digital literacy

repositioning on-line careers work?

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Digital literacy is an ability to work with computers and on-line devices. People need to be able to manipulate the interface, appreciate what the applications can do, configure them to their own tasks, and adapt them – maybe even re-program them – to work better. This is ambitious stuff for any educator to enable. But the evidence says that it is not necessary, is unlikely to be effective, and is not what is required. We need another digital literacy, and nobody is in a better position to develop it than careers workers. Their students and clients make extensive use of the net, it is well furnished with useful information, and there is no more important task for it than career management. Careers workers are, of course, already active on the net; the argument here is that their participation needs to be repositioned.

There are metaphors for how people use the internet – notably a characterisation of the population as either more like 'natives' or more like 'visitors'. So-called natives habitually use it, to the point where they can be said to inhabit the net. Visitors use it on an as-and-when basis, often as a secondary rather than primary source. The distinction accords with the issues posed here. If the students and clients of career workers use the net as if indigenous to it, should we wonder whether educators use it as if colonists – seeking to direct its activity and resources from far-away and for their own purposes? More than that, suppose careers workers were to think about joining the inhabitants, living alongside their indigenous hosts – as neighbours? This monograph examines distinctive and challenging implications of that repositioning.

Colonising the net would mean looking for ways in which the new-found internet frontier can be adapted to what we were doing before it was discovered. The evidence would be the establishment of careers-work sites, into which careers-work and other educators export what is familiar to them - using their language, to get across their ideas, about what they think worthwhile. But inhabiting the net would be different – looking to what the indigenous do, and for ways of becoming a useful part of those inhabitants' lives. The evidence would be that those educators were being led by inhabitants into the pathways that they already navigate. It would locate career workers as partners to people who already know the territory.

The monograph examines both possibilities. It does not expect to find much careers-worker behaviour at the extremes. It is a search for the kind of flexibility that on-line life increasingly requires. Gung-ho colonists have invariably been overtaken by history.

But the point for repositioned careers workers is that they do not come to the partnership empty-handed. The monograph looks for what they most usefully bring to using the internet for managing working life. Its conclusions are that careers workers should not try to create their own on-line colonies, they should – instead – work with students and clients on how what is found on-line becomes useful in life. It means interesting students in how:

> on-line self relates to their embodied identity
> on-line connectedness links them to wider realities
> on-line searching brings them usefully reliable learning.

There is warning here: by exploiting what the net can do for careers work, we risk losing what all professional educators can do best for their students.

It all raises questions concerning what we mean by digital literacy. Literacy is seen here, not as an on-line facility with the tools, but as an off-line capacity for probing what the tools find. It positions educators as doing what they do best – enabling questioning. This is not exporting content it is expanding process. In this thinking the internet becomes a resource for critical use by students and with teachers as partners. On-line websites provide the content, and technology is the tool. But it is critical thinking that drives the process.

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key words

blog - career - connected - critical thinking - curriculum - digital literacy - enclave - identity - internet - learning - occupation - programme - social network - digital technology - niche - vocation - website

introduction

The monograph is addressed to professionals who, in a more-or-less formal way, set out to enable people in the management of their working lives. They are known as advisers, counsellors, teachers, coordinators, coaches and mentors. They are supported by managers, consultants and trainers. Their activity is here called 'careers work', and its people 'careers workers'. There is a difference between careers work and career management: careers work is what careers workers do, career management is what their clients and students do. Career management calls on a wider range of activity than careers workers conventionally provide, and much of it is now on-line. The monograph therefore looks critically to professional educators - careers workers and their colleagues – for the help that on-line life now needs.

Christian Fuchs and his colleagues (2010) set the scene. They analyze the story so far, not in terms of what the internet contains but, usefully, in three stages of activity...

web-1.0	**cognitive enquiring**	searching sources for off-line use
web-2.0	**interactive communicating**	putting issues and seeking feedback
web-3.0	**cooperative changing**	sharing, probing and challenging

All of these are a means of communication; and every such means has, sooner or later, been captured by powerful interests, whether in commerce or in politics. The custodians of the internet claim to be exceptions to this rule: the web-2.0-to-3.0 journey is celebrated as leading to self-propelled independence, where the net's multiple connections can outflank all that corporations and governments might do to contain them. But US commentator Tim Wu (2010) wonders whether the 'master switch' of the powerful is about to be thrown again, capturing and exploiting the internet for dominant interests. It is a big questions for what is to come – what we will one day call 'web 4.0'. This monograph examines the position professional educators, and especially careers workers, adopt in response to these trends. How can the massively changing internet most usefully feature in how people develop ready-for-anything flexibility in working life? The question is overdue, because the internet can both help and hinder that process.

The monograph does not assume that all careers work is bound to invade and exploit the internet. That would be colonising. But there are dedicated careers-work sites which have captured and adapted on-line activity to their own ready-made purposes. The monograph examines how those sites are used, but it also wonders how careers workers can usefully join-in with what is happening in on-line inhabiting the of net. That would be as partners not invaders, not adapting the net to careers work, but adapting careers work to on-line life.

It is not possible to do any of this without understanding net dynamics, and they are not simply stated. Yet it is necessary to understand careers work on the net as part of the gamut of on-line life.

career management on the net

The internet, which originated in military use, begins by carrying more or less static pages. People can use it as if it were a library or a lecture theatre. That was web 1.0. But *FaceBook*, *YouTube*, *Second Life*, *Twitter*, *Linked-in*, *Skype* and *Xbox*-games, are web-3.0 phenomena – not for library or lecture theatre. This is where clients and students meet their friends and find new ones, where plans are hatched, alliances

forged, and action rehearsed. Internet users have become insiders and producers where they were once outsiders and consumers. And we have no idea how much all of this can be extended or contained by the coming of web 4.0.

There is an immediate issue here for how people navigate on-line territory. The feature by which web 3.0 outflanks invasion is its connectivity - any location can, in a mouse-click, be linked to any other. This feature bypasses the content menus which are part of a good many dedicated careers-work sites. But the exponentially expanding connectivity became impossible to search systematically. Impossible – that is – until, search engines are programmed, semantically, to recognise word meanings. They might, for example, recognise that the search criterion 'work' can also represent an interest in 'career', 'occupation' or 'vocation'. At best such semantically, rather than verbally, driven searches can start from any choice of words to recognise user intentions. But that reliance on semantics actually produces too many finds, and in no particular order.

Hubert Dreyfus (2001) shows how the problem of mass connectivity has become part of the solution, in two ways. Data-based systems, like the search-engine Google, link user criteria to the sites to which people using a given criteria frequently go. The first page of finds can, then, list in descending order what has appealed to most such enquirers. Conversely, sites like Wikipedia, call on user scrutiny of what they find by creating a forum where errors are noticed and corrected. And so sheer mass, thought of as a problem, becomes a solution: the more sites, the more focused is Google; the more users, the more reliable is the wiki.

On both counts menu-loading careers-work sites are losing control of whether and how they are used. A well-focused search engine may well carry enquirers to a non-expert source. And an information-packed wiki, patrolled by virtually limitless monitoring, can be as trustworthy as an expert source. There is little hope for careers workers becoming gatekeepers on those sources. They need another strategy, attending to the variability of what people find. That would be a listening-and-questioning role.

Nancy Baym (2010) points to on-line variability. There are varying degrees of talk-back interactivity. Some expect an immediate reply, some permit time for thought. Sites have varying concentrations of detail and social contact. Users may know each other, or may not. The material may be abiding or transient. Access is by increasingly portable devices. Baym doesn't mention further career-relevant features of variability. The content growth rate is exponential. It includes both verified information and gossipy opinion. It is put across in a mix of numbers, words and images, variously animated. Users can come-and-go in seconds. There are frequent technological upgrades which digitally divide the well-off from the poor. Some sites require registration but not all protect privacy. Disclosure can be diverted to other uses, much of it as 'spam', enticing with bogus plausibility. The big picture is that websites are used for fun, shopping, indulging obsessions, carrying out research and fomenting revolution. And none of these pursuits necessarily excludes any other.

On reducing costs and variable accessibility: an Indian 'hole-in-the-wall' experiment, has installed internet connections in public outdoor areas close to urban slums and rural settlements. Camera monitoring shows children as young as six spontaneously learning to use them. There are no appeals here to theory or research, just a wish to reduce the digital divide (Judge, 2000).

Keri Facer and Neil Selwyn (2010) collate evidence that young people tend to use 3.0 networking mainly for maintaining their social lives. However, they also notice what they call 'backstage' resistance, where on-line exchanges criticise various aspects of schooling. These authors find professional educators to be cautious about the value of 3.0 sites. Educators do not encourage exploratory uses - they seek a clearly-bounded and familiar schooling activities. However these authors may be describing a western phenomenon. It seems likely that Indian, Malay, Singaporese and Sri-Lankan teachers are more skilled in using the internet than their students.

However, an underlying reality may be that – as students gain access to on-line devices – they do so at later stage than educators in fast-moving technological upgrading. Educators' familiarity will, then, become outdated. It is this that has persuaded some commentators to suggest that they need to catch-up with technological developments. But if teacher interest in technology is likely to be limited and shrinking, such a strategy will be – in the long-term – futile. Facer and Selwyn (2010) look elsewhere for a professional response: they characterise the need as creativity, critical thinking and learning-to-learn. That need, less urgent in the quiet library, is imperative in the noisy forum. Its support for user independence undermines any colonising agenda. In this alternative thinking the website still provides the content and technology remains the tool. But it is critical questioning that becomes the process.

colonial dynamics

A G Watts (1996) anticipated some of this. He acknowledged how careers-work exports into digital technologies, for example in self-assessment profiles and writing cvs. But he also foresaw increasing individual control of those processes. The ensuing careers-work story is disappointing; and explained, as much as anything, by the caution which Facer and Selwyn (2010) find at large. Chris Bosley and colleagues (2005) note the tendency among UK careers workers. While Anthony Barnes and Nelica La Gro (2010) argue for a technological catch-up on the internet. And Tristram Hooley and colleagues (2010) speak of a limited range of on-line careers-work activities, neglecting the breadth of web 3.0 possibilities.

Hooley and colleagues also point to the way people use the internet independently of careers workers. And, in agreement with Facer and Selwyn (2010), they see a need to engage with 'culture, education and skills'. A report for the UK Commission for Employment and Skills (Jenny Bimrose & Sally-Anne Barnes, 2010a) shows the sheer range of digital formats to be overwhelming to careers workers. These authors find limited and static resources, such as diagnostic tools and data bases, but few interactive processes such as conversational and student-generated material.

Student and client engagement with other-than-career-professional material is not much mentioned in any of the enquiries. Yet people use them. A growing number of sites set out career experience in narrative terms (Bill Law, 2010a). They resemble the sort of web-3.0 talk-and-imagery on *YouTube*. There is an awkward comprise here: these sites mimic social-networking, but they need to gather support from education-professionals and commercial sponsorship. A consequence of this need to look good is that anecdotal accounts of labour-market experience is presented as though it were generalisable labour-market information. And there is a temptation to favour 'inspirational' stories. It can mean that bad experiences of work-life are avoided. It can also mean that what are, after all, no more than anecdotes are not subjected to any degree of critical scrutiny.

There is also careers-work blogging, 'web-logging', which is a call-and-response activity. Bloggers canvass facts, suggestions and questions; people come back with reactions, feedback and comments. The process can develop lengthy and discursive sequences of key-boarded discussion, in which everybody sees everybody's contribution. In surveying its careers-work use, Tristram Hooley (2011) argues that it has considerable unused potential. However both blogging and classroom discussion can favour assertive and articulate people, especially when there is a commercial dynamic to self promotion in a market place.

A UK based survey of Kezia Richmond and Louise Stephens (2010) shows how graduates make use of the internet in managing careers. They find that social networking figures prominently, and blogging less frequently. And, although students are reported to use their own university's careers-service website, few use other careers-work sites. Some make direct contact with potential employing organisations.

There are also social networking sites - such as *Linked-In* - which offer a way for job-seekers to stay visible to potential employers and to learn from each other. They typically use a combination of listing and blogging formats. They also set up on-line groups with shared interests.

In summary, the evidence shows that professional on-line sites rely on familiar but limited techniques. They do not much ventured into web-3.0. But their students and clients do – although they are not much invited to scrutinise sources and they tend to take things at face value. Michael Larbalestier (2010) points to risks which accrue where disclosure is a possibility. He particularly warns against the vigour with which the corporate world tracks web-3.0 disclosures by potential recruits.

what the net can do

Such professional concerns do not much trouble internet enthusiasts. There is widespread enthusiasm for what the net can do, though not all of it is convincingly supported. Don Tapscott (1998) ascribes the term 'the net generation' to young people he claims to be liberated from authoritarians.

Some see the net in terms which are more directly useful to careers concerns. For example, although Evgeny Morzove (2010) is noted for his doubts concerning the usefulness of the internet, he does argue that it can improve how people are heard, get educated, earn a living, and move up the social ladder.

Some of what is argued goes into detail. Clay Shirky (2008; 2010) points to the value of wiki-like on-line crowd-sourcing for information. He also suggests that social networking's independence of organisational interests restores a more intimate form of social relations. He argues that the internet is introducing people to an expanded 'consuming, producing and sharing' process. If he is right it will re-position people in relation to working life in ways that print and cinema have already done. John Naish (2010) characterises that trend as the ability rapidly to gather and assemble data and coordinate group response. It is what appears to be an increase in intelligence, probably best understood as a selective improvement in those aspects of intelligence that contemporary life most calls upon (James Flynn, 2007). And that is, not least, for the kind of flexibility and innovation required by contemporary career management (Andrzej Klesyk, 2012).

Learning from on-line gaming is also relevant to working life (Tom Chatfield, 2010) account of. Chatfield urges the operational value of *Sims* and *The Call of Duty.* They require practice in managing tasks where command of space, time and logic are critical. Educators could usefully tap into how students navigate those challenges.

John Bishop (2009) is among the first to probe specifically for career relevance in on-line life. His ethnography shows trainee teachers using digital technologies to prepare for what they will later do with their students. He finds the internet inviting a dialogue between – on the one hand – what people find on-line and – on the other – their own inner life. It is, he finds, a continuing soliloquy in which everything becomes a matter of interpretation and reinterpretation, achieving a deeper self-awareness for the off-line management of career.

Most of the optimism concerning the internet is based on web-3.0 potential. It is easy to see all of this as 'empowering' - people can access more material, engage in more conversations, and – it is claimed – exercise more control. That sense of liberation may well be exhilarating for people who don't feel at ease with experts and professionals. The net offers their uneasiness more congenial ways of finding out what is going on, and figuring out what to do about it. And where people change the way they learn educators must change the way they help.

Paul Mason (2012) approaches from another angle – hopeful rather than optimistic. His account of the relationship between on-line life and career management collates evidence from a range of sociologists and economists, all setting out the situation of 'graduates with no future'. He highlights 'Occupy' movements which are sustained

protests, opposing the monetary maneuvering which brought about the 2008 global economic crisis. Occupy is a non-violent, articulate, debating movement, opposed to self-protective corporate and policy interests. It has emerged, more-or-less simultaneously world-wide. Mason claims that it, and the more demonstrative 'Arab Spring' movements, are unprecedented. They are born of an alignment of the interests of largely middle-class young people, with a zeitgeist awakened by political and economic failure, and drawing on information technology which makes globally coordinated action possible. Such movements compromise the position of careers work as an instrument of policy serving corporate interests. Mason see them as a significant means by which people assert their claim to a stake in their societies.

Any account of what the net can do must be layered, and – however optimistic or hopeful – will, at times, confuse. But in order to understand where the opportunities for positive development are, careers workers need also to face bad news.

collateral and other damage

There are relatively few reported cases of deliberately malicious and destructive activity on the net. Those who think that not good enough do not claim malice, they worry about simple-mindedness. The net is widely celebrated as if nothing is agreed or enduring. This is not good news for a careers work, which sees itself as dispensing valid information and reliable diagnoses. But whatever we find on-line is quickly overlaid with updating and contradiction. Does that strengthen people's grasp on reality, or weaken it?

A career-related reaction to confusion is the creation of niches. The reduced costs of dissemination make it possible for the net to reach any number of separate and different positions or niches. A niche is where people can meet whom they like, hear what they believe, and pursue what they want. But finding what they seek risks missing what they need. For, while Shirky's (2008) 'wise crowds' are useful as virtually limitless populations, they are less impressive in small groups. And managing careers on-line needs to be able to separate what is reliable, from what is mistaken and self indulgent, and – sometimes – malicious and predatory. They certainly need to know what it is safe to disclose to whom. But on-line protective barriers are dangerously permeable; and the best of them are easily breached by corporate interests which pay for 'deep-net' searches of candidates' disclosures. It is what Larbalestier (2010) warns against.

Savvy surfers are alert to risks of being misled or led into danger. But niches are themselves subtle-and-smiling forms of entrapment. They hide alternative perspectives: linking to 'friends', saying what 'I like', following 'favourites', welcoming 'people-like-us' and excluding the rest. Each niche celebrates its own beliefs, values and expectation concerning what is worth doing and who is worth paying attention to. That would include what work is worth considering. It contradicts expansive and enlarging careers work. Cass Sunstein (2009) reports the limiting and narrowing effects, worrying about the way in which the net populates itself with more-or-less isolated enclaves, recycling habitual ways-of-looking rather than learning new ways of seeing. If these commentators are right there could be disturbing implications for how on-line careers work maintains the sort of expansiveness needed for achieving equal opportunities and social mobility. Confirming what people think they know is a trap not a springboard.

Direct evidence of superficiality of net-use by higher-education students comes from Eszter Hargittai and colleagues (2010). They find that habitual users are not sophisticated, they value the net mainly for its ease-of-use, they pay little heed to who owns and operates a site, and they do not probe for the credibility of sources. The authors argue for an informed internet citizenry – implying the need for critical thinking – and they claim that such help is not commonly provided.

And there can be deeper, less obvious and wholly unintentional damage. Brain plasticity adapts neurology to experience. The habitual use of tick-and-click websites diminishes unused abilities. The ability to read in depth (Maryanne Wolf, 2008), and the

ability to search for meaning in texts (Tara Brabazon, 2002) are mentioned. And there are reports of benefits for maintaining concentration and grasping meaning afforded by the attentive reading of abiding printed rather than transiently on-line texts (John Miedema, 2009).

Nicholas Carr (2010) describes in detail the way the internet's diversionary links can modify behaviour. An anecdotal report (Laura Miller, 2010) describes the impact of on-line experience on mindset...

> *...countless spinning, dancing, blinking,*
> *multi-coloured and goodie-filled margins*
> *tempts us away to a scattered,*
> *skittering, browsing mind-set...*

Carr suggests that constant diversions favour short-term memory and scramble long-term memory. But long-term memory is the greater part of selfhood. And careers work assumes a more-or-less uninterrupted and meditative process of thinking which gets embedded so that it is re-usable over time. Eye-tracking evidence supports Carr's worries (Nielsen and colleagues 2010).

But before we leave the dangers of niches we should note this: there are minority career interests which are worth voicing. Niches form what Chris Anderson (2009) calls 'the long tail' - a statistical display tapering into a line of minority positions, each attracting enough attention to get by. Career-management has a long-tail: not everybody is attracted to competitive advancement, or wants to be defined by employability, or cares to be labeled by the assumptions built into a diagnostic technique. Engagement in worklife is more diversely motivated than that. It stretches, niche-by-niche, from the personal to the planetary: people consider family life and local communities; they have concerns about economic growth and the survival of species, indeed of the biosphere. It is not easy to colonise such diversity: the long tail of career concerns suggest that careers work needs to adapt to what goes on on-line – not least in how it reframes diagnoses and expands labour-market information.

We have seen how both Selwyn (2010) and Hooley (2011) call for social, moral and cultural responses to digital technologies. And if Sunstein (2009) and Carr (2010) are right there is some dissonance between life on-line and work life. Work calls for reliability as well as flexibility, it is about consideration for others as well as self-fulfilment, it needs sustained engagement though there may be immediate rewards.

There is no simple unraveling of these issues. In a changing world much depends on whether on-line careers work can engage the flexibility which demands a wider perspective than what is easy to find, looks familiar and feels comfortable.

a now-and-future net

No genuine educator wants to shackle students. But not all that is free is autonomous (Bill Law, 1992). Freedom is liberation from constraint - like looking at an open door. Autonomy is knowing what to do about it - like seeing where to go. We can win freedom; but autonomy is learned. Upgrading their on-line devices may win some freedoms; autonomy come by questioning what they find:

> *does this mean move now?...*
> *... do I believe it?...*
> *... is it enough to go on?...*
> *... might I go with it?...*
> *... would it work out well?...*
> *... is that what I want?...*
> *... might there be a better way?...*
> *... then how sure can I be that I want to do this?*

We take it in our stride, in seconds. It's how we survived on the savannah, and what we do every time we cross a busy street. It's also how we agree routine arrangements with our mates.

But dealing with action that can carry you any worthwhile distance poses more demanding questions:

do I know anything about who's telling me this?...
... why are they saying it?...
... is it in their own interests?...
... is it in mine?...
... and the interests of people important to me?...
... can I check on it ?...
... by doing what?...
... and then how sure can I be that it's trustworthy?

These questions demand a lot of disentangling: of appearance and reality, of the plausible and the credible, of looking and learning, and of learning and doing. Plausibility entices, and sometimes it doesn't matter – smile, and do it anyway. But, before anybody commits to a move of any significance then findings must stand up to scrutiny. It matters because there are not only inhabitants on the net, there are colonists who manipulate and predators who harm.

There are here the makings of an agenda for professional on-line careers work. Jaron Lanier's (2010) work on the influences of digitisation provides a framework. A test of its usefulness is the extent to which he covers the pros-and-cons of on-line life raised in this monograph.

Table one (following page) sets out the framework. It draws, in the centre, on Lanier's thinking. On the left is a parallel account of what an educator might notice about people's engagement on-line. On the right is a careers-work agenda based on Lanier's understanding of that engagement. The table sets out, top-to-bottom, three areas for development. They suggest how...

 ... an on-line self relates to embodied identity
 ... on-line connectedness links to wider realities
 ... searching on-line becomes reliable learning.

Lanier (2010) implies that doing everything inside your comfort zone is living dangerously.   But that does not mean that column 1 need alarm – for most people it reflects no more than party talk...

as simple as that
so just do it
because you should follow your dream
and wishing can make it so'
for, like celebrities, we are all worth it
and whatever was once no better than cool is now, at least, brilliant

It is of course, never as simple as that. But it's a curmudgeon, not an educator, who would want to spoil the party, as long as – deep-down – nobody expects such talk to take anyone anywhere important. But, if they should, then they need to learn that there's more to life than the-bright-breezy, and on-line devices are not just fun-guns.

We all have more than one voice on where to go, who to go with, and why to bother. It could be for fun. for keeping organised, for finding meaning – it could be for survival. In attending to students' voice educator's might usefully ask themselves which level of that multi-lateral talk they are hearing.

table two
on-line influence

references to Jaron Lanier (2010)

the engagement	the thinking	the agenda
taking appearance, and what is easily found, as reality	digital images replace the whole with the partial (pp.70ff)	looking beyond appearance and realising inner life
valuing on binary polarities, either 'amazing' or 'shit'	binary systems are 'on' or 'off' they do not show 'maybe' (pp.68ff)	finding more aspects of life than at-first-sight seem obvious
working with sharp-and-fixed branded self-images	digital imagery misses the overlapping nuances of self (pp.168ff)	getting into contact with their own bodies
acting without realising other possibilities	reliance wholly on on-line sources is dangerously limiting (pp.69ff)	imagining possible selves in unforeseen futures
seeking reassuring confirmation of ready-made beliefs	following 'likes' substitutes the fashionable for the worthwhile (pp.36ff)	learning from the surprising and the disturbing
'liking' and re-visiting the familiar and undisturbing	comfort zones lock-in self-perpetuating ways-of-seeing (pp.2ff)	welcoming and exploring new ways of seeing
comfortably settling for immediate 'yes-no' ticks-and-clicks	on-off digital signals lose nuances of human interaction (pp.9ff)	engaging careful and sustained application-of-mind
looking for immediate, spectacular and celebrity-iconic contacts	easy cut-and-paste 'mash-ups' displace creativity (pp.19ff)	seeing that finding something is not the same as knowing what to do about it
believing they know all that they need to know	the mass of on-line content feels like 'everything' and 'everybody' (pp.26ff)	grasping that whatever they now know they can find something more
seeking simple answers from quick-fix sources	on-line designs invite dependence (pp.179ff)	figuring out explanations and owning responsibility for their action

living and learning on-line

Curmudgeons can't hold back technology, but careers workers, with other educators, can enable people to make good use of it. An enquiry into the views of opinion leaders in career guidance (Skills Commission, 2010) suggests that careers work needs to extend on-line perspectives beyond the conventional. The argument here is for a beyond-the-conventional curriculum programme. It is not proposed as a satellite of careers guidance, but as the exploratory, enabling and developmental component in a broadly-based careers-work programme.

This section collates past and current evidence which shows how the demands of living and learning on-line require such reform. Among the evidence is Lev Vygotsky's (1978). His research anticipates the net, proposing what he calls graphic learning tools – the net qualifies. The role of teachers is, then, to frame – he says 'scaffold' – learning to support the climb into progressively enlarged learning zones. Vygotsky reaches beyond the enclosure that Sunstein (2009) fears and Lanier (2010) documents. Sociology also anticipates on-line cultures. Erving Goffman's (1959) account of how we each take different roles in different social situations, some private others public, will stand as an account of on-line culture. And David Riesman's (1961) analysis of the cultures of inherited tradition, inner life and social expectation anticipates on-line tensions. He images people juggling with where they come from, who they are, and who they are with - and he shows how that can inform how they will act autonomously.

Neil Selwyn's more recent sociology (2011) looks to the development of curriculum-based programmes to address such cultural significance. His sociological doubts parallel Lanier's technological analysis: both show that the feeling of being unique and connected is appearance not reality. Both call for a critical scepticism rather than a comfortable enthusiasm.

Emerging careers-work thinking agrees. Fred Garnett (in Gillen and Barton - eds., 2010) lists enabling critical thinking as careers-work's most pressing task. He characterises it as being concerned with how we find things out, communicate with one another, and gain knowledge and understanding. He asserts that these learning skills need to be taught. Garnett is speaking of what are called 'meta-cognitive' skills. They need curriculum development.

Paul Rasmden (2010) worries that critical thinking is hampered by aspects of conventional thinking. For example, vocational pressures on curriculum produces no better than compliance: students remain engaged with subject-based reproduction rather than creatively working across disciplinarily boundaries. The author argues for students to learn how to change what they find. This is, he says, education's greatest gift.

Thomas Mackey and Trudi Jacobson (2010) go into more detail, pointing that there is more than one kind of literacy. They develop a list, all career relevant: seeing what is going on, making contact, evaluating what is found, incorporating it into thinking, using it in planning, understanding it as a basis for action, and producing and sharing it as information. The authors show that, however life and technology change, these abilities to adapt and engage can be learned and transferred from one situation to another. That transfer of learning is essential for careers work.

These more-recent accounts of curriculum development lack explanatory frames like Vygotsky's (1978), Goffman's (1959) and Riesman's (1961). But a survey by Robin Mason and Frank Rennie (2010) moves things on. They re-design digitally-based curriculum method, moving it away from holding existing learning on an established track, and towards enabling more creative and flexible learning. It is a shift from cognitive content to a meta-cognitive process. It builds partnerships between teachers and students: teachers are less concerned with managing the technology, more with engaging students with the sources.

Enquiries focused on the practical use of the internet point in detail to meta-cognitive skills: not just acquiring knowledge but thinking about how it is acquired. An enquiry into the careers-work uses of digital technology (Bimrose and Barnes, 2010b) shows that, having acquired labour-market information, people need help in making sense of it. This is more than carrying out searches, it reaches into a process of taking useful command of what is found. And an enquiry into how students use the internet prompts Ebru Kiliç-Çakmak (2010) to point to an underlying need for meta-cognitive abilities as part of life management – which includes career management. The author goes further than others in giving examples of objectives and processes, suggesting complex and shared tasks. He describes a process of planning, monitoring and managing the use of a range of information.

Any account of the contemporary need for students to think for themselves is bound to apply to career management. For example John Morgan's and colleagues' (2007) stage-by-stage account appears in a guide to the future of a curriculum. The aim is to enable students to examine and voice what they find on the net. A progression is set out in four learning stages: initiating and eliciting, defining and responding, doing and making, leading to communicating, presenting and evaluating.

It is important to note that educators have interests to protect. Martin Weller (2011) acknowledges that internet-related reform is a challenge to education professionals. He sees connectedness as a key feature of the net, working across the boundaries of both professional disciplines and social containment. He argues that theory has not caught up with sheer mass of on-line material. He adopts an account of intellectual applications about maintaining scholarship and protecting ownership. However, educators need less academically controlled ways of engaging with students, if they are to retain those students' interested attention.

Selwyn's (2011) is the argument that seeks such freedom from rule-bound attitudes in developing curriculum. Curriculum deals with not knowing, and this author says that students may not know enough to know how to use the net, and that those most likely to be harmed are least likely to realise it. He sets out implications for family life and economic position – as well as for issues associated with gender, race and social-class. His core claim is that the field misapplies technological solutions to sociological problems.

Between them these researchers and commentators have disentangled many of the careers-work issues to which the Skills Commission (2010) directs reforming attention. If on-line life moves career management onward, then it would be professionally negligent for careers workers to sit back.

what educators do best

The colonising metaphor embeds an argument: in exploiting what the net can do for careers work, we risk losing what educators do best for students. A feature of that thinking is the acknowledgement that in order to appreciate how careers workers can do well it helps to understand what they have done less well. In table one Lanier's (2010) thinking provides a framework for developing that thinking.   Using that framework, Table two (following page) sets out where working with on-line sources can take careers work: relating an on-line self to an embodied identity, linking on-line life to off-line realities, moving from searching for answers to questioning their meaning.

embodiment: Dreyfus (2009) chooses *Second Life*, the popular on-line virtual world, as the occasion for closely questioning how far on-line experience represents humanity. It seems to come close, offering a total immersion in an alternative way of living. It accommodates its own characters, locations, encounters and narratives. There are resonances with career-management: visitors can deal with products, markets and academies. And they can earn income, in a currency with a dollar exchange-rate. But Dreyfus argues that virtual reality conveys nothing of the risks, commitment or shared meaning of human engagement.

for embodiment:	how can what is found on-line become part of inner life – internalised and embodied as part of identity?
for reach:	how far is it learning-for-living – equipping people for life in other settings, on other tasks and with other people?
for grasp:	can the net's extent and variability offer a basis for action – supporting appropriate, fulfilling and sustainable action?

The net's ready-made menus, derived icons, and re-invented avatars cannot convey the texture of embodied, shared and situated encounter – where posture, style, expression and proximity carry subtle and spontaneous communication. This is how we know each other, enter another culture, and becoming part of a culture. The author suggests that the subtle, immediate and wordless sensing of embodied communication - body language - completes communication. The analysis, fatally undermines policy claims that much of what careers workers do can be done on-line.

reach: While the idea of embodiment raises issues for a person's authenticity, the idea of reach goes into how far on-line learning can take a person in off-line life. Career learning is learning for living, and – unlike so-called 'academic' learning – learning for living is gathered in one location and used in another. If career learning is not, in that sense, transferable, then it is not working. But the evidence on getting this kind of transfer is not good. What is learned in one location is not readily recalled in another (Gabriel Radvansky and colleagues, 2011). However, Thomas Mackey and Trudi Jacobson (2010) observe the transferability of process-based learning. And evidence collated by Sara Meadows (1993) and Stuart Maclure and Peter Davies (1991) is that the chances of transfer can be improved. It means, at source, encoded learning with markers signaling where in life it can be used – students are reminded of life in their learning, so that they are reminded of learning in their life. A useful framework is provided by role thinking (Bill Law, 2006), which can position a person in an off-line location, with other people, and taking on a task. The encoding process is interrogative: this is what you've learned, how can you use it in your life...

where might you be?
who might you be with?
what might you be taking on?

The answers to those questions can reach into life-wide, life-long living. It poses a challenge to how adventurously we use the word 'career'. The concept is abstract, a social construct – it can, therefore, mean what we say it means. It can certainly be more inclusive than might at-first seem obvious in on-line career management – say on *Linked-in*, career-coaching blogs, or expert careers-work websites. It can accommodate greater connectivity than that - on-line and off-line, life-wide and life-long, for acceptance and for reform.

grasp: While the idea of embodiment poses issues for the ways in which the nuances of off-line life can be misrepresented, and the idea of reach poses issues about the extent of their connectivity, the idea of grasp poses issues for how securely that learning is taken on board.

Dreyfus (2009) sees the achievement of grasp as a stage-by-stage process. He sets out a six-stage sequence ranging from 'novice' to 'mastery'. In his work as a professor he reports that students value podcasts and on-line documents, but that they also seek the

embodied presence of the teacher. However his on-line material is no more than an extension of what professors do.

John Morgan and his colleagues (2007) go further, seeking to enable students to examine and voice what is found on the net. They also set out a learning process in four stages – 'eliciting', 'defining', 'making', and 'presenting'. The stages are closely similar to a general career-learning framework recently re-applied to on-line learning (Bill Law, 1996). As depicted in table three, it tracks how on-line searching becomes off-line learning.

table three:
progressive learning

moving on	experiencing	questioning
sensing	finding things out	*does what you find give you enough to go on?*
sifting	sorting out what is found	*can you sort what you've found into a useful pattern?*
focusing	checking out what is important	*do you find in that pattern anything needing further probing?*
understanding	figuring out how it all happens	*does probing lead to seeing how things got this way – and what to do about them?*

The framing is substantially developed from a research-based account of constructivist learning first proposed for curriculum by Jean Piaget (1932). The thinking has received recent confirmation, notably from neurologists (Bill Law, 2010b). It is a process, not of setting out information but of the questioning by which people learn for themselves. It is also a form of critical thinking, purposefully probing for the usefulness and credibility of sources. The framing is generic, each stage can be posed in a number of ways and in any degree of detail. The stages are progressive, each step relying on a securely-taken preceding step. And the stages are interactive, each subsequent question is shaped by the preceding answer. This is learning-for-action, articulating part of our hold on survival – whether on the savannah, on the street, or on the net.

It is a questioning process and, in Dreyfus's view (2009) a professor asks good questions, so that posing questions is a model for how students learn to question for themselves. What the educator does is mirrored by the students. The process entails hesitations, re-statements and backtracking, because the educator is following the students as much as leading them, and both are learning. It needs mutual comprehension and reciprocated trust.

In Selwyn's (2011) terms this is how people make sense and meaning of what they find on-line. Any sociologist knows that the process must be closely linked to communities, with families more involved in the education of their children. An alert careers worker might also argue that communities need families who are interested in the education of other people's children. The implications are that curriculum is central to careers work, but must be reformed.

However we are not yet there. A survey of school-based work on information technology (Furber, 2012) shows that students find the lessons boring, and that teachers know less about technology than they do. The report shows that net-savvy students are disbelieving that a teacher would try to serve up practice based on word processors, spreadsheets and data bases.

Arguments about what educators should teach sometimes maintain that digital literacy means being able to work in programming code. The development agency BECTA (2010) disagrees, arguing for a rethinking of digital literacy. It urges that students are able to locate technology in a social context – which means knowing how to act appropriately, to understanding when and why to use it and to be able to discern credible on-line sources.

Enabling such meta-cognition is what, at their best, professional educators do. And it calls for a reversal of a content-driven program, where students ask questions and teachers know answers. In a process-driven programme students find the information and educators ask the questions - the method is Socratic, it nurtures a habit of questioning. Between student experience and teacher expertise there is no single authority. And their partnership cannot be realised wholly on-line.

The process needs the educator to know the students well enough to anticipate what line of questioning might be useful. It needs the sensitivity to sense what people might ask and need to ask. It also needs the right words. As both Maryanne Wolf (2008) and Paul Judge (2000) show, progressively enlarging students' command of language is part of enabling their command of life. The gain is less in the answers, and more in learning how to ask the questions. And that equips a person for life.

post-colonial careers work

The internet, originated for military uses, has developed into a post-colonial culture. This monograph has found few examples of extreme careers work colonialism. That would be to cling to the colonist myth: a belief in the possibility of a foreign past usefully shaping an indigenous future. But no half-awake colonist ever expected to survive wholly on that extreme. And some careers-work responses reported here do not so much cling to such myths as incline in their direction. Dreyfus (2009) occupies a middle-ish position, exporting into on-line work some features of an undisturbed off-line repertoire, but also inviting a rigorous scrutiny. Closer to the colonist is careers work's on-line use of psychometric coefficients and data-based correlates (Peter Hulse, 2010). It is a mouse-click exportation of a tick-box habit which may actually obstruct the questions that people now need to ask.

Newcomers to the net are welcome when they are ready to adapt, and – if things go well – to join as neighbours. Habitual questions based on ready-made assumptions belong to another world. But there are questions to be asked, both inside the net's familiar enclaves and in being surprised by new encounters. They search for the reliable among the variable:

what is being put about here?
who is pushing it?
why are they doing that?
what interests do they have?
are these my interests?
or the interests of anyone who depends on me?
so do I pay attention to this?
and, if so, how can I act on it?

Able educators may or may not be bang up-to-date with on-line devices, but they enjoy being challenged by that kind of critical thinking. Dealing with awkward questions is what experience and training has taught professional educators to do. Mirroring what they do is what students most need to be able to carry away. And, however clever web-4.0 technology proves to be, people will need that digital literacy more than ever if arbitrary and powerful interests get their hands on Tim Wu's (2010) master switch to on-line access.

And they might.

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