



## IV JORNADA PROFESIONAL DE LA RED DE BIBLIOTECAS DEL INSTITUTO CERVANTES: BIBLIOTECAS PARA EL LECTOR DIGITAL: RELACIÓN, ESPACIO Y TECNOLOGÍA

MADRID  
15 DE DICIEMBRE DE 2011

# 'Reading' in the digital environment and the challenges for society, education and libraries

NICHOLAS, DAVID

CIBER Research Ltd., Newbury, UK. <http://ciber-research.eu/index.html>

### Resumen:

Se exponen las conclusiones sobre el consumo de información digital y el comportamiento de sus usuarios, tanto en la búsqueda de información como en la lectura durante un periodo de investigación de diez años.

Se centra en el comportamiento de una nueva generación digital (*Google generation*) donde la actual transición digital ha provocado que se conviertan en espectadores en lugar de lectores, produciéndose un desplazamiento de una lectura profunda a otra superficial. Se describen las consecuencias que produce el medio digital, tales como falta de concentración o tendencia a realizar múltiples tareas que explican este comportamiento; y se proponen soluciones que pudieran paliar estos efectos.

### Palabras clave:

Alfabetización informacional, Competencias informacionales, Lectura digital

## Introduction

This paper is based on a huge, robust evidence-based analysis of what people actually do in the digital space and not what they say they did or wished they did. This is important as most people have problems recalling what they did in the digital space; also, nobody wants to admit, for instance, that they do not spend much time reading. So there is no point asking them, but researchers still persist, and we should be very wary of research based purely on self-report methods. We need a new methodology, a non-intrusive one, to study behaviour in the anonymous and remote virtual space. To this end the CIBER research group obtains its data from the millions of digital footprints people leave behind when visiting a website or using a digital information service, irrespective of what platform they use - mobile, laptop, personal computer, digital television or touch screen information kiosk. CIBER have been collecting and making sense of these footprints for ten years using a methodology specially developed for the

purpose, deep log analysis<sup>1</sup>. The group has undertaken deep log studies in the media, education, publishing, health and charity fields and, most recently, in the cultural field (Europeana<sup>2</sup>). As a consequence, we have amassed an enormous evidence base, which is hard to neglect. As a consequence we now know what the information seeking and reading behaviour of millions of people looks like and the key characteristics are described in this paper.

Above all our data points to the fact that behaviour has fundamentally changed as a result of our migration to the virtual space and this includes reading. Although the writing has been on the wall for many years people are still in denial: they are clinging on to the old paradigm, believing that we have been here before (the arrival of printing is often mentioned in this context); but we have not; this revolution is on another scale.

## The evidence on reading in the virtual environment

The really big shock is that nobody does much reading in the virtual space – or certainly not what is traditionally thought to be reading (digesting large amounts of text at a single-sitting)<sup>3</sup>. When we first noticed this about a decade ago we thought there must be a mistake in our methods/data because web designers and content providers highlight the importance of site stickiness and the need to encourage consumers to dwell in their websites, and who felt the way to achieve this was to build ever bigger (and stickier) websites. However, that is not how most people behave on the Web. Web designers wrongly assumed that users would carry over a form of behaviour developed in the physical world to the digital world, but nobody had bothered to look at the logs to see what was happening in practice. What also had been overlooked was the transforming and liberating force of the digital transition and the fact that scholars knew very little about reading behaviour in the physical environment. By contrast CIBER know a great deal about how people ‘read’ in the virtual environment because they all leave their ‘footprints’ behind.

Logs tell us accurately, precisely and conclusively that few people spend any significant amounts of time reading in the digital environment. Most website visits see only 1-3 pages viewed and at least half of all visitors never come back – they are promiscuous, preferring always to move on to something else. Typically, a few minutes is spent on a visit and 15 minutes is a very long time to stay in one site, which in the physical world – a library for instance - would not be long at all. If it is an article they are interested in then they spend about 3 or so minutes on it. Short articles have a much bigger chance of being viewed. If the article is long, however, the summary (abstracts are very popular) will only be read and/or it will be squirreled away for a day when it will not be

---

<sup>1</sup> [http://ciber-research.eu/CIBER\\_news.html](http://ciber-research.eu/CIBER_news.html)

<sup>2</sup> [http://ciber-research.eu/CIBER\\_news.html](http://ciber-research.eu/CIBER_news.html)

<sup>3</sup> Nicholas D, Huntington P, Tenopir C, Jamali H, Dobrowolski T. Viewing and reading behaviour in a virtual environment: the full-text download. *Aslib Proceedings* 60 (3), 2008, pp 186-198

read (something we call digital osmosis – the act of downloading somehow, painlessly and magically, transferring the contents of the article to the brain via the keyboard or mouse).

So, how do we know then that reading is not undertaken later at a more convenient time and place, or in a more suitable form (on paper, for instance)? Firstly, we have undertaken follow-up interviews with digital consumers and they tell us that the majority (about two-thirds) of full-text articles they downloaded they never read, they just kept them as insurance for a day when they might need them. Secondly, we know from surveys conducted by media regulators like Ofcom in the UK<sup>4</sup> that people's work and leisure time is squeezed in today's pressure cooker environment. They spend most of the day when they are not eating, sleeping, travelling and socialising, on the computer, on the phone or watching the television; there is very little time left to read.

## The explanations

There are a number of explanations for the form behaviour described above and why it will become more widespread in the future.

- **The digital transition has resulted in people moving from a vertical to a horizontal information seeking model, a process that leads to them becoming viewers rather than readers**

As a consequence of massive, expanding and unparalleled consumer choice, being taken all over the digital space by search engines and by being constantly enjoined to click on one link or another it comes as no surprise that people tend to view lots of things for very short times. In other words they have moved from vertical to horizontal information seeking and reading. Their behaviour is best described as bouncing, flicking or skittering: they move rapidly along the digital surface, usually with frequent light contacts or changes of direction. Power browsing has replaced reading and, of course, it's the only thing you can do given the enormity of what is available (information overload), brought to you courtesy of Google. In today's digital environment navigating through titles, headings, contents pages, snippets & abstracts at a huge rate of knots is a pleasurable experience and something which occasioned one publisher to comment - only partly jokingly - why not charge for abstracts and give away PDFs?

---

<sup>4</sup> <http://stakeholders.ofcom.org.uk/market-data-research/market-data/consumer-experience-reports/>

- **The Web is a visual platform, like TV in many respects, and reading from a laptop or PC is hardly a pleasurable experience**

People probably go online to avoid reading, so it should be no surprise that people view rather than read. However, this could change. A result of the rapid rise of tablet computers (iPads) and reading devices (Kindle) with their high definition touch screens, could be that people are drawn back to reading again. iPads, an Apple product, in particular are seen as 'cool' among the young (an added incentive to read) and most people like the massive list of titles available and the freedom to navigate around which the digital gives you. However, any benefits could be lost in the rush towards connecting to the internet via the smartphone, a platform hardly ideal for reading – something that will be picked-up later.

- **People multitask when online**

One of the prime reasons for the brevity of a visit or a read (view) is that most people multi-task when online. While they are at their laptop or desktop they will keep a number of browser windows open, check their email and might also be on their mobile phone checking their Twitter feed, and, just possibly, also listening to the radio or television as well. We don't seem to like to do any one thing for long, we would always rather do many things – it's more interesting.

- **We are being conditioned to accept fast information (as we have accepted fast food)**

We are being conditioned to communicate, disseminate and digest briefly and quickly by email, text messaging, Twitter and mobile phones generally. In these circumstances long and disciplined reading is becoming a thing of the past. Speed is the essence. The only issue is how fast, abrupt, abbreviated and cryptic it can all get? What Marshall McLuhan called 'the Gutenberg galaxy' - that universe of linear exposition, quiet contemplation, disciplined reading and study - is imploding, and we don't know if what will replace it will be better or worse. But at least you can find the Wikipedia entry for 'Gutenberg galaxy' in 0.34 seconds.

- **E-books will increase the prevalence of 'lite' reading behaviour**

The rise and rise of e-books<sup>5</sup> will see a migration of even more people into the digital world, people (the old, humanities scholars and undergraduate students) who have partly been left behind by the digital transition. Now that digital information seeking highways (links) have been opened up within books and between books we shall see similar patterns of reading; everything seems to be conspiring against deep reading and making it easy to snatch small bites of information.

---

<sup>5</sup> Amazon now sell more e-books than hardcopy books

▪ **Smartphones are going to take it all to another level (we have seen nothing yet)**

With the impending switch from the use of static to mobile platforms to access the Internet – mobile platforms are forecasted to be the platform of choice by 2013<sup>6</sup> – big changes in information and reading behaviour are bound to happen. This is because internet use via mobile phone offers a different user experience: on the go, in the social space, from virtually anywhere and at any time, and on smaller devices which typically have less functionality than personal computers. The talking phone, iPhone 4S<sup>7</sup>, which enables you to use your voice to send messages, schedule meetings, make phone calls and request information, is bound to take its toll of reading, perhaps even viewing.

### The Google Generation<sup>8</sup>

Those born digital, and who have been conditioned since birth, are unsurprisingly the ones with the greatest appetite for fast information and skittering. A televised experiment CIBER undertook with the BBC showed that the Google Generation<sup>9</sup> were the quickest searchers, spending the least amount of time on a question – a fraction of the time spent by adults. The knee-jerk ‘digital natives’ interpretation is young people are whizzes at technology, and searching the Web is as natural as breathing. However, by their own admission, they were the least confident about their answers. Their lack of confidence was explained by their behaviour – they viewed fewer pages and domains and undertook fewer searches in answering questions. It was as though the goal of the experiment was to get past the finishing line first, never mind whether you were still carrying the baton (the information) or not. Their search statements were much closer textually to the questions posed, making them, not just the fast food generation, but also the ‘cut and paste’ generation. As for multitasking, which anecdote has it that young people excel at, yes they did a lot of multitasking, but not very well.

It seems to us that the young have been fast forwarded from a world where the focus was on knowing one big thing really well to a world where you know many things, but not very well. Irrespective of whether we can turn the clock back (we cannot) we need to consider whether the reading and viewing behaviour described in this paper, among the young and not so young, represents a form of cultural or education dumbing down, and, if so, can we ameliorate its worst effects; for instance, through information or digital literacy programmes for young people? Coming up with an answer is in fact not that easy. Take the case of the author’s daughter, Victoria, a fully subscribed member of the Google Generation. While working at home trying to understand the full implications of what I was seeing in the logs – lots of skittering and bouncing - she was ‘watching’ television. Her idea of watching television, like millions of others, was to lie prone on the sofa and point the remote controller at the television and flick from

---

<sup>6</sup> Top Predictions for 2010 and beyond, executive summary, Gartner Research, January 2011.

<sup>7</sup> <http://www.apple.com/uk/iphone/#>

<sup>8</sup> The ‘Google Generation’ is a popular phrase that refers to a generation of young people, born after 1993, that is growing up in a world dominated by the internet and mobile phone.

<sup>9</sup> <http://www.bbc.co.uk/virtualrevolution/makingofprog4.shtml>

channel to channel from the hundreds available to her. I never watch television like that because while young I had been conditioned by having to press buttons (manually) to change channel, and I only had four to choose from, so I did not have to do that very often. Irritated at what I saw as poor behaviour (and annoyed at myself for not understanding the logs) I said to her, 'Victoria, can't you make up your mind what you want to watch'. She replied, 'Dad, I am watching it all'. She then explained that when something got boring or repetitious she went to another channel and stayed with it until it too became boring and then would go back to see if the earlier programme had moved to something more interesting. This, of course, was exactly the behaviour that was being witnessed in the logs; we are watching it all. So the million dollar question is whether Victoria's form of behaviour, the behaviour of a Web Fox<sup>10</sup>, is inferior to mine, that of a Web Hedgehog<sup>11</sup>.

## The big issues

- The propensity to rush, rely on point-and-click, first-up-on-Google answers, along with an unwillingness to wrestle with uncertainties and an inability to digest and evaluate information, keeps the young especially stuck on the surface of 'information age'; not fully benefiting from the information society and 'always on' information and reading.
- Skittering on the scale it is currently being conducted at (and likely to increase) is having negative consequences for some of our treasured fundamental skills. The trouble is that we love skittering so much because the brain actually rewards us for finding information; but unfortunately we get no reward for reading what we find. Skittering is chipping away at our capacity to concentrate and contemplate which leads to reading problems.
- We are going to have to deal with the consequences that result from what is absent from increasing numbers of our digital users, especially the born digital - lack of a mental map, no sense of what a collection is - they tend to view fragments and disembodied text, and have a poor idea of determining what is good/relevant/the truth in a crowded and ever changing digital information space.
- There is much speculation that the digital is actually making us stupid - even damaging the brain! Neuroscientists tell us that the digital environment is changing the pattern of the connections in the brain - introducing new ones for new tasks

---

<sup>10</sup> Web Foxes are good at finding information quickly. They are highly social, maintaining complex relationships with the other members of their social group, often using social networks, whose content is created by its users, as sources of information. Web Foxes are multitaskers, able to do several things at once and tend to be younger, less experienced users.

<sup>11</sup> Web hedgehogs are careful internet users, taking their time to find the right information. They prefer to go it alone, rarely relying on social networks and are specialised web users, best suited to concentrating on one thing at a time

and dispensing with old ones like the ability to concentrate, read long passages, etc. Because of plasticity of young people's brains, theirs change more quickly.

The writing has been on the wall for many years now about the diminution of reading but we have been lulled into complacency by the sheer amount of 'activity' that is taking place in cyberspace. This has been confused for genuine use, reading and learning, when it is in fact far from that; most of it involves looking for things and not finding them, finding things you don't want, finding second-rate things and just plain boredom (driving around).

It could even be argued that 'skittering' is not a wholly new (digital) phenomenon. The virtual environment allows us to view information usage and seeking and the resulting outcomes in detail and on an unbelievable scale because every action of everyone who uses a site is recorded and so we can spot skittering. However, this was not the case in the physical information environment and we really knew nothing about how people behaved. In the information vacuum, when someone took out a book or bought a paper, the assumption made was that they had read it all. So maybe we were living a lie and now we know the reality - we have always been 'skitters'. McLuhan's universe of linear exposition, quiet contemplation, disciplined reading and study was an ideal which we all bought into and developed educational and information services and products around. The difference is, of course, that the opportunities for skittering are now legion and this has created ever more skittering and the pace is not letting-up. It is whether this is all leading to major changes in the way we obtain and consume knowledge, particularly whether this constitutes a possible 'dumbing down', that concerns us most.

Finally, are we witnessing the death of reading; no, just the displacement and marginalisation of deep reading, and the emergence of a new form of reading, power browsing or reading 'lite'. The really big question for which we all want an answer is, with hard wiring of this form of reading behaviour will the Google Generation turn out to be fundamentally different from older generations in their attitudes, expectations and behaviour when they become doctors, politicians, lawyers and teachers? Will this even lead them to 'think' differently perhaps? And, if so, will our existing cultural and learning become obsolete? These are the questions driving CIBER's research programme<sup>12</sup>.

---

<sup>12</sup> <http://ciber-research.eu/>