

Orientation, navigation and engagement: a philosophy for human and digital navigation

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‘You have to be someone before you can share yourself.’

– Jaron Lanier (2010:1)

In this article, we discuss Internet navigation and the Personal Web and set out some of our thinking on an application to support sense-making in the career decisions process. We explain intermediated facilitation by the careers adviser as one of a series of professionals, supporting the client’s continuous ‘Orientation, Navigation, and Engagement’ process. We consider how this supported personal navigation of information process can be more responsive to perceived life-episode shifts, affording a greater degree of personal control complementary to a positive sense of personal wellbeing. We have been developing these ideas over the past decade, through a variety of initiatives and programmes and more recently have begun to build the solutions capable of realising them.



Introduction

In scoping and designing the application software, there are two leading principles in our thinking. Firstly, while certain related services may be costed, the core navigation application must be open-source and free at the point of use. Secondly, however clever or accessible, no software or network intelligence can or should fulfil the role of information intermediators: e.g., at the first level, parents, friends and community: and at a professional level, the teachers, doctors and career advisers, experienced in counselling and the scaffolding of sense-making.

Economies of scale and big data

We are now so immersed in the ambience of the Internet that we have come to accept its primary commercial model: a supplier owns content and if a demander pays, s/he can see it or in some cases copy it. Personalisation is achieved by the supplier collecting and analyzing large amounts of data relating to transactions, often supplemented with information volunteered by a user. This is analogous to a store where the managers believe they know sufficient about their customers and their supply chain to meet the majority of their customers’ demands and taking advantage of economies of scale, and therefore driving up profits. The store may well sell a small collection of cakes, with combinations of ingredients for different occasions, age groups and tastes. In the same way many online career guidance services combine text, and graphics in web pages assuming an average reader in average circumstances. We feel that in these very unpredictable times people seeking career information will increasingly need something more personal and relevant: the difference between simply buying a cake off the shelf (that someone else thinks we might want), or being able to create a recipe or get to a pre-made cake that we really want, perhaps talking to a baker as an intermediary.

In the early days of the Internet there was little concern for usability, the whole focus was on getting an enormously complex system to work. A simple example is the almost ubiquitous QWERTY keyboard. The arrangement of keys was to prevent people typing too quickly causing the lever mechanism to jam.

Electronic keyboards predated the Internet but they retained the QWERTY keyboard.

There are similar unhelpful echoes of history in the way information is presented. Very often, the web-pages, in-application search routines, reveal supply-side thinking and economies of scale rather than the unique needs of their clients. Personal information, including that to support sense-making for career decisions, is better served by economies of focus, a focus so accurate and relevant to the person managing his/her career that s/he sees the information as tailor-made, trusted, responsive and reliable. The good news is that just because historical development of the Internet dictated its current predominant use as a set of stove pipes, it doesn't mean that we have to be constrained by that residual culture and prevailing dominant logic.

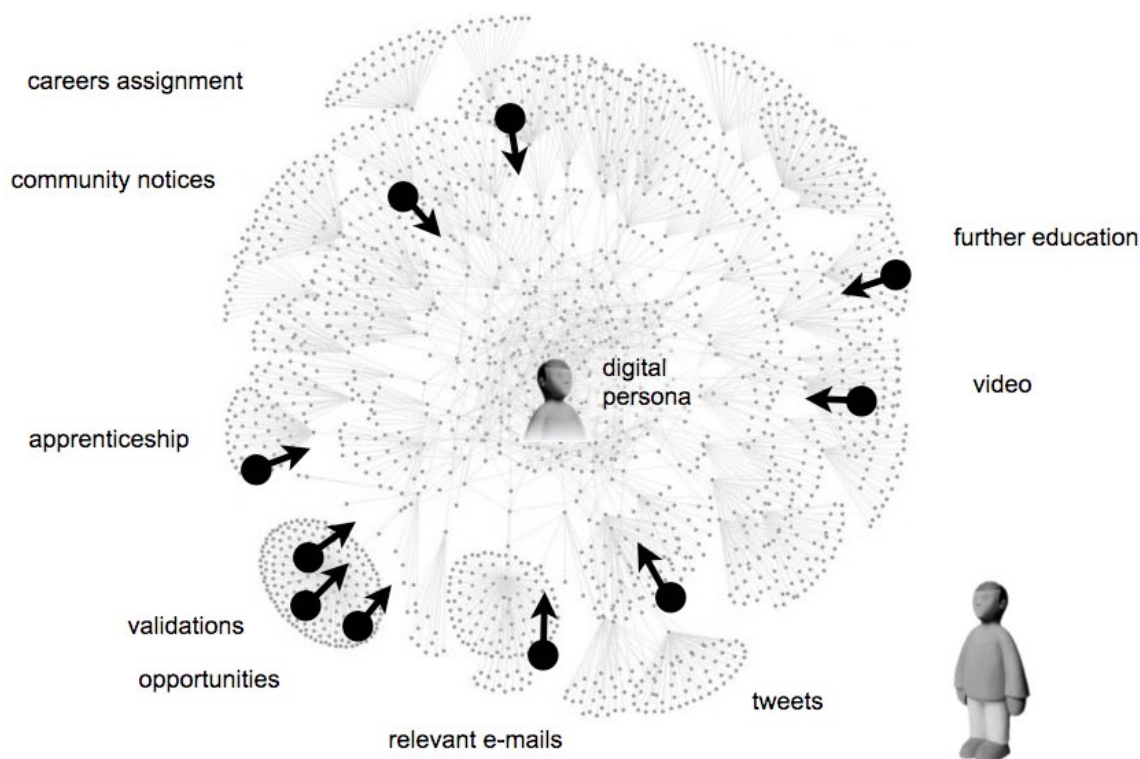
There may be a few good reasons for imposing an underlying structure, such as maintaining design integrity, ensuring robustness etc, but emerging technologies and attitudes are moving towards

the linking of data at an increasingly local level. The Internet in our view, should be experienced as an open repository of information broken down into much smaller and therefore repurposable content, curated and brought together with other granular elements of content, specifically tailored to meet the real needs of the individual. This process is known as granularity (small content elements) and aggregation (bringing together locally those elements of content: text; images; video and audio) in the way most relevant to the reader.

As the diagram below shows, using currently existing and readily available technology, it really doesn't matter where in the Internet the elements of content reside, so long as they can be identified, accessed and aggregated locally.

So if Internet information service providers are focusing on economies of scale, what mechanism do they currently use to determine what to pile high to sell cheap? Each person leaves a digital trail

Figure 1: The Internet as a "Network of Networks"



that is combined with other disclosed, inferred or purchased personal data. Combined with the data for other people in a defined segment, this builds into an enormous resource, traditionally perceived as being very valuable to the supplier. Aron (2011: 1) estimates the personal data market to be in excess of \$100Bn.

Personal choice, trust and security

So what price privacy and permission? The only safe way to deny access to the mechanisms of personal data collection is not to use the services, a step too far for most users enjoying the convenience of mobile devices as revealed in Ofcom's latest Communications Report (2012).

According to Ofcom:

- 39 percent of adults (27 percent last year) and 66 percent of those aged 16-24 now own a smartphone, significant increases on last year
- 42 percent of these now say that their smartphone is the most important device for accessing the internet,
- 42 percent regularly use social networking sites and half (51 percent) using e-mail
- Owners say they are using PC and laptops less for a range of activities since getting a smartphone, including watching video clips (51 percent) and sending messages (47 percent).
- Tablet ownership rose to 11 percent of UK households, up 9 percent year on year, whereas smart TV ownership stands at 5 percent of TV homes
- 32.6 million subscribers accessed the internet via their mobile phones, an increase of nearly 10 million since 2010
- Total home Internet access continued to increase, reaching 80 percent of UK households in Q1 2012. The report was unable 'to conclude whether consumers are using voice communication services less, but it is clear that the way in which people are using telecoms networks to interact is changing, as new technologies and services emerge.

Services such as email, instant messaging and social networking sites, all of which offer alternatives to voice calls originating on fixed and mobile networks, have proved popular in the UK as take-up of mobiles, smartphones and fixed broadband has become widespread.'

- 19 percent predict that they will follow the Olympics on several different platforms
- Texting has overtaken speech as the prime mobile communications medium.

Increasingly, the information is not simply text and still images. According to predictions by the technology company Cisco, 90 percent of all Internet traffic will have video content by 2013. Whether or not that prediction comes to pass, it is clear that an exponential growth in video communication is taking place, notably through Skype and YouTube in addition to the commercial platforms on offer.

Implications and opportunities

In career development we now have access to online tools that help people access information, access mentoring and develop their career management skills. These tools and services include blogs, social media groups and mentoring sites. People use a wide range of sources of information to inform their career and learning decisions, including Wikipedia and social networking sites. Yet despite the power of search engines, people rely on their existing knowledge to discern the information that will help them; there is a significant element of chance that they will fail to locate the precise information and support that they need.

We believe this situation is exacerbated by what we refer to as the 'information engagement paradox' (Dickinson 2010: 4): where, typically, the less able a person is to manage information complexity, the more complex their lives often are. There is a correlation with the 20% of UK homes still to be connected to the Internet.

We liken the situation to trying to navigate a canoe down a canyon: the canyon being the hidden twists and turns (the career journey) the water, the ambient

information and the white-water the resulting complexity. Just as the rocks and the gradient determine force and turbulence of the water, so too the difficulties of people's lives shape the complexity of the information they need to make sense of it all. Extending the analogy, 'intermediators' such as career advisers can be likened to canoeing coaches with an understanding of the needs of the canoeist and the characteristics of water in a variety of courses.

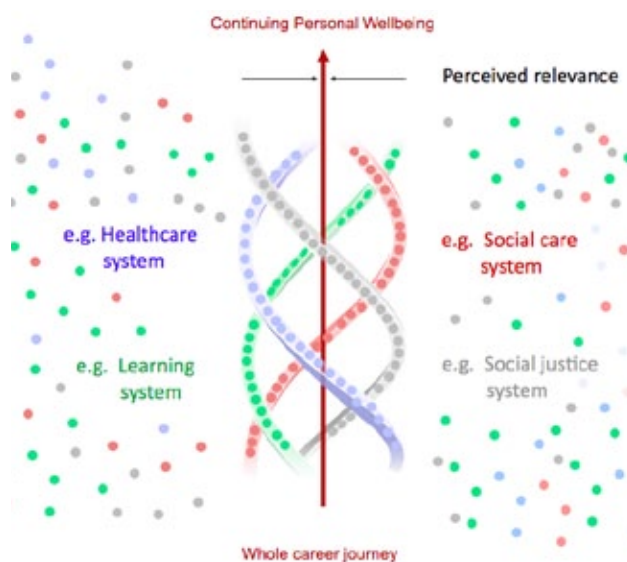
We assert that relevance is personal. As readers will know, the word 'career' has undergone a change of meaning over the years. The term **Career** is defined by the Oxford English Dictionary as an individual's 'course or progress through life (or a distinct portion of life).' The derivation is from the Latin word *carrera*, which means race. In 15th century French *carrière* meant a circular racecourse. 'Career' has come to mean 'what one does as a permanent occupation' or 'a life's work,' neither being an easy promise to keep in a highly fluid and increasingly 'portfolio' world.

We have taken this further; life is made up of a whole range of parallel pathways through time, such as health, finance, social/family, learning and work. We refer to this combined pathway as a career Gestalt¹, each pathway demanding our attention from time to time as our unique life-courses unfold. A sense of personal wellbeing might then be described as the feeling of balance one has in managing each of these factors as they present; a feeling that, taking into account broadly similar circumstances, varies markedly from person to person. Issues relating to our learning, employment, healthcare, social justice and spirituality to name but a few, all compete for attention. Individual responses too will vary from 'smiling in the face of adversity' to anomic dysfunction and disengagement. As all teachers know, while it may be *their* agenda to share quadratic equations last thing on Tuesday afternoon, on occasions there may well be more pressing issues on the minds of their students.

Imagine a person's personal construct series (in simple terms, their continually evolving take on the world) as a helical form reminiscent of DNA comprising all of the information currently important in life, arranged

by relevance. As external circumstances change, so too does the information required to build understanding. A holistic career (learning, employment, health, social-life, etc.) recognises the need to focus on different events (e.g., putting employment career ambitions on hold a little following a serious illness, accident or relationship problem). The two-dimensional diagram represents the three-dimensional model of this granular flow of information from the Internet and how it is used to scaffold understanding.

Figure 2: Whole career and personal information relevance



Content, Context and Communications

There is an interconnectedness, a harmony between Context, Content and Communications. Once understood from that new perspective, there is an opportunity to think differently about the Internet, the communities of users and the services they need. While we recognise that purists may challenge the linguistic accuracy, we offer the following explanation and diagram as being helpful to an understanding of the interrelationship between content, context and communications as the principal components of the Future Internet and therefore how the Personal Web is used to manage information for scaffolding.

¹ *Gestalt* is a German word for wholeness, often used in English to mean that the whole is greater than the sum of its parts.

Figure 3: The Future Internet in a nutshell

Context describes all that is happening in a person's life and how that impacts on the way in which they use...

Content (much of which may be digital) to construct the knowledge they share via...

Communications, the network infrastructure supporting the Internet and the collaboration tools and devices that engage with it, enabling the inward and outward flow of information that support sense-making for the individual (Dickinson et al 2009:2).

As portrayed in the diagram, the communications enable collaboration (for example between client and career adviser, client and peers) making sense of content to gain information to compare with the context (health, family/friends, finance, qualifications, availability of work etc.) building knowledge to support sense-making, in turn informing decision-making. Unlike Minds coined the phrase for the interrelationship of these factors as: 'The Personal Web: relevant, networked content in context' (Dickinson DJ 2011:2).

Mindful of the 'information engagement paradox', to access the information needed s/he has to search through the multiple single-focus portals containing information relevant to his/her particular situation.

This requires a good ability to read and make sense of (often) jargon-laden websites, combined with the ability to integrate information from these sites in a way that makes personal sense. It is not uncommon to see people writing snippets of information from a number of different websites on scraps of paper.

The paradox applies also to public services. Users who are in greatest need often struggle to understand the relationship between service entitlement combinations and exclusions. This practice is a highly limiting, ineffective and of course ultimately inequitable way of working with online services. Take for example a young person with health, financial and criminal justice problems seeking a job. To make life-choices, or simply to prepare for meetings with a careers adviser and probation officer that same day, would require the information synthesis skills to which post-graduate researchers might aspire.

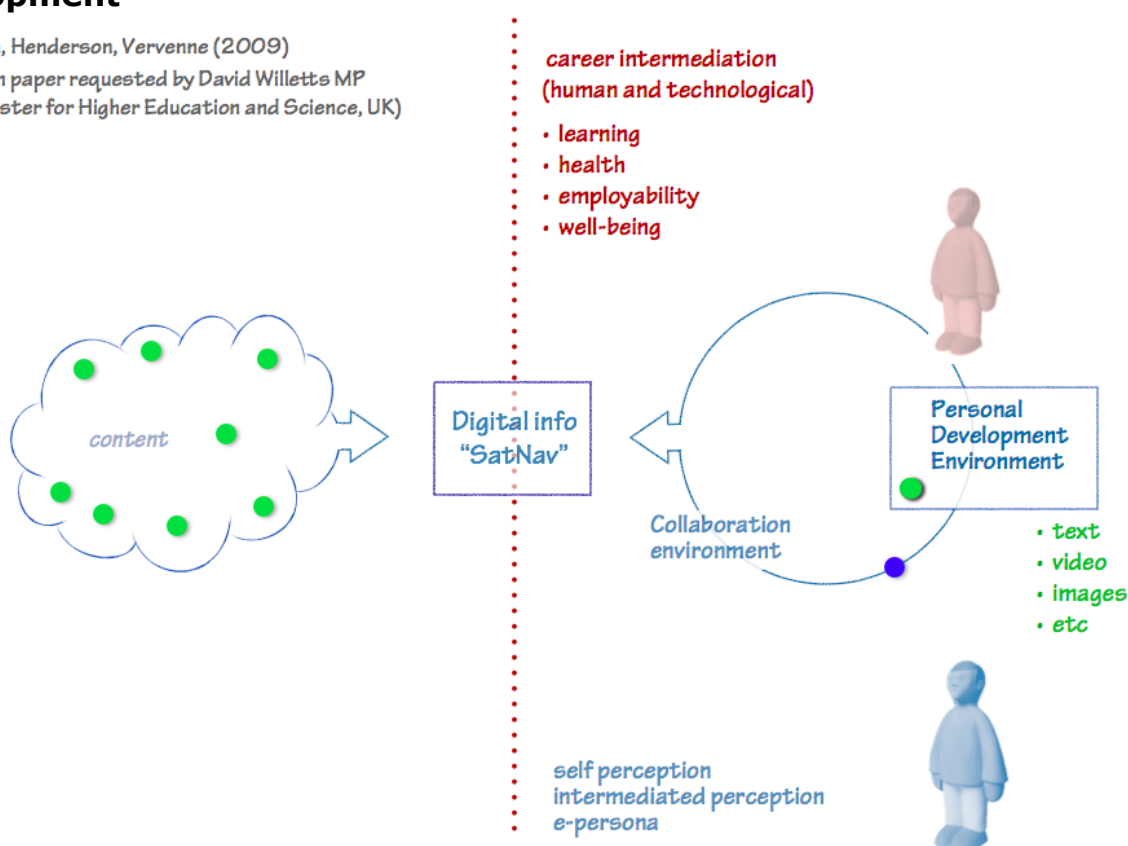
We envisage that, instead of individuals having to personally synthesise information and services from a number of discrete sources, intelligent Internet access should perform as much of this synthesis in the Cloud (as server-side processing, remote from the user's device and with minimal user intervention) increasing the immediate relevance to any given user and thus the likely degree of personal engagement.

The diagram below (Dickinson 2010) depicts how granular content is harvested from various locations in the world-wide web, and brought into the user's personal space to facilitate the anticipated discussions. In the solution that we envisage, we describe this interaction as being akin to a personal 'information satnav.' Unlike a map that has no understanding of (or reference to) context, a satnav knows where you are and your intended destination and it continually updates its information to accommodate changing contextual circumstances. We would like to stress that the navigation is complementary to other forms of intermediation, hence its depiction on the vertical line along with teachers, doctors and career advisers.

There is no doubt that the emerging sophisticated systems for managing information and aggregating services could do a great deal to streamline the provision of services by public servants, employment and benefits officials. But societal needs such as

Figure 4: Information systems to support all-age continuing personal development

Dickinson, Henderson, Vervenne (2009)
an interim paper requested by David Willetts MP
(now Minister for Higher Education and Science, UK)



For a video explanation of the above diagram see <https://vimeo.com/25588449>

employability are influenced far more by individual attitudes such as perceptions of wellbeing, of health and readiness to participate.

The ability to reflect and accommodate individual perceptions (and ensure that any given digital interaction is informed by these) is a fundamental aspect of the Orientation, Navigation and Engagement philosophy and the associated navigational interface, both proposed by Unlike Minds.

Orientation, Navigation and Engagement (ONE)

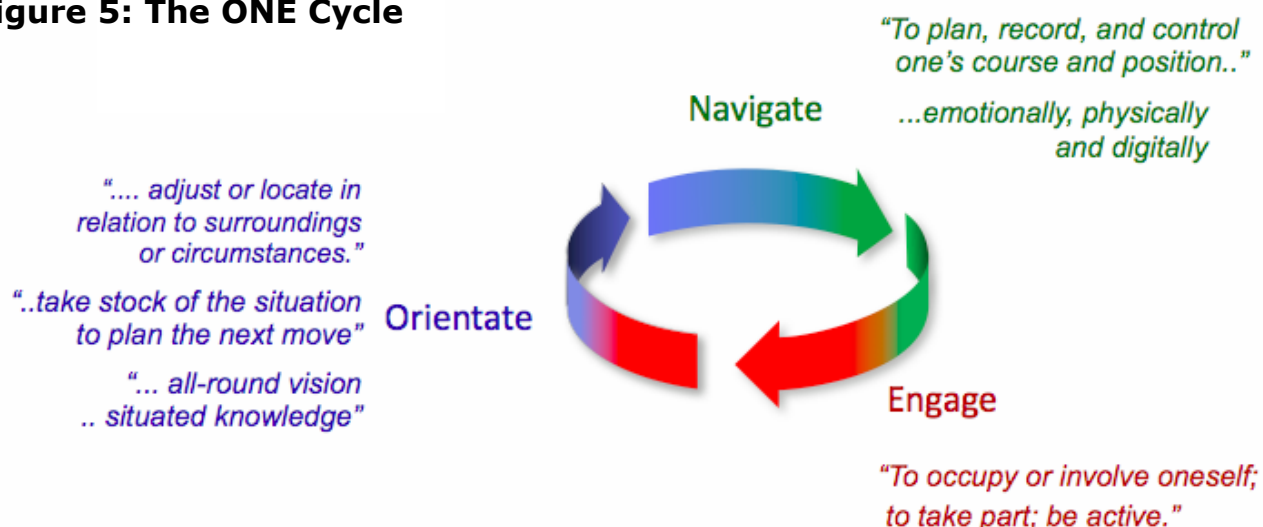
This approach builds upon the European Commission's understanding of Personal Sphere:

...intuitive systems that help individuals secure, manage, visualise and interpret their personal information, attention trail and social history so

as to enable the provision of personalised and context dependent information from multiple sources and services.

Bertolo (2009:Slide 10)

Cloud computing and the emerging Internet technologies enable the creation of a new way of working, which we described earlier as 'economies of focus,' where economies are achieved from only drawing down those resources required to meet a specific need or outcome. We anticipate economies of scale and economies of focus to be harmonised in personal web, enabling the individual to take genuine advantage of the massive projected growth in big data. The Orientation, Navigation and Engagement environment is the pedagogical underpinning of an important enabling component for economies of focus, representing at any given time individual context and therefore providing a rich insight into contextualised need.

Figure 5: The ONE Cycle

To explain further:

Orientation

Together, as appropriate, with the intermediators in your life, (family, teacher, doctor, careers adviser), you have determined that you are at point A in your life journey, and need to be at point B (so this is the sort of data and information you need from these sources to help you to get there).

Navigation

You and your mediators agree that you want to be at

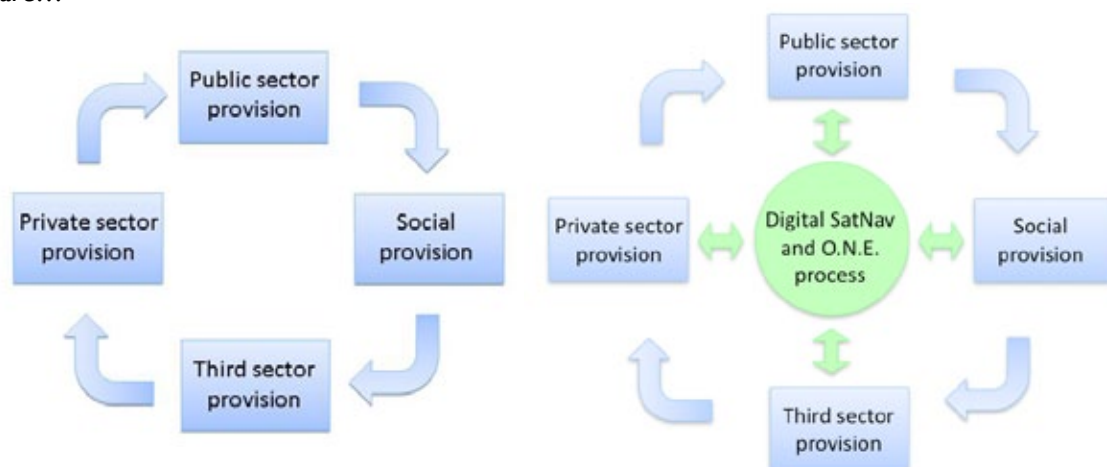
point B, (so let's tweak your navigator so that you get content more relevant to your context) knowing all about you from the inputs, these are the best options for getting there. Further, with regard to your learning and development, now you have learned X,Y and Z, we can now point your navigator at the next level of information and services commensurate with your development.

Engagement

If the above process were accepted (internalised), then we would argue the process of engagement becomes axiomatic.

In its consultation paper on the role of technology in career guidance, the UKCES (2010) described the career guidance market diagrammatically as below left. The ONE environment provides an additional element within existing provision as indicated in the right hand diagram.

It is our ambition that the satnav concept described above, underpinned by the ONE model, informs our solution, becoming the first port of call for anyone seeking information on employment, learning, healthcare, work related information, social care...

Figure 6: The career guidance market

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