The Google generation, the mobile phone and the 'library' of the future: Implications for society, governments and libraries

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ABSTRACT

The Google Generation, the born digital, are arriving at universities and workplaces as I write. They arrive with very different, challenging information seeking and reading styles and equipped with mobile devices, their own trusted 'libraries', and will undoubtedly have a big impact on the libraries and organisations they encounter. The paper looks at the data that are emerging about the 'mobile' Google Generation and the (fast) way they seek, view and use information and sift through it to see what it means for libraries, government, society and culture. Some of the questions the paper poses and answers are: What do the runes tell us? Are we witnessing the perfect storm? Are witnessing the end of society/culture as we know it and is it curtains for libraries?

Keywords: Digital natives; Digital information consumers; Online information seeking behaviour; Online reading behaviour; Mobile communication

INTRODUCTION

Not so very long ago, in 2008, the CIBER research team (http://ciber-research.eu) surprised information professionals and the media with revelations of what the newly dis-intermediated (born digital) Google Generation were up to in the virtual, unmediated information space (Rowlands et al. 2008). The `Google generation' is a popular phrase that refers to a generation of young people, born after 1993, that have been brought up in a world dominated by the internet and now championing the mobile device. They had thrown the information seeking and reading manual out of the window; they were doing things very differently (and fast), some of these things were regarded as distinctly bad practice and challenging for parents, teachers, and librarians and (going to be) for employers and society. Further revelations from neurologist and cognitive psychologists told us these changes we had witnessed in the web logs were no passing fad but were becoming hard-wired in people's brains. This behavior then was here to stay and it was not deviant behavior, but the behavior of the digital consumer.

But we have seen nothing yet, the fires the Internet started are being fanned. With information professionals, teachers and parents having barely taken breath and stock, another revolution is on us, and this one has a much greater weight behind it. It will sweep all before it. We might have briefly felt we were ahead of the curve and now we are well behind it. The smartphone/tablet has swept all with it and information seeking and reading has gone mobile. Alarm bells are ringing, especially in academe and libraries. And if they are not, they should be.

The first transition, from the physical to the digital environment, transformed the way the young and not so young sought, read, trusted and consumed information, but the environment in which these activities were conducted had not really changed – it was still largely in the library/office/institution, and on a device primarily designed for the desk and the institution-bound.

But by this year, according to the pundits, the mobile device becomes the main platform for accessing the web and this means that we are all 'untethered' in information terms and this has huge implications for purveyors of physical information and services. Searching and reading now takes place in the social space, and often on the hoof; in Starbucks or the pub rather than the university library. This, as we shall learn, will take fast and abbreviated information seeking and reading to a completely different plane.

The combination of the Google Generation hitting the job/academic market and the newly arrived smartphone/tablet becoming the main platform for digital information seeking could mean the end of culture as we know it and, possibly, curtains for libraries as we know them now. The second digital transition – much bigger than the first, has arrived and few of us are prepared for the 'hit'.

The basic characteristics of (fast) digital information seeking and reading behaviour

As mentioned previously, the foundations of new-age digital behaviour are already in place on which mobile-induced behaviour will build, so it is worth going over its characteristics first. Digital information consumers love choice and looking around for information. Most of whom are what we might call 'bouncers', viewing only 1-2 pages from the thousands available on a website and promiscuous too in the sense that many do not return to a site. One-shots: one visit, one page and a tiny dwell time, counted in seconds rather than minutes, are the dominant user group. This probably is not what we thought would happen. This behaviour can be explained by:

a) The fact that digital consumers are connected to the 'big fat information pipe', the Internet, every day of the year, every waking hour of the day. This engenders an 'always on' snacking form of behaviour towards information consumption.

b) Search engine searching, the dominant form of searching, is all about the production of lists from which consumers have to decide what is best for them and they do this by cross-checking and then there are the hyper-links which enjoin them to go elsewhere. So you they are always jumping around and on the hop.

c) The massive and changing choice of what is on offer means that users always have somewhere new to visit.

d) The fact that there is now so much rubbish on the web as every Tom, Dick and Harry decide to air their views and disseminate their publications. So users are always rejecting material as they navigate the web.

e) Poor retrieval skills on the part of the disintermediated digital consumers. The average query contains 2.2 words and that is to search the global information space. Therefore it is no surprise that people get more than they want and reject a lot of what they see.

f) Users forgetting where they looked last and what they looked for: they leave their memories in cyberspace and go to Google to try and find it; this adds to 'churn' rate.

g) End-user checking, people doing it themselves and not being good or practised at evaluation so they tend to sample, creating a bouncing form of behaviour.

h) Much of the time when people are online they are doing several things at once; this of course is multi-tasking, something psychologists is much more pleasurable than doing just one thing at once. This of course means that they are always moving from one thing to another.

Within this general pattern of digital consumer behaviour that for the Google Generation have these characteristics (Nicholas 2010):

- They have the greatest appetite for fast information and skittering
- They are the quickest searchers and spend least time on a visit – a fraction of time spent by adults.
- They are the least confident about the results of their searches. This lack of confidence is explained by their behaviour: they tend to choose the first one up on the hit list (regardless of relevance), view fewer pages and domains and undertake fewer searches. They also put in much less effort, with the first past the post approach endemic.
- They construct search statements which are 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, at which they are supposed to excel, they do it a lot, but not very well.

Thus the technology is fast forwarding the Google Generation from a world where the focus was on knowing something well to a world where you will know many things, but not very well or deeply. There is an important message for educators and libraries here.
In general then, in information seeking and reading terms, the horizontal has replaced the vertical, deep reading is 'out' and fast viewing is 'in'. The tendency is to 'skitter', moving rapidly along a surface, with frequent light contacts or changes of direction. Another way of putting it is that users 'power browse'. Nobody appears to do much deep reading, certainly not what is traditionally thought to be reading (reading whole documents). A read online can mean that just 10-15% of a document is read (Nicholas et al. 2008). Web logs tell us:

- Users might go online to avoid reading; much preferring to look and watch.
- As mentioned only a few minutes is spent on a visit and 15 minutes is a very long time.
- Shorter articles have a much bigger chance of being used; as a consequence short story books are being designed especially for the digital universe.

- Abstracts, the ultimate information snack, have never been so popular and people like them so much they want them refereed and it has been proposed that publishers give away PFDs and charge for the abstract.

Thus fast information, like fast food, has won the digital day. The information snack/bite has replaced the three course meal (the whole document). We have all been conditioned by emailing, text messaging, tweeting and PowerPoint to like fast shots of information. Mobiles, of course, are the ultimate form of take-away.

The benefits, impacts and implications of mobile information provision

They are legion so we need to think long and hard:
- Mobiles mean that information needs can be met at the time of need, rather than having to cold store the need until you reach the office, library or home. And probably they will be forgotten them by then or, maybe, time just ran out on them because you could not respond straightaway. This of course means more needs can be met, but perhaps not always as well. There has to be a trade-off.
- 'Big deals' provide fantastic access to information to a privileged few (those behind the university walls) however an information level-playing field is will be with us soon. This is because mobiles provide access to masses of information to everyone and anywhere; and, open access is increasing its haul. In a couple of years from now more than 80% of journal articles could be open access in the UK, because of UK Government and European Union policies and mandates. For the pragmatic smartphone users 80% means everything will be available. It could be argued that libraries are guilty of giving away what was once regarded as the 'family silver'. Certainly their monopoly of provision is over.
- Smartphones are, above all else, powerful social media devices, which *also* stride the two major information worlds, informal & formal communications. This is even more important given the growing importance of the social media as sources of scholarly information. All this in something that slips into your pocket. In contrast publishers have been trying hard (but not really succeeding) to marry the two worlds on their websites and libraries have similarly been unsuccessful.
- Mobile devices are an increasingly intrinsic part of the digital consumer purchasing process – used to search for information prior to purchase, during the transaction process itself and to make purchases. This, of course, means that they lend themselves to paying for information content, albeit for micro-payments or apps.
- Users appear to trust the mobile phone more than any other form of information and communication technology and presumably this includes the library (Srivastava 2005). Just as they now trust the librarian's great hate figure Google (Nicholas et al. 2014). This invests them with the qualities that libraries, television and newspapers once provided in the way of a trusted intermediary.
- Smaller screens, albeit with high resolution, and different ways of interacting (via touch screens and voice recognition rather than keyboards and mice) has a big impact on use. Going from typing to touching/stroking is going to mean less in the way of precision, detail and personalisation in information seeking behaviour. And of course – a really important difference - smartphones are not computational devices but access devices.

- They are social, personal, cool and massively popular. A very heady cocktail indeed and a long way from institutionally provided tethered computers.

Mobiles devices therefore have a huge potential to:
- Draw in a larger and more diverse audience for scholarly information, because of their wider-reach, accessibility and user-friendliness.
- Further change the nature of information seeking behaviour and to do this for billions and billions of people.

However, despite the considerable challenges for all stakeholders in the information industry, we really know very little about (a) how users behave in the mobile environment; b) how different this behaviour is from that associated with laptops and desktops, which most libraries are built on; and (c) what we have to do in the way of changing our offerings.

For young people mobile devices mean even more and they are the new wave. So listen carefully, ask a young person about the library and they will point to their mobile phone. It is surely ironic that the phone once banned from libraries has become the library.

Snapshots of mobile device use and information seeking behaviour

A study of the digital footprints left behind by users of the Europeana digital culture platform (http://www.europeana.eu) a year or so ago provides some new and interesting insights into mobile information seeking behavior (Nicholas and Clark 2013). More than 150,000 unique mobile users accessed Europeana in six 6 months. Usage has shown a staggering rise of nearly 400% over six months, admittedly from low base. Mobile usage is growing 5 times as fast as that of tethered or 'fixed' devices. A typical mobile visit at just over a minute hardly a long time anyway, is actually 10 seconds (13%) shorter than a visit to the same site for a fixed-computer user. What can you do in that time and there is no printing off or much downloading for later going on. The majority of Europeana visitors (52%) are `bouncers' who only view a single page, very likely having been swept there courtesy of a general search engine such as Google. A high proportion will never return, but that is not to say that they may not have extracted valuable facts or information from that visit.

Information seeking is very lite. Visits from mobiles were much less interactive than those from tethered platforms: fewer records/pages were viewed, fewer searches conducted and less time spent on a visit. Information seeking and viewing behavior not unexpectedly perhaps was fast and fleeting, with very little browsing going on. Of course, this is largely because of the relatively small real estate of the device, the fact that it is being used in a 'noisy' environment where other things are going on and activities cannot be undertaken comfortably.

Mobile use is personal use, and happens often in the evenings and on weekends; it occurs in the home or 'anywhere but the office'. Searching and reading has clearly moved into the social space. Information seeking and reading has been time-shifted. It is about consuming content not creating it.

Over 90% of visitors used Apple Mac devices to access the platform; iPads constituted the vast majority. Recent advances in android devices are likely to change this dominance. There were significant differences between types of device. The limited screen real estate and slowness of the Blackberry, no doubt, contributes to the abbreviated searching and viewing on the advice. The iPhone, possibly the most iconic and popular smartphone shows a somewhat less abbreviated style, but still abbreviated by contracts with traditional laptops, and the iPad generates metrics closer to desktops/laptops. In the case of all the devices little depth research was on show.

More recent data from a 2014 unpublished study of an e-cancer website shows mobile use to be still rising at very high levels (nearly 130% in the most recent year), but it is now smartphones that are the preferred mobile platform.

Picking up on our fast food (information) analogy, mobile devices are providing the ultimate information take-away with all the evidence showing that we use them for information bites and snacking – more bouncing, more new visits, shorter visits and simple and less productive searching are a feature of their use. More seriously perhaps, mobile users are more promiscuous.

Implications for society and libraries

What has been described in this paper constitutes another massive migration to the digital world and another big round of disintermediation. What then are the implications for society? They are in fact very serious indeed and touch every cornerstone of our society. The Internet and the mobile device could actually be making us stupid (Carr 2010). The propensity to rush, rely on point-and-click, first-up-on-Google answers, along with unwillingness to wrestle with uncertainties and an inability to evaluate information, could keep us stuck on surface of 'information age'; not fully benefiting from 'always on' information. Skittering could impact negatively on established skills as it chips away at capacity to concentrate and contemplate. Maybe McLuhan's universe of linear exposition, quiet contemplation, disciplined reading and study was an ideal which we all bought into and developed services around. But just maybe we always wanted to skitter and power browse and did so when we could (out of view) and the Internet has liberated and empowered us. The significance of this is that today the opportunities for skittering are legion and this creates more skittering and the pace is not letting-up (see the success of twitter). Skittering has a place but could we survive on it alone?

Add in the fact that our memories are actually shrinking as we cannot even bother to remember anymore because, researchers explain, that the Internet acts as a "transactive memory" which we depend upon to remember for us (Palmer 2011) and it is clear that things are getting rather worrying. The computer science guru, Alan Kay, believes that the situation we are in is largely explained by the fact that "There is the desire of a consumer society to have no learning curves. This tends to result in very dumbed-down products that are easy to get started on, but are generally worthless and/or debilitating". But who is going to blow the whistle of apply the handbrake? Certainly not Google, the Information Service Providers or Smartphone manufacturers; nor Governments too it seems.

What of the implications for libraries and especially academic ones, who seem to be holding the fort for the profession? They have tried to join the general debate and address the big societal concerns but when librarians intercede with their talk of digital/information literacy they are seen as people who would say that anyway (set in their ways) and appear very uncool.

Libraries also have a whole range of specific problems of their own which they are yet to really address. Their users' information horizons, once bound by the library, are not anymore. In information terms the user has narrowed the access gap. User now generally do not see libraries as the point of entry to the information they are looking. Somehow the introduction/adoption of federated search systems, while a step in the right direction, is unlikely to be the solution.

In fact libraries are increasingly perceived as *incomplete* sources of information and scholars are increasingly less likely to trust librarians to make the critical decisions on what is and what is not in the walled garden on their behalf. The library is also no longer the gatekeeper for, and sanctuary of, trustworthy sources. The trusted 'big fat information pipe' is no longer the publisher platform or the library catalogue/website; it is the Internet, Google and huge third part sites, such as PubMed and Scopus. On top of that Google Scholar and the social media are creating a new value proposition by providing citation and other (alt) metrics so users can form own views on what is a good, so compensating for lack of library advice.

Libraries badly and urgently need to articulate a value or rationale for their collections in a borderless information environment. Access, snacking opportunities and convenience are King, the adage content is King has been kicked into the long grass. This has significant implications for collections based services such as libraries. Libraries are increasingly being viewed in a nostalgic fashion.

While they are agonising about all this the mobile device might disconnect them from the young and future scholar. Between a rock and a hard place comes to mind.
What then of the future library? In fact academic libraries managed the first virtual transition quite well really, they took leadership and it largely enabled them make their products more accessible. The second transition however is a much tougher nut to crack, because in football parlance it's an away game on the users' turf. Libraries lack control of events and their 'users' are remote and anonymous. Usage is occurring everywhere, but less and less so in the library. It is very ironic that this should be happening because not so very long ago the 'phone' was banned from libraries. This could be pay-back time!

There is really no point in trying to turn the tide because it is being driven by a tsunami, instead there is a need to go with the flow. Librarians, just like publishers, need another value proposition. In the latter's case they have moved away from being the warehouse and distribution centre for documents that they have become and moved to being much more author-centric, returning to their roots. Some libraries have learnt from the publishers experience and expanded their portfolio of activities, for instance, moving to research and its evaluation. There are now university bibliometricians coaching academics how to improve their impact and reputation; they are also becoming involved

in Open Access payments and the management of institutional repositories. There are still the 'old' books and manuscript collections to look after. Information literacy could work if embedded in educational programs, and if it's strictly pragmatic in its aims and undertaken with the smartphone in mind. And if you cannot beat them join them, so why not work with publishers and not against them? Of course, nobody believes this will fill the huge gap left by the flight of users and documents to the disintermediated social space, libraries will just have to downsize.

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