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THEORY

Commodification of the Information Profession: A Critique of Higher Education Under Neoliberalism

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The structures that govern society's understanding of information have been reorganised under a neoliberal worldview to allow information to appear and function as a commodity. This has implications for the professional ethics of library and information labour, and the need for critical reflexivity in library and information praxes is not being met. A lack of theoretical understanding of these issues means that the political interests governing decision-making are going unchallenged, for example the UK government's specific framing of open access to research. We argue that building stronger, community oriented praxes of critical depth can serve as a resilient challenge to the neoliberal politics of the current higher education system in the UK and beyond. Critical information literacy offers a proactive, reflexive and hopeful strategy to challenge hegemonic assumptions about information as a commodity.

IMPLICATIONS FOR PRACTICE

1. As political control of conditions has a strong impact on library and information practices and scholarly discourse, this paper aims to problematise library and information practices that implicitly support these conditions.
2. This work seeks to be part of a continuous professional dialogue that can enhance resilience through stronger, community oriented practice, as action with critical depth is imperative for scholarly communications and librarianship.
3. This paper reinforces how and why critical information literacy offers techniques for self-aware practices that challenge cultural assumptions about information as a commodity.

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CONTEXT

The Radical Librarians Collective (RLC) is an umbrella title for a freely associating collective of autonomous, politically-conscious librarians and information workers that have been active in the United Kingdom (UK) since 2013. Following the second Radical Librarians Collective meeting in London in May 2014, several interlinking conversations emerged from the various sessions that took place. This article continues, synthesises and develops some of the conversations surrounding information's status in our society as a foundation of economic success, professional ethics for library and information labour and the importance of critical reflexivity in library and information praxes.

At May's RLC meeting, Andrew Preater, an information professional based at Imperial College London, pitched a session that asked whether information is a commodity. This started various stimulating conversations, inviting a range of responses that demonstrated the discursive, multiple and sometimes contradictory ways that information is defined, selected, accessed and used dependent upon context. This creates duplicitous modes of interpretation, but the fundamental issue of whether information is a commodity, particularly in reference to the disparate information made accessible through library collections, whilst largely refuted, remains problematic.

A central theme of this article is the nature of information in our society and how the structures that surround it are part of a neoliberal political architecture. This societal organisation and the structures that surround information in this context is a broad topic, and in order to give a greater focus, this article argues that scholarly information and knowledge, primarily articulated through scholarly communications, is inherently a commons. However, the authors would like to note that the specificity of scholarly information does not remove or absolve the complexities of defining information.

Scholarly communication is both the mode and site of researchers' expressions of engagement with particular topics, problems, experimentations and analyses ("Principles and Strategies", n.d.). Digital technologies have facilitated radical changes to scholarly communications in various forms. However, the apparatuses that govern society's presentation and representation of this information, the features that help to define what commodities are, have been organised to provide a privileged and stratified access to this scholarly information and knowledge. This organisation allows information to appear and function as a commodity rather than as a commons and a public good. The issues surrounding the commodification of such information are, of course, complex and sometimes even contradictory:

> [D]espite laments by librarians about the effects of increasing commodification, without it there would have been no institutional response in the form of public

> libraries and educational programs to promote mass literacy in the nineteenth century or information literacy at the end of the twentieth. (Pawley, 2003, p. 431)

However, by critiquing the commodification of scholarly information, research outputs and academic discourse, we discuss how the advanced process of commodification unnecessarily problematises access to this information in contemporary society. The appropriation of market structures and methods sustains and strengthens the notion that information is a commodity that can be traded, causing tensions for libraries and for information labour.

As a result of the political organisation of the structures that support information's stature as a commodity, there have been consequences regarding society's uses and expectations in terms of information accessibility. Further discussions here contribute to discourse surrounding the proposed use of critical approaches to library and information work to reflexively address or challenge the cultural assumptions about such information, and to encourage a challenge of such assertions through critical enquiry. If information is to remain within the commons as a public good, it is important that it is continually challenged by all users in an ever more distributed (digital) supply chain. This can be achieved through the development of critical approaches to information use, including critical information literacy, which seeks to enable individuals to understand the impact of authorial and institutional biases.

Although RLC are not exclusively concerned with academic and scholarly communication, many of those that associate with it have a recurrent interest in this area. This interest is in the form of both professional practice as library and information practitioners working with scholarly information and as researchers using and contributing to scholarly information and knowledge.

As there were limitations during the debate at RLC, there are too limitations in this paper: this article does not seek to wholly and universally respond the problems of information access to commodified information outside of an LIS context, although the authors would encourage further investigation into the broader implications for information sources outside of scholarly communications and the academic context. Another limitation is that some sections of this article focus on the UK, since that is where the authors are based. However, the authors acknowledge the global nature of scholarly communications and believe that the neoliberalism of higher education in the UK is part of a wider global trend with implications beyond the confines of any national context.

This critique aims to serve as a starting point to develop a dialogue and increase the volume of the profession's internal and external discourses surrounding the politics of information. The efficacy of the profession's praxes on the academe and on society's perceptions, access, and use of information is often subsumed by the pressures of meeting increasing demands. We hope to offer an insight into the philosophical and practical issues surrounding these areas and aim to build stronger, community oriented praxes of critical depth. As such, this article contributes knowledge that can improve others' practice of education. Currently, there are limited articles on critical thinking and economics with respect to the open access publication model, and this article raises important aspects on that matter.

SCHOLARLY INFORMATION AND KNOWLEDGE AS COMMODITIES

The "private appropriation of public resources and the unrestricted commodification of information" (Pirie, 2009, p. 42) has global ramifications by offering opportunities for the censoring of research outputs through private, third party interests (Jump, 2014). This commodification of scholarly information has ideological inferences as well as more overt economic implications. As such, the roles of the academe and its premise as a leading knowledge producer in this paradigm require consideration.

In Marxian terms, a product is the resultant produce of human labour, in the form of either goods or services that are then made available for a price within a market (Marx, 1976). The conceptualisation of scholarly information and knowledge as commodities, "product[s...] transferred to the other person, for whom it serves as a use-value, through the medium of exchange" (Marx, 1976, p. 131), as part of a market orientation, is indicative of the commodification process. The aspects of transfer and ownership are particularly problematic in this regard.

As a result of the commodification of scholarly information and outputs, critical inquiry can be seen to be threatened by market-orientation and corporate interests that structure the marketplace: scholarly knowledge in this system has become merely a product and a form of capital (Olssen & Peters, 2005). This occurs as the wider context for information and knowledge production of the academe directly serves agendas of a commercial nature as "academic publishers are now having to make decisions about what to publish *more* on the basis of the market and a given text's potential as a commodity" (Adema & Hall, 2013, p. 22).

The use of structures and procedures to quantify and measure information outputs in the form of "usage" and "impact" also drives a divergent form of competition for academics as the value of their work is measured according to its contribution to the knowledge economy. This in itself threatens academic freedoms and research focus by encouraging competition around certain subjects or topics at the detriment of areas that are deemed to be of lower value to the knowledge economy, a facet supported by the digital harvesting of various forms of usage data, as will be discussed in this paper.

Normative assumptions about the many changes that digital technologies have had upon the scholarly information landscape often assume a positive impact. There are many positive attributes to advanced digital technologies for scholarly communications. For example, they are "highly compatible with decentralisation and local empowerment" (Gordon, 2008, p. 131). This enables the provision of simultaneous user access and for information to transcend geographical limitations. However, such analyses can be superficial: the structures surrounding copyright, intellectual property, and ownership of scholarly information in a digital landscape require a more critically reflexive approach.

Intellectual property rights, for example, are easily encoded directly into the technologies used (Gordon, 2008, p. 132), but they are more explicitly practiced in the social actions governed by legal structures. The most ironic facet for scholarly knowledge, itself encoded in either language or digital code, is that the "digitization has restricted rather than expanded the capacity of the average citizen to access academic research," (Pirie, 2009, p. 43) through Digital Rights Management and pay-walled information architecture.

The language used to describe contemporary relations to scholarly information also helps to frame its status as a commodity. Increasingly, we describe information users as "consuming information" through various media (Bonfield, 2007). Consumption can be defined as the "action or fact of […] using something up in an activity" (OED, 2014). However, this description does not function correctly for information, as a 'unit' of information is not a finite resource. This linguistically interpellates scholarly information as a commodity. Suber (2009) has elucidated how information and knowledge are non-rivalrous and non-excludable: when information is accessed, it is not 'used up', fully or partially, and thus the world is not deprived of it. However, in a commodified form and market-based context, tacit changes to our engagement with digital information occur as the

> conduit of distributing information was neither a private nor strictly a public resource [... leading to] commons dilemmas on the web, such as congestion and free riding [...] Commons became a buzzword for digital information, which was being enclosed, commodified, and overpatented [and these have impacted upon the] shared territory of global distributed information. (Hess & Ostrom, 2006, p. 4)

As such, if value is primarily (or only) perceived in economic terms for the academe, its position as a public good is diminished. In a marketised forum, the nature of our cultural relationship with this information and knowledge shifts from a relationship conceived in terms of shared knowledge or commons to one narrowly defined in terms of economic value, its associated rights of ownership and its validity to the contemporary knowledge economy. As stated above, this shift leads to competition around certain information and knowledge production, stratifying demand around the knowledge economy and concealing information from a range of user groups, including the peers of researchers and the wider publics outside of the academe.

Information's "[m]onetary value only exists because people believe that money has a value, to such an extent that they will swap material goods and services for it." (Badenoch et al., 1994, p. 16). However, this 'belief' becomes complex and highly distributed when applied to academic information. Arrow states that information "has many characteristics which differentiate it from the goods usually modelled in economics" (1996, p. 119). This is an important caveat when considering the economics of academic information and the related issue of ownership of information and knowledge produced through the academe. Subject, discipline, temporal, and contextual variables are so prominent that while "there is a relationship between timeliness and value" (Badenoch et al., 1994, p. 17), different disciplines have different interests in (historical) academic works, and for different reasons. This makes assessing the economic value of such information deeply problematic and the notion of depreciation even more so, particularly regarding discursive formations.

As Reichman and Franklin (1999) note, "[w]e should not forget that information remains a public good" (p. 969). The premise of information, particularly information and knowledge communicated by researchers from publicly funded institutions, as a public good is an important ontological one. The foundation of information as social, being between people, and of value to the public, emphasises that it is a process rather than a finished product. Reichman and Franklin (1999) go on to identify very clearly the sociopolitical tensions for commodifying such information, as "every decision that overprotects public goods in order to stimulate investment also creates disincentives to use those public goods owing to rising costs" (p.969). This adds a further problematic layer to the creation of pricing for academic information as commodity.

However, as Odlyzko (2014) notes, there has been a longstanding tension from some parties within the academe as:

> publishers [are] making profits out of the unpaid labor of authors, editors, and referees [... However, such practices] are now being replicated far more widely elsewhere in the economy. Many of the most successful tech companies of the modern era, such as Facebook and Google, derive their value from the unpaid labor of their users. Thus what is claimed to have been a possibly passing anomaly in scholarly publishing is actually becoming a central feature of the modern economy. (p.6)

This shift in labour relations and academic information production, dissemination, and accessibility, assisted through technological developments, has had an impact beyond the means of communicating or accessing information. It opens up new challenges and possibilities for the commercial control of networked information. Whilst this may lead to an area outside of the scope of this paper, it is perhaps also worthy of note that there may be a conflation between corporate interest in the information supply chain and a technological determinism that underlie the design, development, and uptake of new opportunities for information dissemination and discovery: the “traditional roles of the two key intermediaries, libraries and publishers, are shrinking. New opportunities are opening up, however, which forces those two groups into new roles, and brings in new agents (such as Google)” (Odlyzko, 2014, p. 29).

The creation and communication of scholarly knowledge could be more fruitfully remodelled as a gift economy rather than a market mode of exchange (Fitzpatrick, 2012). However, this opportunity is often seen as dissident rather than as an ethically rational, sustainable practice; an ideologically motivated risk that is undesirable to the neoliberalised information marketplace. This risk averse behaviour allows the commodification process to mask what might elsewhere be called privatisation (Fleissner, 2009, p. 232), a notion that could sit uncomfortably in a society that purports freedom and opportunities for citizens, and the provision of access to publicly funded information and knowledge as appropriate.

Open access to research is a fight back against this enclosure of the scholarly commons. The copyright for publicly funded research is often signed away by the authors to publishers, who then sell the right to access the material through subscriptions. This model has been challenged by the open access movement and has received support from the UK government (BIS, 2012). However, the apparent liberatory politics of open access have been challenged as illusory (Hall, 2008). Further complexities have since been added to open access, particularly in the UK, where the agenda for the government’s support for a particular deployment of the Gold open access model has been critiqued in itself as a neoliberal form of open access (Sanders, 2013), where information is still defined as a commodity and retains a high economic value and artificially inflated fiscal barrier to disseminating the outputs of research.

The economically prosperous commercial information markets, particularly those with which higher education is involved as both a creator and purchaser/subscriber, emphasise “[o]paque markets and price discrimination [which] are likely to play an increasing role” (Odlyzko, 2014, p. 29) in the future developments of the environments as they mature. Open access has played an important part in returning academic research outputs, a core source of information in an information-led world, to the commons. Providing free-at-point-of-use, equitable access to the information and knowledge, seems like the most desirable route available for redefining the communication strategies for information, but the political manipulation of open access has obfuscated its impact in a number of ways, as discussed below.

INTRODUCING A FREE MARKET INTO SCHOLARLY COMMUNICATION

Open access refers to scholarly research which has been made freely available for anyone to read and re-use. This contrasts to the previously existing model of scholarly publishing in which people would need to pay to access research. The publication process does of course cost money, even if most work is now distributed online rather than in print journals. However, it is not obvious that the burden of this cost should fall on the end user. In the UK, as in many other countries, the majority of academic research is publicly funded. Under the subscription model of publishing, the usual method of communicating their work is that academics write journal articles based on their research, which they then submit to journals to undergo peer review. If it is accepted for publication it is then made available to subscribers of that journal. Authors, editors, and reviewers are not usually paid directly for their work in this process (although editors do sometimes receive a fee).

Open access subverts the subscription model by removing the paywall between the content and the user. The two main ways of doing this are either for authors to archive a copy of their work in a repository, or to publish it in a journal with no paywall in place. This is considered by many to be a more equitable system because it does not bar people from accessing research if they are unable to afford (often very high) subscription fees. When an article is published in an open access journal, the actual costs of the publishing process, such as editorial work, typesetting, marketing etc., still need to be paid somehow. There are various methods of doing this and a large number of open access journals are small entities which are run by volunteers who meet the low costs themselves or with help from a host institution. In other cases, a fee known as an article processing charge (APC) is charged.

This is a fee charged per article and is usually met by an author's home institution or research funder rather than out of their own pocket. They vary hugely in price, ranging from under £100 to over £3,000 (Björk & Solomon, 2014). Open access journals run by legacy publishers tend to charge higher prices than new open access publishers (Björk & Solomon 2014, p. 4). Another option which has been adopted by subscription publishers is 'hybrid open access', in which APCs can be paid to make an individual article open access within a subscription journal. This leads to some complex funding models for journals, discussed further below.

The UK coalition government has been a firm supporter of open access, particularly the Minister for Universities and Science, David Willetts.[1] He commissioned the report of the Finch Group (2012) which contained a set of recommendations for transitioning from a subscription to an open access publishing environment. Many governments and research funders worldwide have introduced mandates that all research they fund must be open access (see SHERPA/JULIET, 2014), but these mandates have largely focused on self-archiving rather than open access publishing. The UK has taken a different approach: guided by government policy, and encouraged by subscription publishers, the UK's biggest research funder RCUK has mandated that research it funds must be published as open access. They strongly support the use of APCs to pay for this.

This has serious implications for the direction which open access is going in the UK. The APC funding model certainly has some good things to be said for it. APCs make the cost of publishing much more transparent to all parties; they change the focus from the journal level to the article level, which may be a much more relevant unit of scholarly communication; and they can succeed in the main goal of open access which is to provide openly licensed scholarly articles freely accessible to anyone with an internet connection. The current journal market is highly dysfunctional due to inelastic demand (Shieber, 2009), and moving to a market which is entirely funded by APCs would remove a lot of this dysfunction.

On the other hand, there is a big difference between fully open access journals and hybrid journals, and this difference has not been officially recognised in the official position of the government or RCUK. Hybrid journals receive funding from two different sources—subscriptions and APCs. Sometimes the same institution may pay a publisher for both of these sources, which leads to what has been termed 'double dipping'—when an institutional pays a subscription to a publisher for a journal, and then pays an APC to the publisher to make an article open access within the same journal. This can be avoided by offsetting the cost of APCs against subscription fees, and the more progressive subscription publishers are exploring mechanisms to do this (Lawson, 2014, p. 1). The problem of double dipping does not arise for fully open access journals.

By introducing a transparent market for individual transactions within the academic publishing system, we can see that the UK coalition government's support of APC-funded open access is congruent with their neoliberal agenda. The journal article is construed as a commodified unit of exchange, and market competition will determine the economic value of that unit. As with healthcare, education, and many other areas, one of the primary

[1] Willetts was the Minister for Universities and Science at the time of writing this paper. He resigned his post in July 2014.

ideological goals of this government is to re-organise as many sectors as possible into free markets. Creating a free market where one does not exist requires significant government intervention, and their intervention into scholarly communication has so far not been deep enough to enact structural change in the market. But it certainly appears that by promoting APCs as the method of achieving open access, they are trying to turn open access journal publishing into a commodity-driven free market, while seeming to support the high ground of openness and transparency.

If a desirable goal for the open access community is achieved, albeit only for reasons which have nothing to do with the purpose of most open access advocates, there is a temptation to claim it as a victory. However, it is not often that the desires of neoliberal politicians and activists for progressive social change align, so a critical understanding of how the field of scholarly communication is being restructured is necessary. The open movement—open access, open science, open data etc.—has not sufficiently questioned just who these movements are designed to benefit (Kansa, 2014). If greater openness and transparency still leave the same power structures in place then they are not achieving the goals of social equity that they purport to.

Further, how can we be sure that the route by which openness is achieved won't have consequences that aren't obvious at first sight? It is now clear that the major commercial publishers, with the support of the UK government, are trying to find a way to not only keep their share of the market but embed market values even deeper into the scholarly communication process itself, by affixing a price to each transaction. While open access publishers such as PLOS offer waivers to those who cannot afford their APCs, legacy publishers do not, thus continuing to exclude many participants from the scholarly conversation, perpetuating the divide between those researchers based at wealthy institutions in the Global North and the rest of the world.

Something of this approach can be seen in David Willetts' promotion of open access because of the potential benefits to SMEs. In line with recommendations of the Finch Report, Willets supported the introduction of license agreements similar to those in place for higher education (e.g. 'big deals' such as Jisc Collections NESLi agreements which grant access to a publisher's entire journal output for a high price) for SMEs (Willetts, 2014, pp. 5-6). Willetts promoted this as a complementary way of achieving wider access to research in lieu of full open access. Odlyzko (2014, pp. 2-4) claimed that Big Deals have the same effect as open access, because they give access to most research to those who use it. This claim is not only false, but chauvinist; it is based on the assumption that only academics at research institutions need access to research, and gives no recognition of the public benefit of wider access. Willetts' promotion of extending licensing to SMEs could be seen in a similar vein, as increasing access to research for those who the government has most interest in—i.e.

UK businesses—while doing nothing to promote the fundamental cause of open access for all. Combined with the preference for APC-funded open access and a lack of interest in alternative non-profit models, this is the kind of distortion of the aims of open access which occurs when the public interest is subverted for the interests of capital.

The problems arising from the continued intrusion of the interests of capital into scholarly communications are not insurmountable, and it is possible to create an alternative system, a true scholarly commons. There are many proposals, both imagined and real, which can lead us into this system (Nielsen, 2012). If the top down approach of governments and research funders is not focused on this, then the pressure must come from academics themselves. However, it is difficult to see how this can occur without wholesale change in the evaluation of researchers' contributions to knowledge, away from the narrow quantitative measurements of the 'impact' of research such as those used in the UK's Research Excellence Framework (REF). The success or otherwise of new systems of scholarly communication is inextricably linked to processes of research assessment and career reward which are themselves subject to political and economic forces.

THE POLITICS OF SCHOLARLY COMMUNICATIONS AND DISCOURSE

Information has always been a key part of the organisation of society. However, the increasingly pronounced centrality of information upon our society, specifically in relation to our economy, has been an important demarcation for its current political significance. The tensions between information and our social relations in terms of information discovery, access, and synthesis, is now a key part of what Illich (1981) sees as an apparent movement from the vernacular into the economic sphere through its commodification. The shift is of social, economic and intellectual significance, and as such the effects on dialogical modes of communication require further analyses.

Scholarly discourse is a dialogical forum which, "in a given period, delimits the totality of experience a field of knowledge [and] defines the mode of being of the objects that appear in that field" (Foucault, 1973, p. 157). This facilitation of a framework for mutual relativity between historical documents, and as such, our understanding of their relationship between one another is the foundation of discourse, albeit with its own limitations. This system "govern[s] what may be said, in what mode (scientifically or not), what is considered valid, what is considered appropriate to be circulated in the educational system or another public setting, and who may say what" (Simons, 1995, p. 24).

As discussed above, an uncritical acceptance of the constructs within the politically structured organisation of our society has led to the acceptance, even within the LIS literature, that "[i]nformation is a commodity which is bought and sold. However difficult it may be to define how it acquires value, the fact of the commodification of information cannot be denied" (Feather, 2008, p. 109). This normative notion reinforces the inequities of access to information by normalising the idea that information can be traded, that scholarly information has an economic value and that access to such information (and access to contributing to dominant, authoritative sites of privileged debate in the case of the UK government's preference for APCs to fund open access) is not a right but a privilege.

In terms of the library as a site of cultural production, as "[l]ibraries do not simply respond passively to communities' stated desires [...] they help to construct the desires and expectations of the communities. In other words, libraries, to an extent, contribute to the legitimacy of a cultural orthodoxy" (Budd, 2003, p. 22). The move to a marketised form of information and knowledge production and consumption epistemologically ruptures the understanding of scholarly discourse and libraries' contribution to this. This rupturing occurs as a result of the quantified measurements of value that is necessitated by its marketisation.

There has been an increasing move towards the management of scholarly outputs, information and knowledge, which is supported by library praxes, towards an empirical, 'objectivist' mode. The pioneering data-processing of Big Data analytics are being applied to scholarly outputs. Such methods are used to track expenditure, analyse value for money (often measured by usage), to allocate institutional funds for purchasing access to information, and for APC costs. This deployment not only implicitly validates the notion of information as a commodity, but also challenges the discoursal mode of practice that extends beyond merely knowing towards understanding:

> Whilst it might be desirable to explain why associations exist within the data and why they might be meaningful, such explanation is cast as largely unnecessary […] whilst data can be interpreted free of context and domain-specific expertise, such an epistemological interpretation is likely to be anaemic or unhelpful as it lacks embedding in wider debates and knowledge. (Kitchin, 2014, p. 5)

There is less of a material debate around how to fully interpret such data in LIS praxes as it proclaims to document events, leaving the surface layer of residual human activity transparent. Although this cultural orthodoxy is not per se a problem in this regard (Budd, 2003, p. 22), it does raise questions regarding the validity and authority of such behaviours, which should be asked as a mode of reflexive practice across the community. This fails to critique some of the confines of the empiricism driving scholarly information and knowledge's marketisation.

This failure occurs as the objective mode of valuing scholarly information and knowledge in the form of an article, for example, displaces niche research areas that are of less direct or tangible importance to the knowledge economy. This is of particular concern for academics in parts of the humanities where there is less of a correlation between the knowledge shared through their research and an application in the form of goods and services. However, variance of usage is not exclusive to the humanities. Some STEM disciplines, such as mathematics, can also display a relatively low usage. As such, those disciplines may anticipate pressure to demonstrate stronger demand and usage to improve perceived value, particularly as subscription prices in the UK (Prosser, 2010) and beyond (Association of Research Libraries, n.d.) have continued to rise above inflation. However, the application of the STEM subjects that operate in the space between science and product, and their role in the academe's "[collapsing of] the distinction between knowledge and commodity" (Docherty, 2012) seems to have elicited less concern.

Whilst this article is not going to comment on the potential problems of surveilling communities of users, the harvesting of data does reveal descriptions of what has happened that may very well be of value. Such data describes what has happened when users have engaged with the systems provided to facilitate access to information. However, this is only a part of the information required to evaluate behaviour; such data collection cannot document the subjective rationale for the decisions that led to behaviours being observed. The sorts of data obtained, (digital) interactions with documents, are based on the commercial imperatives of efficiency and growth rather than the complex and plural cultural values of scholarly research that cannot be as easily quantified.

As such, the implementation of data-led, metrical analyses of information usage should be considered as a partial indicator of suitability rather than as the de facto indicator: scholarly information and knowledge is a discursive facet that is bound in social and political contexts. A failure to recognise this reduces higher education to "providing, with increasing authoritarian efficiency, pre-packed intellectual commodities which meet the requirements of management" (Thompson, 2013, p. 166). This is not conducive to information helping to enhance society in any way outside of a neoliberal agenda.

The appropriation of commercially-oriented practices to library and information work, in order to assesses the relative value of resources, is problematic both ideologically and discoursally. Often, a simple cost-benefit analysis may be all that is required to see if more people have been using a given resource over a period of time, relative to its cost, to indicate a trend of economic value to the institution according to the level that the resource is used. Increasingly complex metrical analyses of usage are being developed to better describe how information is being used and what this means for LIS and information 'consumers'. As Kitchin (2014) notes:

> [F]allacious notions [regarding context free, epistemologically anaemic analysis of data] have gained some traction, especially within business circles, because they possess a convenient narrative for the aspirations of knowledge-orientated businesses (e.g. data brokers, data analytic providers, software vendors, consultancies) in selling their services. [...] In this sense, whilst the data science techniques employed might hold genuine salience for [scientific] practitioners, the articulation of a new empiricism operates as a discursive rhetorical device designed to simplify a more complex epistemological approach and to convince vendors of the utility and value of Big Data analytics. (p. 5)

Library and information employment of this data-oriented work can therefore be seen to support the marketisation and commodification of scholarly information and knowledge. This actively contributes to the political obfuscation of the nature of this information and knowledge in our society rather than remaining neutral. As an apparatus, this metrical doctrine of the knowledge economy is driving neoliberal imperatives for libraries and information services. These tools are not designed to integrate seamlessly with critical analyses of human behaviour: "on their own, metrics of any kind (understood as mostly quantitative data) cannot and should not be used to assess either impact or 'excellence'" (Priego, 2014). If the measurement of impact and efficiency is required, our internal institutional processes and broader community and sector-wider measurements need to more explicitly incorporate more varied, heterogeneous methodologies and include qualitative aspects.

In an anomalous way, many of the metrical praxes assume that all accesses are equal to one another, and as such represent equal value against the cost for the institution or service. In many respects, this approach appears to be refreshing, but the production of knowledge and the discourse that it builds is inherently hierarchical. The discoursal contributions and geopolitical-distribution of these contributions are not equal, and as discussed earlier, neither is there a neutrality in the usage and uptake of data, knowledge, information, and their associated documentation. To fail to represent the value of a professor's use of a document to an institution in the production of research which has attracted external funding and will be used as part of a REF submission, compared to that of a first year undergraduate in the preparation of a diagnostic essay, seems highly problematic when it comes to assessing the real 'value', economically or otherwise, of a resource to an institution. This is the effect of neoliberalised system that removes context and reduces the complexities of information use, synthesis and production to transactional elements and prioritises growth and increased volume above nuanced, qualitative evaluations.

The drive to more rationally control the otherwise chaotic environment through these empirical, 'evidence-based' practices,

> promotes a monoculture of the mind. It perpetuates a standardized curriculum (i.e. a standardized form of knowledge), student, and teacher subjectivity, through the culture of high-stakes testing and accountability. As scholars have noted, there has been a growing emphasis on high-stakes testing and accountability culture in the current neoliberal climate in Canada, Britain, and the USA which leads to the standardization of education and learning. (Shajahan, 2011, p. 191)

Following the Browne Review (2010), there has been an "absence of any discussion of the wider values of higher education, reducing it instead to a matter of an individual's private investment in human capital" (Holmwood, 2014, p. 62). Holmwood's (2014, p. 63) assertion that the neoliberal regime is forged at the foot of "a global, market-based knowledge economy" can be seen as site for the transfer of power from the producer's of knowledge to their managers within higher education. Information as a commodity in this educational or research context merely leads to an "abundance of commodities, namely commodity relations, [which] can be nothing more than *increased survival*" (Debord, 1994, p. 40) for those trading their labour for the production of information. In turn, the "*tendency of use value to fall* [...] develops a new form a privation [which] requires most […] to participate as wage workers in an endless pursuit for attainment" (Debord, 1994, p. 47).

Recognising the primary driver for scholarly knowledge production, with a particular concern for the nature of the academe, is crucial: this information and knowledge production has become part of a pursuit for waged labour in order to maintain or exceed output levels and satiate market demands for more information and more knowledge. This serves marketised functions and is a reductive economic rooting of scholarly information and knowledge production. It means that information and knowledge of value to the market is desired, ultimately leading to a standardisation of knowledge as attested by economic values. This neoliberal shift allows power concentrations to "maintain control over knowledge production" (Shahjahan, 2011, p. 189) by recalibrating the social and political structures that information sits within. The value of information and knowledge as a public good for intellectual and social progress is now secondary to its primary rationale for economic enhancement:

> Ethical action and discourse disappear in a wasteful chasm […] Authentic Higher Education is not possible since all actors are coerced by systemic deterioration of purpose. Without a clear purpose that exists as an end, higher education becomes nothing more than a means to lives that are determined by empty and controlling political and economic forces. (Budd, 2009, p. 115)

The international decrease in public expenditure for universities has been well acknowledged (Altbach, 2001). As such, universities and university administrators have been seeking to partner with corporate bodies to secure funding and strengthen a position in a marketised higher education economy. Such practices have shifted institutional policies towards or even for the neoliberalisation of higher education. This has led to a deconstruction of higher education's function from knowledge generator for social and intellectual progress, pedagogical facilitator for critical, scientific and technological progress to a knowledge provider for the corporate sector at the macro level (Gonzales, Martinez & Ordu, 2013). At the micro-level, we are now aware that some institutions are appraising their staff based on the level of research funding that they have brought into their department (Colquhoun, 2014). As such, the research of the academic, their relative impact or successes – as measured crudely through the REF, and the various journal and article level metrics in use – are no longer even the central arbiter to the academic's professional contributions to the discourse of their discipline nor to human knowledge.

Assisting the stable future of the commercial information and knowledge marketplace through non-discoursal, 'objective' means facilitates a culture of acceptance towards

> the rhetoric of 'evidence-based' practice and policy. This rhetoric leaves out a definition of 'evidence' and therefore assumes that there is a standardized notion of 'evidence.' Similarly, colonial discourse constructed and produced standardized subjects for rule in order to consolidate colonial power despite the heterogeneity among the colonized in terms of their identity and knowledge systems […There is] a standard of evidence that is espoused, which leads to prediction and control. This standard also falls in line with a colonial discourse, which does not tolerate diverse ways of knowing….the rhetoric of bias is used [...] to negate other ways of knowing so that control is maintained. (Shajahan, 2011, p. 189)

Such examinations demonstrate a neoliberal drive towards a rhetorical 'neutrality', which is confounded by a selective scientific research funding process. This puts at risk "the very possibility of critical thinking, without which democratic debate becomes impossible" (Buck-Morss, 2003, pp. 65-66). Our LIS praxes should challenge the dominant position within scholarly knowledge production to interrogate the authority of this hegemony directly and help shift information use from a model of 'information consumption' to a model of participation in discourse.

CRITICAL THEORY AS A CHALLENGE TO THE COMMODIFICATION OF INFORMATION

The problems with viewing information as a commodity have implications for LIS practice and for those using scholarly research outputs in both academic and public contexts; these problems have been identified and their ramifications explored in this article. We posit that critical approaches to LIS practice provide a means to challenge the neoliberal forces that reinforce social injustice through the commodification of information.

Critical theory seeks to "problematize power and the social practices that perpetuate power" (O'Connor, 2006, p. 230) and can be used as an aid to:

> understanding the implications of their policies, practices, and services and how they function within broader social matrices that often serve to reproduce dominant social formations that thwart many of the values and missions traditionally addressed by the library profession. (Gage, 2004, p. 69)

Critical theories have been applied to LIS under a general umbrella of 'critical librarianship,' which takes an explicitly political approach to information work, seeking to promote ethical practices which support the ethical creation and communication of scholarly knowledge with a focus on implications for social justice. This can take the form of approaches to praxis such as Fister's "whimsical" (2010) yet critically astute notion of "liberation bibliography," which encourages people to think about their behaviour around the production of information, where they publish and how they share their work, in order to reclaim scholarship as a "commonly held trust" (Fister, 2010, p. 89) rather than a commodity held by corporations:

> - Liberation bibliography recognizes that the world is not separated into the scholarly and the ordinary. If knowledge matters, it must matter beyond the boundaries of our campuses, and beyond the conference halls of our scholarly societies.
> - Liberation bibliography recognizes that we are implicated in systems that personally benefit us, even when we recognize those systems to be unjust. Whenever we publish in a journal that will resell our work for a profit and withhold it from those who can't pay, we have put our self-interest before social justice [...]
> - Liberation bibliography recognizes that the liberal learning we promote must be beneficial to all people. As a consequence, our libraries should not simply serve our institutions' immediate needs but rather their higher ideals. Toward that end, libraries and scholars need to remind our institutions of those ideals which still form the material for countless mission statements and taglines but are ignored in daily institutional practice. And as individuals and community members, we must act on them. (Fister, 2010, p. 89)

This positioning of LIS workers as advocates of social justice, promoting the accessibility of information and reflective practice, requires those engaged in this work to be reflective practitioners themselves, avoiding, where possible, complicity in the unjust systems and structures they in turn encourage people to challenge. LIS practitioners must be conscious of the language they use and the discourse around their work. For example, Buschman (2005, p. 5) raises the importance of understanding the nature of the business practices that are being adopted by librarians as part of a "transformational discourse" which includes the acceptance of information commodification. Discourse needs to be challenged in many areas of LIS practice, from the "marketing" notions of service promotion to the "customer service"-led approaches to delivery. Critical theory can be a useful lens through which to view LIS work in many areas, but of particular relevance perhaps to the commodification of information within the neoliberal academy, is the concept of critical information literacy.

CRITICAL INFORMATION LITERACY

"Information literacy, if theorized differently, could work to challenge neoliberal discourse rather than eagerly adopting it." (Seale, 2013, p. 58)

A critical approach to understanding the nature of the commodification of information is central to theories of critical information literacy, which has two general objectives:

> the first is to bridge the gap that separates practice from theory within librarianship and the broader LIS discipline (Accardi, Drabinksi, & Kumbier, 2010); the second is to bring outside approaches and disciplinary perspectives to bear on IL (Swanson, 2004; Simmons, 2005; Elmborg, 2006; Jacobs, 2008; Accardi, Drabinski, and Kumbier, 2010; Cope, 2010). (Nicholson, 2014, p. 2)

Proponents of critical information literacy argue that librarians need to do more than merely provide access to information. They need to support people to develop the competencies necessary to be able to understand and interpret information, assess the information they have access to for credibility and validity, and use it effectively (Saunders, 2013). This includes encouraging people to understand the commodification of information and the impact this has on its credibility, validity, and efficacy, as well as helping people to understand the impact of authorial and institutional biases. There is a lack of engagement with these issues in information literacy education and LIS practice more widely (Gregory and Higgins, 2013; O'Connor, 2009; Elmborg, 2006).

The ability for LIS practitioners to be aware of, and enable others to reflect upon, the dominant positions within knowledge production, offers an opportunity to disrupt the structures that position information as an economic commodity and enable people to engage with information on a political and ideological level. In turn, this would allow people to more fully understand the ramifications of their actions, choices, and what has shaped these actions and choices. For example, the ability of librarians to honestly acknowledge the biases and agendas inherent in stock selection could encourage dialogue between librarians, academics, and the public, around the practical and ideological issues that arise from working within the limits of information-as-commodity structures which place economic limits on how much information libraries are able to offer access to.

Critical approaches to information literacy challenge the way in which information literacy is often presented by LIS as a specific service that the customers of libraries 'need' in order to properly consume information. This "commodification of need" (O'Connor, 2006, p. 185) which views the user as being in a deficit position which must be addressed by the intervention of professionals with expertise, serves to disempower individuals. People are viewed as clients with needs, and those needs are to be met by a professional (Illich, 1977, p. 24), which places librarians in a position of control over the clients who will need the support of librarians to achieve information literacy throughout their lifelong learning and is counter to the purported aims of information literacy to create independent information seekers. Critical information literacy encourages people to understand the processes around purchasing, accessing, and consuming information, which can change individuals' relationships with information and empower them to critically challenge the normative assumption that information is and should be a commodity. This in turn can destabilise the structures of power traditionally associated with information literacy instruction, thereby offering library workers the opportunity to work with users to help them become independent and critical information seekers (O'Connor, 2006, p. 225).

Critical information literacy offers the opportunity for librarians to encourage users and colleagues to understand the socioeconomic context of the information commodities they use, which like all commodities have a history of "complex labor processes, human hierarchies, discipline, sometimes bizarre management regimes of control and motivation, conflict, weariness, and often suffering too" (Willis, 1999, p. 142). By helping people to understand the different publishing structures and alternative publication methods and encouraging them to learn about open access, institutional repositories, and their rights and choices surrounding copyright of their own work, critical information literacy instruction can contribute to the process of making information more accessible. An example of this is encouraging critical thought around the neoliberal logic influencing the ways higher education institutions and the libraries within them have embraced online learning; the monetization of online tutorials has transformed the expertise and intellectual labour of librarians into a commodity for commercial transaction (Ryan & Sloniowski, 2013, p. 280). A further benefit of critical information literacy in relation to the commodification of information is that it challenges normative conceptions of 'literacy' and what it is to be 'information literate.' Critical education as part of LIS courses is crucial to changing the current situation in which "the LIS curriculum is just one of a constellation of middle-class practices aimed at maintaining hegemonic control by the dominant class" (Pawley, 1998, p. 123), and would prepare LIS students to challenge normative conceptions of information as a commodity in their work environments.

The commodification of information, and the way information literacy is usually approached, encourages people to be uncritical and passive consumers of information. Critical information literacy incorporates aspects of media literacy to help people to understand information production and dissemination and enable them to evaluate information sources, which increases their ability to overcome their biases when presented with information which contradicts the (inaccurate or damaging) views they hold (Saunders, 2013, p. 310), such as views surrounding the idea that information is and should be a commodity, and associated assumptions about the reliability and validity of information based on its origins and format (Mark, 2011).

CONCLUSION

Within the context of the neoliberal university, with its problematic approaches to information, literacy, and research, and the resultant social injustice which prevents access to information and education, critical information offers a proactive, reflexive, and hopeful strategy to challenge hegemonic assumptions about information-as-commodity, its associated efficacy, and the behaviour of information users as opposed to 'information consumers'. Encouraging people to critically challenge the constructs within the politically structured organisation of society, including higher education, and the normative notion that information is a privilege not a right, and helping people to change their engagement with information through critical reflection could have beneficial consequences: "One consequence of a shift to critical information literacy would be to directly challenge the foundations of this world, the peer review process, the book, and, ultimately, the basis for promotion and tenure." (Doherty, 2007, p. 7).

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