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Toward principles to appreciate, explore and interrogate the future of the Internet in South Africa and the likely impact on Human Development

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Abstract

The internet is popular because it allows people to embrace existential needs they have, to participate, to contribute to societal causes, acquire understanding, communicate and interact in order to accentuate the type of human being they are aspiring to be. People in under-developed communities also have these existential needs and the internet can provide the context for them to embrace a better life. The un-even proliferation of internet adoption is undesirable and is the cause of much concern. The concerns are related to the growing levels of inequality and under-development that is emerging in South Africa and other developing countries. While inequality and under-development are related and influence each other, both growing poverty and under-development can be mediated by the internet despite the internet being implicated as a cause of the under-development. This paper explores these assertions and attempts to create coherence between the concepts of development, human development and economic development because all these are mediated by innovation as a social process. Two key points are made in this paper. Firstly, the paper makes a case for comparing the phenomena of business intelligence, executive information systems and decision support systems to development informatics initiatives. The profound similarities that emerge, point to an ethos that should drive community informatics projects. Secondly the paper shows how humanity has become subjected to controlling discourse in the information and knowledge age that the internet affords. Overall the paper makes arguments to allow for the appreciation of the overall phenomenon of developmental informatics from principles of existence, learning, cultural evolution, human development and social innovation with the aim of establishing principles to accelerate initiatives unapologetically.

Keywords: phenomena, developmental informatics, socio-technical divide, digital-divide, post-modern

Background

Post-modernists believe that human societies become subjected to a number of controlling discourses over time. While there are many stories and analogies of controlling discourses humanities fascination with the scientific paradigm is probably the most popular example of an institutionalised controlling discourse. Society remains ensconced in the scientific paradigm despite the realisation that an over-emphasis in this type of knowledge production is unsustainable (Capra, 1982; Tung, 2006; Monod & Boland, 2007; Raelin, 2007). Similarly, there is realisation that the socio-technical divide that currently persists leads to many undesirables and is also unsustainable. These two problems are different but are similar in the sense they reflect a cultural evolution that is underway that shapes how people explain and interact daily as-lived experiences. The important difference that is manifest in developmental informatics is that the socio-technical divide fault line is expanding almost incrementally and those being excluded from a digital world are falling further behind. One manifestation of this is that different perceptions are brought to bear in daily experiences as a result of the uneven adoption of the internet. Due to the digital-divide we have sections of the community that understands and leverages technology while we simultaneously have communities that do not understand and are thus unwilling to embrace technology; much like executives and other corporate users when information systems were a relatively new phenomenon in organisations.

This paper is aiming to make two points. The first point the paper is concerned with is to compare the evolution of end-user computing to the efforts that aim to minimise the socio-technical divide because there are import characteristics about the evolution of these kinds of projects that are not receiving sufficient attention. Hence they are resulting in failed expectations and ineffective attempts. Charles Darwin predicted that future human evolution will be mostly cultural. Similarly, the existentialists and sociologists also believe that cultural evolution is happening all the time and concepts and theories in these disciplines give insight into how ongoing cultural evolution is taking place (Bourdieu, 1977; Steiner, 1978; Bourdieu & Wacquant, 1992; Haugeland, 1997). The second point this paper makes centres around cultural evolution; a case is made to see developmental informatics as being concerned with institutionalising a new discourse and this is a natural outcome emerging from humanities existence and cultural-evolution. Whilst this has been recognised in the literature the methods of intervention in practice and research do not fully embrace this reality. Moreover, the questions concerning the legitimacy of efforts in development informatics can be better explained if there are more debates that recognise that cultural

evolution is silently occurring all the time; and technologies like the internet are playing a transformative role in this evolution by allowing human beings to mediate 21st century problems.

Developmental Agenda

The internet has changed the daily discourse of those who have embraced it. The internet has thus become a key resource to undertake daily tasks. This new discourse has allowed for a number of new socio-economic development opportunities to emerge. The basic benefit the internet affords is that it makes interaction, communication and access to information easier as well as independent of time, space and distance. Many businesses have pursued these principles and some have increased their market share or initiated new markets through a range of e-commerce initiatives. These opportunities have therefore contributed to economic development. Aside from the direct economic benefits that have resulted from the adoption of the internet, wider proliferation of the internet has resulted in indirect benefits such as e-government, e-health and other community based initiatives. The internet has thus evolved to benefit communities in a socio-economic manner as well as allowing for traditional ideals of economic development to be pursued more vigorously and in some cases in revolutionised ways.

The internet is credited for allowing for a new age of economic ideals to emerge. Many refer to this new paradigm as the “knowledge age” which builds on and transcends the “agrarian”, “industrial”, and “automation” ages which society has emerged from. Knowledge has come to be projected as the catalyst or apparatus to shape economies with its potential. The basic assumption is that ICTs can transform any kind of activity into new ways of functioning as well as allow for new forms of organisation and management. Madon (2000) gives a historical account of development and highlights that the very first phase of economic development started with decolonisation to create political independence to pursue national development. A basic assumption made in this process was that cities would become the focus of economic development initiatives if scientific and industrial progress and advancement was made available to them. According to Madon (2000) and others, the modernity project did not stimulate development only, under-development was also an unending feature. Under-development was therefore not an initial phase in the modernity process but a continuous state which was often worsened (Madon, 2000). In the past few years this understanding has become more established and

researchers and developmental agencies are actively seeking alternative ways of looking at development because inequality levels have continued to rise. In the past decade or so under-development has become more pronounced and there are increasing concerns raised about the danger of the rising levels of poverty and inequality (Brown & Brown, 2009). These societal effects have motivated governments and the world-bank to find alternative measures of looking at development. Instead of looking at just economic development; since the early 1990s human development has become a focal measure and has been monitored more actively (Madon, 2000; Beck, Madon, & Sahay, 2004; Brown & Brown, 2009). The arguments Madon (2000) and others provides to illustrate that economic development does not singularly contribute or result in a more equal society is empirically supported by the interventions that exists in Japanese communities. For example in Japan which is regarded as the most equal society there are over 3000 community based currencies in operation in Japan alone (Lietaer, 2006). Furthermore, Japanese government has called for its society to embrace the internet to mediate the 21st century challenges.

Due to these influences the concept of development in the early 21st century has come to be conceived of and measured not only in economic terms, but also in terms of social wellbeing and political structures, as well as in terms of the physical environment, as reflected in the UNDP Report on Human Development published annually since 1992 (UNDP, 1991). This report takes increasing account of alternative dimensions of development such as social welfare, social equity, democracy, empowerment and sustainable development. Press recently brought evidence to show a positive correlation between the number of Internet hosts in a country and the UNDP Human Development Index (Press, 1997 cited in (Madon, Sahay, & Sudan, 2007)). More recently Irwin and Walter Brown (2009) asserted that rising poverty and inequality can be linked to a lack of infrastructure and internet access. This assertion by Irwin and Walter Brown that communication and interaction, or access to knowledge has a direct effect on improving human development can be related to the notion that the poor do not have access to the new tools to innovate and evolve in a world that is changing and necessitating behavioural change.

Is innovation being targeted?

While there are many assertions which imply that access to the internet can mediate under-development and poverty, these assertions are hard to relate to tangible and pragmatic goals people in underdeveloped communities may have. More effort is thus required to

unpack the intentions and expectations of those engaging in or promoting the notion of developmental informatics. One of the intentions of this paper is to also do this.

The essential human condition which is explained below from an existential perspective states that human beings strive to create meaning and a better life (Guignon & Pereboom, 1995). Being able to innovate and improvise are thus essential and innate attributes of human beings. A reasonable assumption to make is that these abilities will be enhanced and stimulated if there is enhanced ability to acquire knowledge. Some theorists see innovation like this, as a product of social activity. Others, however, believe that innovation results from the adoption of technology. The conjectures made by Press, (1997, cited in Madon *et al.*, 2007) and Irwin and Walter Brown (2009) view the relationship between technology and innovation similarly, that is, as a catalyst to social innovation.

While it may be easy to see that many in the development informatics space believe that the interrelation between ICT and development is more than making technology available, it is hard to see to what extent they encourage those being developed to pursue ideals of social innovation. The assertion by Irwin and Walter Brown is made by correlating bandwidth activity against growth in human development ranking. They show that human development improvement also seems to be accompanied by a corresponding improvement in bandwidth activity. While this assertion is profound it can be explored further and reasoned about using the principles from the learning organisation theory; this will be explored next.

Innovation is a vital component of organisational ability of being able to exhibit resilience to current and ongoing business environmental pressures. Existing innovation literature is dominated by diffusion theories and adoption models but innovation is more than just a decision to adopt a technology or not. Rather, innovation is at a more basic level a social phenomenon emerging from complicated cumulative interactive processes created in a networking environment. In organisations, innovations are experienced as a product of organisational change and a feature of learning. Organisations survive and cope with environmental pressure by ensuring they have the ability to innovate sufficiently. If Innovation at a community level is viewed through the human developmental index it implies that communities require the ability to participate effectively in interactive discourses on social well being, political well being and the environment because their contribution will benefit them in these areas. The developed parts of these communities are already able to contribute to these debates because access to the internet is not a problem. Developing parts of the community, however, are excluded from these discussions and therefore do not participate or benefit enough through active participation. The conversations on these

matters exclude them or allows for their participation through intermediaries and they do not benefit from direct involvement.

Innovation as daily as-lived coping in society at large

Similarly, one can say as the existentialists have, that human beings exist or cope in daily life by undertaking practices and innovating while undertaking these on an ongoing basis. Existentialists shared the view that the modern era freed people from a lot of pointless illusions such as the earth is not flat! Hegel stated two principles that human beings are defined by. Firstly, human beings are organisms amongst others in nature, whose needs are not that much different from those of animals. Human beings are, however, different from animals. This led to Hegel's second difference which states that while animals cannot transcend the limits of their immediate needs and drives of nature, human beings can transcend these limits because they are capable of reflecting on themselves and evaluating themselves in the light of some over-arching vision of what their lives are adding up to. Heidegger and Sartre build on this view by stating that the essence of transcendence is unique to humans because their existence is in question or an issue for them. Moreover, human beings are not content with just satisfying their basic desires because they care about what kind of beings they are, and therefore reflect on the worth of the things they desire. Hence human beings are capable of forming second order desires about their basic desires (meta desires), and regulating immediate inclinations. Human existence is therefore constantly agitated by aspirations that go beyond immediate needs and impressions (Guignon & Pereboom, 1995, p. xviii). In accordance with this primary nature of being human, it is up to each human being to choose projects to suit the sort of individual identity that the being wants to create. Based on these premises, Sartre claims that each human being is self making, or self constituting: we are what we make ourselves throughout our lives despite the circumstances we are born into (Guignon & Pereboom, 1995, p. 249). One of the reasons the internet has become pervasive in daily routines is because it allows people to embrace these existential needs by allowing them to participate in various causes, blogs, share information, acquire understanding, communicate and interact to accentuate the type of human being people are aspiring to be. People in under-developed communities also have these existential needs and the internet can provide a context for them to express and embrace a better life to aspire to. If access to the internet is improved a number of side effects will also emerge such as a deepening of democracy. Similarly, various dimensions of human development will also improve as a society gets more informed about universal concerns. The developed part of society has been leveraging these human developmental opportunities but the under-developed part of society has lagged behind. In recent years the differences and disparities are more pronounced because cultural evolution is happening at

a much faster rate as a result of ubiquitous access to communication and information afforded by the internet.

The basic nature of human beings is to learn, innovate, cope and display resilience. Human beings in developed communities thus naturally use the internet in creative ways as part of as-lived coping while underdeveloped parts of communities lag behind. Some researchers question the intent and ethics of those engaging in development informatics but the adoption of ICT's and the internet from an existential point of view is quite a natural phenomenon of coping. ICT's just happens to be the controlling discourse developed society has become subjected to. This has been an implicit notion that has caused many researchers, organisation and NGO's to pursue themes of "ICTs for development" or "development informatics" etc. A further assumption that seems to be made based on the character of daily existence is that these microprocessors can be speeded up with an increase in interactions that ICTs allow. While there have been a number of projects to promote this implicit notion. These projects are not necessarily appreciated from an existential perspective. Often the performative ideals do not permit a learning approach and these projects finally fail or appear to be failures as a result of the incorrect focus.

Innovation as daily as-lived coping within organisations

The literature in the developmental informatics space often gives the impression of being faced with an intractable problem which is being approached in a sporadic manner. At a society level there is a need to see developmental informatics as a developmental problem. Such projects therefore need to be defined by long-term objectives and non-performative intentions. Defining projects in these terms can be seen to be ludicrous but arguments can be made that businesses also do this. Take the initiatives of "decision support systems" and "executive information systems" which were pursued in the 1990s to promote wider adoption of information systems within organisations. At a strategic level these projects were undertaken to allow for greater levels of resilience to develop to allow organisational change and learning to take place at increasing levels. This was not the starting assumption, however, and these more experimental approaches only emerged after many initial failures.

Similarly, many development informatics projects are not seen strategically enough because of too much emphasis on performativity and too little on experimentation. If the development informatics projects are compared with the establishment of business intelligence (BI) within organisations it can be argued that such disproportionate focus will complicate and stifle project implementations. Research shows that BI projects emerged from decision support

systems and executive information systems. BI is only starting to be seen as a mature approach which can now be tackled in a performative manner after a decade of learning and experimentation. Through many years of experimentation businesses have learnt that successful adoption is only possible if there are institutional structures to support the effort. Through early experimentation roles such as “super user”, “assistance centres” and “information centres” etc. were established to assist business users to find appropriate uses for the technology. Wider proliferation thus depended on exploration, prototyping and learning. While the community of users in these efforts differ to the users targeted in developmental initiatives the phenomena being pursued are very similar. Accordingly the nature of the effort that is involved in exploring and defining a new discourse for executives and managers is similar to the attempts to socialise the poor into a discourse that includes the internet to allow them to gain the advantages the internet provides (Anderson & Freund, 1966; Guignon, 1983; Guignon & Pereboom, 1995; Crossley, 2001).

Some consequences of propagating different perceptions

While the socio-technical divide persists, a large part of the population will be excluded from a discourse that involves the internet. This difference will be experienced by the different perceptions that are brought to bear in the daily as-lived experiences. The internet will therefore continue to propagate the socio-technical divide through the creation of different mind sets as a result of the ongoing learning experiences that result. These differences if not carefully managed by making access to the internet available to all, will become larger and larger because human beings learn all the time on an ongoing basis. One likely possibility is that the knowledge differences will become so large that social cohesion is threatened. According to existentialists all newer experiences take root in prior experiences and have a sort of parasitic existence on these. As a consequence human beings will find it difficult to transcend cultural and language embodiment to acquire phenomena that they have not experienced or been socialised into.

Using the work of Llewellyn (2003) this can be expressed in an alternative way. According to her, when human beings engage in thinking or interacting with a phenomena, they are making use of a range of concepts that come from their spatial and social embodiment which results from daily learning and coping. Thus learning or socialisation is about the embodiment of phenomena (theory) and this embodiment is constrained by prior phenomena that reside in a human understanding. Consequently, a fundamental issue that

needs to be explored in the context of internet proliferation is the extent and manner in which an internet environment begins to shape the worlds disclosed to human beings, and the subsequent impact this has on the affordances human beings acquire that are brought to bear in daily life experiences. Thus learning is affected by daily experiences and phenomena embodied will become a structural influence on the learners' subsequent learning potential (Heidegger, 1962; Maturana, 1978; Maturana & Varela, 1980; Mingers, 1991; Schatzki, 1992; Maturana & Varela, 1998; Raskin, 2002).

One of the significant problems that may arise as a result of the uneven adoption of the internet is that communities will become segregated by the views of the world that they bring to bear in each situation. Although uneven adoption of the internet needs to be expected for the near future, the situation needs to be managed with more urgency to prevent polarised societies from emerging. One option that is proposed is to make the differences understandable by investing effort in these communities through volunteering, training and educating under-developed communities. Through such interaction a number of opportunities to learn and understand will emerge. With such understanding different students and communities can be made more aware of the world-views that are being brought to bear in daily existence. Moreover, the difference in perceptual tendencies will be easier to manage if there is some approximation of the phenomena. This will become a coping mechanism while efforts to get under-developed communities access to the internet must be accelerated. These efforts, however, need to acknowledge that the projects are aimed toward developing resilience amongst communities to allow them to cope in an environmental landscape that has changed because of the internet. The various advantages afforded by the internet need to be leveraged into appropriate uses for under-developed communities because these opportunities cannot only be accessible and available to parts of the community that were fortunate to become socialised into features of the internet through mainstream employment opportunities.

Conclusions

This paper made an attempt to discuss development, human development and the internet as interrelated phenomena using the concepts of social innovation and the general characteristics of human existence that existentialists define. These arguments were made to show how coping innovating and learning are common existential ability humans have and the internet is just an affordance to these already existing abilities. The internet, however, is fuelling the growing disparities in development while it allows parts of society to cope with challenges caused by modern existence. The paper used concepts from embodied cognition to show how this disparity occurs pragmatically.

This paper continues a discussion that is already taking place but adds emphasis to the need to continue making the internet available to poorer communities so that they may leverage the various benefits that business and development communities are able to leverage to survive the societal and environmental challenges that existence in the 21st century demands. The paper also emphasised that pursuing long-term developmental projects with ICTs in communities is not an entirely new phenomenon. Organisations and business have been instituting a discourse around decision support systems, business intelligence and executive information systems for over a decade but under the guise of learning and experimentation. Arguments can therefore be made for a similar ethos to tackle developmental projects given the similarity of the phenomena and prior experiences.

Overall the paper has made arguments to allow for the appreciation of the phenomenon of developmental informatics from principles of existence, learning and social innovation. This is therefore not the final word but work toward the establishment of principles to accelerate initiatives unapologetically.

References

- Anderson, J. M., & Freund, E. H. (1966). *Martin Heidegger - Discourse on thinking*. New York: Harper & Row, Publishers, Inc.
- Beck, E., Madon, S., & Sahay, S. (2004). On the Margins of the "Information Society": A Comparative Study of Mediation. *The Information Society*, 20, 279-290.
- Bourdieu, P. (1977). *Outline of a Theory of Practice*. Great Britain: Cambridge University Press.
- Bourdieu, P., & Wacquant, L. J. D. (1992). *An Invitation to Reflexive Sociology*. Chicago, USA: University of Chicago Press, LTD.
- Brown, W., & Brown, I. (2009). *TOWARDS A RESEARCH FRAMEWORK FOR A HUMAN DEVELOPMENT-BASED "BOTTOM OF THE PYRAMID" ICT DEVELOPMENT STRATEGY IN SOUTH AFRICA*. Paper presented at the 17th European Conference on Information Systems, Verona-Italy.
- Capra, F. (1982). *The Turning Point : Science, Society and the Rising Culture*. Great Britain: Flamingo.
- Crossley, N. (2001). The Phenomenological Habitus and Its Construction. *Theory and Society*, 30(1), pp. 81-120.
- Guignon, C. (1983). *Heidegger and the problem of knowledge*. Indianapolis, Indiana: Hackett Publishing Company.
- Guignon, C., & Pereboom, D. (1995). *Existentialism basic writings*. Indianapolis, Indiana: Hackett Publishing Company, Inc.

- Haugeland, J. (Ed.). (1997). *Daseins Disclosedness*. Cambridge, Massachusetts, USA: Blackwell Publishers.
- Heidegger, M. (1962). *Being and Time* (J. Macquarrie & E. Robinson, Trans.). New York: Harper & Row.
- Lietaer, B. (2006). Complementary Currencies in Japan Today:History, Originality and Relevance. *International Journal of Community Currency Research*, 8, 1-23.
- Llewelyn, S. (2003). METHODOLOGICAL ISSUES: What counts as "theory" in qualitative management and accounting research? - Introducing five levels of theorizing. *Accounting, Auditing & Accountability Journal*, 16(4), 662-708.
- Madon, S. (2000). The Internet and soci-economic development : exploring the interaction. *Information Technology and People*, 13(2), 85-101.
- Madon, S., Sahay, S., & Sudan, R. (2007). E-Government Policy and Health Information Systems Implementation in Andhra Pradesh, India: Need for Articulation of Linkages Between the Macro and the Micro. *The Information Society*, 23, 327-344.
- Maturana, H. R. (Ed.). (1978). *Biology of Language: The Epistemology of Reality* New York: Academic Press
- Maturana, H. R., & Varela, F. J. (1980). *Autopoiesis and Cognition : The realisation of the Living*. Dordrecht, Holland: Reidel Publishing Company.
- Maturana, H. R., & Varela, F. J. (1998). *The Tree of Knowledge : The Biological Roots of Human Understanding*. London: Shambhala.
- Mingers, J. (1991). The Cognitive Theories of Maturana and Varela. *Systems Practice*, 4(4), 319-338.
- Monod, E., & Boland, R. J. (2007). Special issue on philosophy and epistemology : A 'PETER PAN SYNDROME' ? *Information Systems Journal*(17), 133-141.
- Raelin, J. A. (2007). Toward and Epistemology of Practice. *Academy of Management Learning and Education*, 6(4), 495-519.
- Raskin, J. D. (2002). Constructivism in Psychology: Personal Construct Psychology, Radical Constructivism, and Social Constructionism. *American Communication Journal*, 5(3), 1-25.
- Schatzki, T. R. (Ed.). (1992). *Early Heidegger on Being, the Clearing, and Realism*. Cambridge, Massachusetts, USA: Blackwell Publishers.
- Steiner, G. (1978). *Heidegger*. Glasgow, Great Britain: William Collins Sons & Co. Ltd.
- Tung, R. L. (2006). Of Arts, Leadership, Management Education, and Management Research: A commentary on Nancy Adler's "The Arts & Leadership: Now that we can do anything, what will we do? *Academy of Management Learning and Education*, 5(4), 505-511.