age when technology has contributed so much to societal progress, organizational effectiveness, and the management of day-to-day life for millions of individuals, it seems logical that technology would offer some of the best answers to a problem like information overload. Too much information? The answer must lie in more advanced search engines, more sophisticated filters, or more creative ploys on the Web to draw attention to the best informational resources.

Some researchers are even suggesting that genetic engineering will offer future generations an opportunity to overcome the basic human limitation of having only one head with which to process information (Gold, 1997). If we only have one set of eyes with which to read information and only one brain with which to think, then why not simply modify human anatomy by adding one (or two or three) more additional heads? Granted, additional head(s) might introduce a new set of problems--how, for example, would heads negotiate eating, talking, or kissing?--but maybe life in the information-overloaded age justifies radical measures. We could turn to science fiction for other ideas. Studying for final exams might not be such a grueling experience if we were aided by one or more computer chips embedded in our brains, speeding up our ability to process, organize, and retrieve information.

Though technological advances will continue to offer exciting solutions to information overload, perhaps the most novel approach is to adjust our expectations on how much information we need. Dr. David Lewis, a psychologist who assisted the 1996 investigation by Reuters Business Information on the effects of information overload, notes that the solution to information overload lies as much in changing attitudes as in improved technology. "It requires managers to get away from the idea that a high quantity of hours put in equals a high quality of work," he stated. "For knowledge workers, that is just not true." (Black, 1997) On that principle, some organizations are choosing the route to simplification. For example, a group of Xerox software developers in Webster, New York, is experimenting with "quiet times," which allow employees to work without interruption from either inside or outside

the company. Professionals whose jobs revolve around information are beginning to learn that more information is not necessarily better. A capital management specialist who tracks the performance of more than 5,000 companies for her firm's investors confesses that "the key to staying happy with myself is expectation management. Internalizing the fact that I can't know everything about every company may be the most difficult part of my job." (Tetzli, 1994) In the end, the most important requirements in making a good decision do not necessarily lie in gathering large quantities of information, but rather taking time to absorb and process information, reflect and analyze, and discuss the issue at hand with others. (The Information Advisor, 1997)

Shenk (1998) writes that information overload fuels stress and promotes faulty thinking. The data glut we all slog through every day at work simply "reduces our attention span" and "makes us numb to anything that doesn't lurch out and grab us by the throat." It's not the information glut itself that causes problems, but rather our inability to process information. Information overload is not a function of the volume of information out there. It's a gap between the volume of information and the tools we have to assimilate the information into useful knowledge. Yet the solution is an old-fashioned one. In fact, it predates e-mail, the Internet, and voicemail. People still must recognize they have to prioritize and winnow. Just because we may have access to all the information in the world, it doesn't mean we can process it all. In fact, far from it. Simply because we now have advanced search engines and "smart" filters and gigantic hard drives on which to store data, the clock speed of the single most important "processor" the brain isn't any faster. Many of the old dictums governing information flow still apply.

The following is a list of recommendations for managing information overload:

a. **Evaluate E-Mailing Practices** – check e-mail headers before opening email, dispose of e-mail immediately, treasure your e-mail address and don't hand it left, right and centre, use just one mailbox and use one bundled email software, write brief responses to encourage adoption of style by respondents, stop repeated spam, prevent needless responses.

b. **Revise Research Activities** – use your brain rather than depending on search engines and "intelligent" agents: Nothing can compete with the power of the human brain, and the ability of a human expert to scan, browse, and absorb data in any particular field of interest, analyze that information, and then point you to the original source if you wish to obtain more information. These experts include newsletter editors, columnists, librarians, and information specialists who will continue to play a valuable role in providing the public with highly processed meta-sources.

c. **Revise Your Information Management Practices** – depend on human intervention over electronic filtering: One of the most ignored solutions to reducing information overload is human intervention, either as an organization or as individuals. In struggling to use technology to control technologically-spawned infoglut, many lose sight of the fact that the truly intelligent agent is a person. Many organizations are responding by creating policies that reintroduce human agents. For example, some companies are resurrecting what used to be called secretaries. Now they call them "mission control" and they limit them to top executives. Mission control sifts through an executive's messages deleting extraneous or out-of-date messages, compiling messages pertaining to single topics and converting material from one medium to another.

d. **Deal With Information Quickly** - When information comes in, whether via e-mail, the Internet or fax, generally you need to read and take action on it, or discard it quickly. Don't

fall into the habit of creating a huge "maybe" pile of articles, faxes, and computer messages. "If it's not worth dealing with now, it probably won't be later," say experts. Be sure to keep a "traveling" file of materials you do want to read, and carry them with you to read and digest when you're on the subway, or waiting for doctors, planes, clients, etc. Even the best filing system can't hold everything. Whenever possible, have your staff screen and winnow and summarize materials for you or colleagues.

e. **Deal with Voice Mail** - Check voice mail often, skip the outgoing message, avoid Phone Tags, return calls late at night, change your outgoing message to suit current situation, let callers skip your outgoing message.

Personally, in my search for resources and research that could benefit my work, I find myself with an incredible amount of reading to do. I tend to let newsletters, e-mail, and web references pile up on my desk. Once every two weeks, I take this pile of information, along with a highlighter, pencil, scrap paper, post-it flags, and a "File Copy" stamp and go to a favorite coffee shop. I then read through the mail and mark useful information with information about how I need to follow up. For example, I may highlight a phone number for a new publication, and write a note to the administrative support staff in my office to call to request a copy of the resource. I find that I often need only an hour and a good cup of long black to go through my mail and put together piles of things that need follow-up.

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