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Negotiating the Digital Dystopia: The Role of Emotion, Atmosphere and Social Contact in Making Decisions about Information Use in Physical and Digital Contexts

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ABSTRACT

During the pandemic we have found that the experience of interaction online, whether with other people, or with information is very different from what we do in person. And this experience is seldom compared favourably to physical, interaction. Thanks to the A level algorithm fiasco, algorithms are treated with growing scepticism and social media is increasingly regarded as intrinsically toxic associated with deadly misinformation, racism and hate speech. Yet, as information professionals know, digital delivery is ideal for certain types of information, such as journal articles or digital images of rare manuscripts. AI offers the potential to interrogate and make connections between digital collections at an unprecedented scale. But can we build trust if users regard digital interaction and computational techniques with scepticism or even hostility? This article will explore these questions, and consider the importance of emotion and affect in interaction with digital and physical information environments.

KEYWORDS

Digital resources; users; emotion; physical spaces; atmosphere

Introduction

Covid-19 has meant that since March 2020 millions of people have become accustomed to living and working online. As a result of lockdown and self-isolation, tasks that were previously carried out in person had to be achieved using digital technologies. This massive experiment in the sudden adaptation to online living and working, without any prior warning, preparation or training is without parallel in the history of technology. Disruptive events such as wars and pandemics are known to accelerate social and technological change (Spinney, 2019). Some commentators, therefore, have predicted that the COVID pandemic will bring about profound, permanent changes in the use of digital technologies, meaning that

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many of the activities that we carried out in person until March 2020 will migrate permanently to online interaction (Arruda, 2020; Deloitte Digital, 2020).

Whether it does so or not, the experience of living and working online during the pandemic, whether with other people, or with information, appears to have caused a widespread realisation that digital interactions are very different from what we do in person. And this experience is seldom compared favourably to physical, 'real' interaction. This is not, primarily a technological problem. In 2021 the majority of the population of the Global North had access to the technology and a speed of internet connection that they needed to shop, socialise, learn and work online. Yet from every one of the many digital media channels to which we now have access, be they mainstream news outlets, social media, email, the blogosphere, came evidence most people seemed profoundly to hate the experience of digital interactions. They also found working at home stressful and disorientating; did not enjoy having to integrate private, family and work life in one space; and longed to return to physical spaces and interactions. The experience of using technology has, like many other aspects of lockdown, provoked very strong emotions, including a longing for physical interactions and social contact, and, perhaps as a result a profound dislike for many of the digital resources which have had to substitute for this, for example the widespread hatred of 'yet another Zoom meeting'. It may even have heightened fear and distrust of digital technologies, especially those related to surveillance (Al-Maroof, Salloum, Hassanien, & Shaalan, 2020; Keshet, 2020).

Yet, despite the apparently unprecedented nature of the circumstances we face in 2021, this is not the first time that rapid progress in digital technologies, coupled with an extraordinary geopolitical situation seemed to be about to bring about huge and permanent social change. In 1990, the internet was opened for general and business usage for the first time. In the years immediately following this academics, journalists, information professionals and even the chairman of the US Federal Reserve predicted with confidence that the rapid growth of internet technologies would bring about an entirely new global economic, social and political reality (Cassidy, 2003, p. 160; Dery, 1996, p. 4; Loader, 1997, p. 1).

What we would now describe as digital, the 1990s knew as virtual, which almost everyone who wrote about it agreed was better, faster, more efficient, easier to access, cheaper and more exciting than anything in the analogue world. The word 'virtual' was used as a metonymy for a complete revolution in behaviour which, it was predicted, would transpire as digital interactions replaced activities which had hitherto taken place in physical space, whether this applied to business and the workplace, education,

museums, galleries, libraries, or books and reading. This seemed plausible, rather than naïve, because something that seemed impossible had just happened. In 1989 the Berlin Wall fell and communism collapsed. If the apparently invincible power of the Soviet empire could suddenly implode, then it seemed a small step to imagine that we could become digital beings, living in cyberspace, and that the old rules of politics and economics really could be rewritten.

It also seemed reasonable in technological terms because some digital technologies had already proven transformative: access to email and the world wide web changed the way that most people worked and studied in a remarkably short time between the mid to late 1990s. Although I completed my PhD in 1994, as a graduate student I had no email account, or web access, and used a desktop computer running DOS rather than windows, and had never used an electronic text, whether delivered via the web or networked CD-ROM. Instead I accessed all the secondary materials I needed in print, including journals and reference materials such as the MLA bibliography. Within five years such an experience seemed unimaginably antiquated to my students. It therefore seemed reasonable to predict that within a further few years digital technologies could bring about even more radical changes, spelling the end of the printed book, the physical office, library, museum or lecture theatre. In contrast to the experience of the pandemic, such anticipated changes were viewed positively – seen as opportunities for greater efficiencies at work, and different, exciting ways to socialise or create community. In the following article, I will therefore consider what lessons may be learned from the first wave of predictions of massive change to online living and why, ultimately they proved unrealistic to inform our response to our current situation, and how information professionals might respond to this.

The triumph of the virtual

Until the COVID crisis very few people worked at home: only about 5% of the workforce of the UK, EU and 3.6% of that of the USA did so regularly between 2017–2019, although numbers were growing slowly (Eurostat, 2018; Lister, 2020; Watson, 2020). This is perhaps surprising, given that experiments in what was then known as 'teleworking' or 'telecommuting' had been going on since the 1970s often in sectors where relatively few employees had a high level of personal contact with customers, such as IT and telecoms providers, banking or insurance (Haddon & Silverstone, 1992). If employees could work at home successfully, companies foresaw significant savings in terms of office space, carparking and canteens (Lupton & Haynes, 2000). Employees themselves could also look forward

to a life without long, tiring commutes, which in turn offered the possibility of less congested roads and rush hour trains. It was also hoped that home working would facilitate better integration of work and childcare (Haddon & Lewis, 1994). Technologists predicted that all work might soon be carried out in cyberspace, using conferencing software to facilitate long distance communication, making expensive trips to meetings and international conferences unnecessary (Pruitt & Barrett, 1991). Policy makers predicted significant increases in home working by 2000, by which time the European Commission planned to create ten million teleworking jobs, and Smart Valley Inc, a not for profit cyberinfrastructure provider, predicted that 10% of the population for the population of Silicon Valley and the Bay Area of California would be telecommuting (Perin, 1998; Qvortrup, 1998; Saal, 1994; Tapscott, 1996, p. 24).

In 1993 the Follett report on the use of technology in UK higher education predicted confidently that by 2001 students would access all learning materials from their bedrooms via networked digital resources (UKOLN, 1993, chapter 7). Such a scenario appeared plausible, given the massive changes being driven by access to the internet in the early 1990s. For the first time digital journals and reference materials could be accessed from labs, offices, and indeed student residences. Inevitably, this led to questions about the purpose of the physical library, whose existence appeared threatened by the increasing sophistication of digital library systems. Physical libraries appeared doomed to be, at best, warehouses for the historical materials which humanities researchers stubbornly insisted on requiring (Friend, 2000; Gorman, 1991; H. King, 2000) .

It certainly seemed unlikely that libraries would house printed books, whose future, whether as academic monographs, or pulp-fiction paperbacks was predicted to be a short one. The 1990s were thought to be "the late age of print" as Bolter (1991, p. 2) put it, during which printed books would be overtaken by electronic textuality (Deegan, Chernaik, & Gibson, 1996; Finneran, 1996). Vandendorpe (1999, p. 167ff) predicated that within a very short time, the practice of intensive reading of print would be succeeded by targeted searching of digital text corpora. Humanities scholars feared that, as a result, students would cease be able to read complex literary texts, thus divorcing themselves from longstanding traditions of Western humanistic scholarship (Birkerts, 1995, chapters 3–4).

While elegists such as Sven Birkerts lamented the death of great literature, delivered in printed books, enthusiasts for the use of digital technology in teaching hoped, instead, that students would benefit from the ability to create their own paths of interpretation through hypertext documents, free from the tyranny of an authorial narrative. Rather than being assessed individually by written essays with a linear argument, students would

collaborate with their professors to create hypertextual resources which grew every year. When vast amounts of information were available via the web, it also seemed antiquated and inappropriate to evaluate students on their ability to recall facts as opposed to evaluating information and applying knowledge (Shields, 1996).

The idea of a professor standing in front of the class imparting knowledge seemed irrelevant in a digital world. King (1993) famously predicted the demise of the 'sage on the stage' in favour of the 'guide on the side' – an assertion that proved massively influential, despite having no basis in robust experimental evidence (Jones, 1999). The need for the stage itself, the lecture theatre, or even the university also seemed questionable, once the digital materials for distance learning could be delivered via the web, allowing a small numbers of academics to teach large numbers of students online simultaneously (Garson, 1996; Wulf, 1995). The full time three or four year degree undertaken in person between school and work seemed a dated model once digital lifelong learning could be developed by commercial organisations, tailored to their own business needs (Björkegren & Rapp, 1999; Mcloughlin & Jackson, 1999).

The persistence of the physical

Despite the hopeful rhetoric, predictions of the triumph of virtuality were flawed. All of the problems that those working at home have experienced during the pandemic had emerged by the 1980s, albeit on a smaller scale. Organisations that had hoped to make substantial savings on office space were disappointed to find that telecommuting was only a partial replacement for physical workplaces since most employees split their work time between home and the office (Lupton & Haynes, 2000). Although some employees with caring responsibilities welcomed the opportunity to work at home, many found that their lack of visibility in the office led to assumptions that they lacked commitment, thus limiting their opportunities for career progression (Christensen, 1987; Fireman, 1998; Kompast & Wagner, 1998). Many employees, especially those on relatively low pay, found it difficult to create a dedicated space for teleworking that was quiet and free from interruptions (Haddon & Silverstone, 1993). Teleworkers often reported difficulties with maintaining an appropriate separation between work life and family life, which was especially problematic for women with caring responsibilities, who were still expected to do the majority of domestic chores (Haddon, 1998; Judkins, West, & Drew, 1985; Olson, 1985; Olson & Primps, 1984). Some home workers even missed commuting, which allowed them personal time away from the demands of others and created psychological separation between their domestic and

working lives (Haddon & Silverstone, 1993). Teleworkers also missed the social aspects of life in the office, where lunches, coffees or watercooler moments ensured that informal relationships were made and strengthened (Huws, 1984).

But perhaps the most profound difficulty was caused by established organisational cultures and management practices. Many managers found it impossible to adapt to an organisational culture where employee performance had to be evaluated on the basis of agreed objectives rather than visibility in the workplace. They blocked requests from employees who wanted to work at home, or consistently favoured those with a visible presence in the office when making decisions about progression, pay increases or the allocation of interesting projects (Adami, 1999; Depickere, 1999; Harris, 1998; Nandhakumar, 1999; Perin, 1998). Until the force majeure of the COVID pandemic, therefore, levels of teleworking remained stubbornly low. This is undoubtedly because predictions were based on expected improvements in digital technology and infrastructure yet ignored the barriers to remote working caused by organisational culture and human relationships.

Students are keen to return to face to face learning in physical universities, which, despite the predictions made about online education, have continued to be popular and effective locations in which to learn. This is partly because, as many students compelled to learn online during the pandemic found, it can be hard to find motivation to study in the absence of tutors or other group members, which is why dropout rates for online only courses have always been high (Garson, 1996). Perhaps even more important are social factors. During lockdown, universities were able to provide digital learning resources and online lectures and tutorials, incorporating both real time and recorded video during the pandemic by means of technologies of the kind that could only have been dreamt of in the 1990s, such as Zoom and Teams. Yet despite the technical success of these platforms in making possible the delivery of material that was similar, or even identical, to that which would have been delivered in person, many students and their parents complained that they were not receiving a proper educational experience (Fazackerley, 2020; Weale, Hall, & Adams, 2020). One journalist who demanded the return of her son's fees from a UK university insisted that although her son had been provided with online learning resources his experience as a student was unacceptable because of the loss of social contacts, sport, societies, networking to support a future career, meeting new friends or a potential life partner and indeed the beauty of the physical setting in which he should have been living. Judging by the many comments on her article, many parents agreed (Pearson, 2020).

Online learning also proved surprisingly expensive. Even in the 1990s students demanded high production values for remotely delivered courses and often required high levels of support, which meant hiring numerous digital learning experts and teaching assistants. In comparison a lone professor delivering a class in person seemed surprisingly good value for money to hard pressed university administrators seeking economies (Garson, 1996). It also became clear that access to vast amounts of web-based information did not equate to effective learning if the student lacked the expertise and experience to distinguish useful information from the trivial or dangerously incorrect. In some subjects, facts simply had to be taught before exploration and evaluation was possible, and lectures turned out to be a surprisingly effective way to do this. Students often learned more from the experience of attending an outstanding lecture delivered by a gifted sage on the stage than from even the best constructed online tutorial.

This has remained true despite massive technological progress in the last 25 years: many students continue to apply to particular universities or courses because they hope to be taught by internationally renowned experts. They appreciate access to well-designed digital materials to support their learning, and the ability to review recorded video content, but still prefer in person teaching – an effect which may have been rendered even more marked by the experience of being deprived of in-person learning during lockdown (HEPI, 2019; Pechenkina & Aeschliman, 2017; Petrie, Trollor, Dean, & Harvey, 2019; Tarr et al., 2015). Once at university they continue to enjoy using libraries. Although, as the Follett Report predicted, students can access digital learning material in their rooms, universities across the globe report ever-growing demand for the use of libraries as learning spaces (Andrews, Wright, & Raskin, 2016; Mangrum & Foster, 2020; Ozburn, Kirk, & Eastman, 2020). Just as teleworkers missed social rituals in the office, students value the social experience afforded by libraries and the ritual of travelling to a different space as a cue to begin work. They also appreciate the physical qualities of libraries, often using emotive terms to such as ‘cosy’ or ‘inspiring’ to describe the intangible but powerful sense that these are the most appropriate spaces in which to work. This intangible feeling wonder and delight – ‘aura’ as Walter Benjamin called it – can be evoked by inspiring physical spaces such as libraries but appears to be impossible to replicate in digital information spaces: it is something that users miss as a result (Varnalis-Weigle, 2016). The experience of being in inspiring spaces with other people also creates shared emotional atmospheres (Bjerregaard, 2015). Just as we instinctively understand the difference between attending live music, theatre, or sport and watching it online or on TV, so working in a beautiful library or attending a live lecture may

feel more compelling than online learning, even if the content is very similar. This is not accidental: architects deliberately design spaces such as sports stadia, parks, and academic spaces such as libraries and lecture theatres to create a positive atmosphere (Anderson, 2009).

For hundreds of years libraries have also been designed to maximise light and to create a variety of welcoming spaces for readers, to lead them though the space and help them navigate its content (Black & Pepper, 2012; Dahlkild, 2011; Latimer, 2011). Yet, despite decades of digital library research, we have still failed to design an interface that is as efficiently browsable, and provides such easily accessible information about the extent of a collection, as library shelves (Warwick, 2017). Lecture theatres evolved from the anatomy theatres of the Renaissance to be imposing venues designed to have effective sight lines for both students and lecturers. This resulted in large, airy spaces replete with atmospheres conducive to learning (Abbott, 2008; Forgan, 1989). As yet, however, we have not been able to design digital spaces that facilitate the sharing of inspiring atmospheres – a phenomenon that has become familiar to millions of people compelled to work and socialise online during the pandemic. Few people regard such interactions as a viable alternative to physical meeting as a way maintain contact with friends or loved ones, not least because many people miss the sense of touch itself (Spechler, 2020).

Predictions of the demise of the printed book also turned out to be spectacularly incorrect, due to a mixture of technical and social factors. The death of the book might have been predicted with less confidence had a strange new phenomenon related to digitisation been better understood: the more we digitise the more people demand access to original artefacts (Ferguson & Hebels, 2003, p. 70; Zhang & Gourley, 2014, p. 3). In analogous fashion, e-books appear to have had a multiplying effect on demand for printed books: the more an individual reads in digital form the more they read in print (Buchanan, McKay, & Levitt, 2015).

Early digital enthusiasts assumed that adoption of eBooks would grow as technology improved, but they were wrong to do so (Murray, 1998, chapter 4). Despite huge improvements in the screen resolution of computer monitors and ereaders and the invention of tablets, many people still find it uncomfortable to read from a screen for long periods. Comprehension and recall of text is also significantly lower when reading from digital texts: as a result many readers continue to prefer printed books when reading complex texts such as academic monographs or literary novels (Delgado, Vargas, Ackerman, & Salmerón, 2018). Some physical affordances of printed books are also difficult to replicate in digital form. A quick glance at the respective sizes of stacks of books read, and yet to be consulted provides an immediate gauge of progress through a research task. Flicking

through pages helps us to work out where we are in an individual book, a technique that, in combination with the use of printed indices is one that many readers still find as efficient as digital search when looking for material within a text. Bookmarks or post-its remain similarly effective as navigational aids. Several books can also be laid out on a table when readers are trying to martial their ideas or compare different sources, images or ideas.

This may explain why despite the enthusiasm of digital humanities researchers, digital editions of literary texts were little used (Porter, 2013). It remains easier to compare different variants by laying several printed texts on a table than continually clicking between windows on a computer, even when using a double monitor. Users found hypertexts, whether these were scholarly editors, or works of fiction, confusing and difficult to navigate without the aid of an authorial or editorial guide: few welcomed the opportunity to create their own path through digital resources (Coover, 1992; Murray, 1998, p. 87; Tuman, 1992, p. 77). With the exception of a few experiments in digital paedagogy, such as George Landow's Victorian Web, most students are still assessed on the basis of individual essays with a linear argument, rather than a contribution to collaborative hypertexts.

While the hypertextual web is well suited to targeted searching and browsing, journal articles and monograph have remained very similar, eschewing hypertext as a form; students continue to value set piece lectures; and readers choose to use texts compiled by an editor. All of these phenomena provide strong evidence of the power of narrative. Whether it is that of a student essay, journal article or of a work of fiction, the logical sequencing of narrative enables the author, lecturer or editor to help their audience make sense of disparate material and complex ideas in a way that is impossible via the associative linkages of hypertexts.

This is hardly surprising, since the need to create narratives to make sense of life is a basic function of the human brain, which means that we find puzzles or stories, especially those from which pieces of information are missing, almost irresistible. The reward systems in the brain spike both when we are seeking that information and when we find it (Storr, 2020, p. 188). However, when presented with pieces of heterogenous information where causation is ambiguous or contradictory the brain's reward centres remain unstimulated and we grow bored (Storr, 2020, pp. 53–55). This may help to explain hypertext proved less appealing than had been predicted – it failed to offer the thrill of the chase inherent in linear narrative. In effect it was less emotionally, as well as cognitively appealing to human readers.

Printed books also have affordances that go far beyond the purely technological – they are valuable social objects that appeal to our emotions. The value of the e-book market shrank in relation to printed books for the first time, in 2017, and this was largely due to strong sales of children's

books (Cocozza, 2017). This might seem counter-intuitive if considered merely from a technological point of view: most small children spend a great deal of time using iPads for play, so why not for reading? Nevertheless, a printed book seems to function better when adults are sharing a bedtime story or helping children learn to read, because it is part of a social activity that strengthens emotional bonds. The experience of lockdown has also given rise to a boom in book buying, as people have rediscovered the power of reading to support mental wellbeing in circumstances that have been highly emotionally demanding. Not surprisingly, given the emotional value of printed books, their sales have far outstripped digital ones (Flood, 2021).

It is not surprising, therefore that books also remind adults of childhood memories or of loved ones with whom a book may be associated. Although they may use online resources for convenience to find a quotation or consult a digitised manuscript whose physical original is thousands of miles away, or read an e-book when travelling, to avoid having to pack heavy books when individuals read for pleasure they tend to prefer printed volumes (Sax, 2016, chapter 5). They may even try out new fiction in digital form, then buy the book in print if they enjoy it sufficiently (Dietz, 2019).

Readers also value printed books as aesthetically pleasing objects, not simply containers of words. The physicality of the book itself, including its smell, the design of its cover and binding, and even the heft of it in the hand and feeling of turning pages, continues to be important to readers despite the availability of digital surrogates. Just as aura is only experienced in the presence of a physical artefact, so readers express their attachment to physical books in highly emotive language, but never express similar love for digital texts, which they find to be devoid of emotional and aesthetic properties (Dietz, Warwick, & Rayner, 2015). Given the various emotional attachments that humans create with physical information resources and spaces, and the importance of social contact in fostering such connections, it is hardly surprising that they have been loath to desert the material world in favour of online interactions as the 1990s prophets of virtuality had predicted.

Digital disillusion

As we have seen, when the majority of early adopters tried working, reading or studying online they were disappointed by what they found. Yet they represented a very small percentage of the whole population: in 1995, only 14% of Americans had internet access at home, and even by 1998 only 9% of UK households were online (Johnson, 2020; Pew Research Center, 1995). A similar process of discovery and disillusionment happened

during the pandemic, this time at greater speed to far greater numbers. Despite massive improvements in computer hardware, digital resources and speed and ease of access to the internet, there are other reasons for contemporary users to distrust the digital given the ubiquity of social media and the growing use of artificial intelligence (AI) and algorithms.

Although early virtual communities were afflicted by what we would now call trolling and hate speech, such a small percentage of the population was online that relatively few people were affected by, or even aware of such problems. Social media, perhaps the most ubiquitous form of digital technology in society, now has a toxic reputation due to repeated incidences of hate speech, fake news, or damaging rumours, which in the context of COVID-19, or the vaccinations developed to fight it, are literally life threatening. Until the pandemic, relatively few people were aware of the effect of AI and algorithms on their lives. In the 1990s the potential of automated bots and intelligent agents deliver personalised information services began to cause excitement among computing and information professionals, although ultimately it was to remain unrealised (Negroponte, 1996, p. 151; Tapscott, 1996, p. 112). Awareness of threats to privacy from the use of commercial big data analysis, and concerns about the use of AI in social welfare has also been growing steadily since the 1990s. But the pandemic has massively intensified and accelerated such effects. The political storm caused by the use of computational data modelling to assign grades in GCSE and A-level examinations taken by English and Welsh students was a notable example. Some of the assumptions used in the models proved flawed, resulting in thousands of students receiving lower grades than they expected (Kolkman, 2020). This gave rise to highly-publicised protests, on the part of students and their parents, outraged that 'the algorithm', as it was known in the popular press, had ruined their future. This ignored the fact that in a normal year up to 75% of the A level grade predictions made by teachers are inaccurate; many students are therefore disappointed, and fail to get into their chosen university, and many parents question the accuracy of grades and demand that papers are remarked (Murphy & Wyness, 2020). Nevertheless, in 2020, widespread, vocal discontent forced the government at Westminster to abandon the notorious algorithm in favour of teacher assessed grades, which were suddenly perceived to be accurate and reliable as compared to decisions 'made by a computer'. As a result, public trust in AI or the use of any algorithms or automatic data processing appears to have suffered significantly.

A certain lack of tolerance of digital resources is to be expected among a population now largely made up of experienced computer users, who tend to be more impatient with problems related to interfaces or functionality than newer users (Chakravorti, Bhalla, & Chaturvedi, 2018). This intuitively

makes sense to those of us who remember being willing to wait while early web pages loaded slowly, sometimes a pixel at a time, because internet was still new and exciting. Such delays would seem intolerable now that we take web access for granted. But the collision of such attitudes with the pandemic effect of speeding up social trends may result in a widespread sense of disillusion and mistrust of digital technologies and resources (Williamson, Eynon, & Potter, 2020). Users seem to be willing to work, learn or read online, even if this inspires few positive emotions, in comparison with engaging in those activities in physical spaces. In contrast, social media and AI appear increasingly to be associated with clear emotional reactions from users – in this case negative ones such as fear, anger, disgust and distrust. This is potentially dangerous. Many applications of digital technology are benign or even advantageous – for example AI can detect cancer on MRI images more accurately than the human eye alone (Svoboda, 2020). But history suggests that sudden disillusion with things digital can damage the good as well as the bad: the dotcom crash of 2001 resulted in the bankruptcy of thousands of digital start-ups, some of which were perfectly viable, but whose stock was suddenly untouchable because markets had turned against anything connected with the internet.

The role of the information profession

In such a context, what is the role of librarians and information professionals who understand both the benefits and pitfalls of digital resources? Again we might look to the past for inspiration. Academic libraries in the 1990s were leaders in the creation and curation of digital resources. Resources such as Sunsite at University of North Carolina, Chapel Hill were especially notable, but many university libraries listed digital resources that they considered to be useful and of good quality for researchers and created guidance on the evaluation of scholarly digital resources which proved invaluable. Academics who might otherwise have assumed that web-based content was of questionable quality needed help to determine which resources were reliable. As a result, users learned to trust their library website as a starting point for links of useful content and for internet research (Warwick, Terras, Galina, Huntington, & Pappa, 2008).

In the intervening years, as web based resources have become more ubiquitous, corporate and standardised, most users have come to take them for granted. But as AI has advanced the issue of trust and the public (mis-)understanding of algorithms and data quality is live once more. Most users find it difficult to conceptualise the extent of the vast datasets that are used in data science or understand the mathematics that underlies the methods of analysis. Spiegelhalter argues that, as a result, few people know whether

to trust algorithms, or what criteria should be used to evaluate them (Spiegelhalter, 2020). This is significant, since it has been known since the 1990s that researchers, especially in the humanities, need to understand the extent of collections, and be able to compare the scale of the information that they have already found to what remains to be discovered (Bates, 1996). However, this may prove increasingly difficult as datasets grow and AI is used more extensively in libraries and archives, and as a result levels of trust in such resources may prove difficult to maintain.

Librarians, archivists and other information professionals are, however, expert in the evaluation of digital materials, understanding the importance of concepts such as provenance and context in reassuring users about the trustworthiness of information resources and archives. For many years they have also contributed to technical discussions about the creation of trusted digital repositories, and, more recently, about how and whether algorithms themselves should be archived (Donaldson, 2019; Lin et al., 2020; Yeo, 2013). Despite initial predictions that the internet would render such an activity redundant, information professionals are also skilled intermediaries between experts and users. Such a role is of critical importance in countering digital dystopian instincts and navigating a sensible path between promotional, yet unverified, claims made for AI by commercial vendors, and the understandable scepticism of some potential users. It is probably not realistic to expect most academics, or even students, who are not already computational scientists to undertake training courses to enable them to understand the nature of AI or data science. Instead, librarians who do understand such techniques could undertake the kind of individual, less formal intermediary functions analogous to those that their predecessors performed when introducing users to web-based resources in the 1990s. The more users can be informed about the true potential and drawbacks of such technologies, the less they are likely to fear or mistrust them.

Yet it is also important to understand that unwillingness to use digital tools is seldom purely due to technophobia or stubbornness. We learned in the 1990s that users, even, or perhaps especially, in the humanities are not luddites, but have a very clear understanding of their information needs, and an instinctive grasp of the affordances of physical and digital information resources and spaces. Thus they are unlikely to accept a digital surrogate as a replacement for a physical place, process or resource that already suits their needs (Warwick, 2017). Thus potential unwillingness to trust AI or data science techniques may stem equally from emotional considerations, such as fear of technology or love for physical objects such as books, and from choices based on very rational understating of the complexities of their chosen research practices, including that of reading.

In planning for the future after the pandemic, it is vital not to underestimate the importance of emotions, both positive and negative, when users are making decisions about whether to adopt digital resources or techniques; whether to work alone, online, or in physical spaces that afford social contact, shared emotional atmospheres and the delightful experience of aura. It may be tempting to assume, not least because of the financial pressures that will doubtless result from the pandemic, that any activity that can move online should do so. Yet to do so would be a mistake. Digital platforms such as Zoom and Teams were essential technological life-rafts, allowing us to stay in contact with loved ones, and to carry on working and learning online when lockdown made it impossible to venture out for anything but the most essential purposes. It is likely that many organisations will use such platforms to make hybrid working possible in future, but it is clear that they do not provide a complete replacement for face to face interaction, and that such interaction is vital to the successful running of most organisations. Although the tech sector pioneered remote working in the 1980s and 90s, a recent study conducted by Microsoft found that, while the majority of employees would like some ability to work from home in future, many crave in-person contact with colleagues in a physical office, and do not wish to work entirely remotely. (Microsoft, 2020). This is not an isolated example. Even enterprises such Google who initially predicted that their workforce might function entirely online in future are now revising their views, having realised that social contact is vital for the successful functioning of teams, for innovation and serendipitous discovery (Partridge & Makortoff, 2021). Having been compelled to learn online for over a year, students are also impatient to return to physical spaces – to attend live lectures together, and work in libraries whose atmospheres inspire them to learn (Blackall, 2021). It seems likely that, like much of the rest of the population, they may also have rediscovered the emotional value of printed books.

All of this suggests that it is vital that the emotional and social value of physicality be considered when planning for the future of library plant and the delivery of information resources. As what has been locked down reopens, physical presence may almost become a luxury good, access to which users no longer take for granted. Despite the ubiquity of emails, texts and tweets, handwritten cards and letters have acquired a greater value, as demonstrations of genuine emotional commitment, not least because these may become treasured artefacts by which to remember a loved one long after digital messages have been deleted (Bhojwani, 2019; Hall, 2015; Sidhu, 2017). In analogous fashion, universities that value their student experience and wish to demonstrate their commitment to and care for their students would be well advised to consider the importance of physicality in learning

and information spaces as vectors of emotional connection. Students who have been compelled to learn online for so long may now regard digital-only delivery as a second class experience.

Conclusion

Doubtless the idea that many people missed the opportunity to buy products in a real shop despite their ability to do so online would have perplexed early proponents of e-commerce. The fact that students and their parents felt that they had been deprived of such a significant part of their university experience that they demanded fee refunds even though they could learn online, would doubtless have been a surprise to the proponents of e-learning. The continued demand for physical libraries and learning spaces, despite the availability of digital journals, and, to a somewhat lesser extent e-books was also not predicted by the prophets of virtuality. But all of these phenomena speak to a widespread contemporary disillusionment with the idea of virtuality which is very much in contrast with positivity about its attractions found in numerous discussions of the cyberspace era.

The idea that digital environments for working or studying could ever replace physical ones entirely now seems almost ludicrous. But it might not have done before February 2020, when COVID 19 forced the world to confront the realities of life online and we realised that the needs of humans as social beings could not adequately be met in digital spaces. One of the main reasons why online interactions have not replaced physical ones as was once so confidently predicted was, however, not primarily due to a failure of digital technologies, but of overheated expectations about its potential. Few technologies, after all, completely replace their predecessors: handwriting continues to co-exist with printed books, laptops and tablets (Bolter, 1991, p. 38). Most of those who made such predictions in the 1990s had failed to understand the link between digital technologies and the way that humans live and work: that we are social, emotional beings as well as rational ones. When cyberspace and the internet were so new, and life online had been experienced by such a relatively small number of people it was understandable that the social deficits of the online experienced were not fully understood. But there is far less reason to do so now and information professionals are ideally placed to be thought leaders in such areas.

It is equally important to recognise that decisions about whether to use digital resources and techniques may be driven by distrust and fear as much as an affection for physical information spaces and resources. This is not stubbornness or luddism, but an understandable reluctance to engage with techniques such as AI whose nature it is very difficult for most users

understand, and whose reputation, in common with that of social media has been severely tarnished during the pandemic. In such a context it is not surprising that trust in the digital has been eroded, since we are all emotional as well as rational beings. It is only by recognising the powerful role of the complex emotions, such as fear and distrust evoked by digital technologies, and the concomitant attractions of physical objects and atmospheres that evoke positive emotions and shared atmosphere that we can avoid making unrealistic predictions about the information landscape after the pandemic.

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