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Power and interests in information and communication technologies and development: exogenous and endogenous discourses in contention

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Power and Interests in Information and Communication Technologies and Development:
Exogenous and Endogenous Discourses in Contention

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1. Introduction [1]

A 2009 United Nations Conference on Trade and Development (UNCTAD) report claims that "information and communication technologies (ICTs) have proven to be a tremendous accelerator of economic and social progress" (UNCTAD, 2009: xi). The potential contribution of ICTs to development has come to prominence because these are regarded as General Purpose Technologies (GPTs) (Freeman and Louçã, 2001; Helpman, 1998). As these technologies take hold throughout societies, they are accompanied by major structural, cultural, social and economic transformations. However, claims that the transformative potential of these technologies is *necessarily* consistent with human development aspirations are symptomatic of a Western-centric and universalist model of economic growth and development. In this paper I contrast the dominant model with those more consistent with Escobar's (2002: 1) call for "another way of thinking, *un paradigma otro*". I argue that, even when alternative models with respect to development are seen to influence policy and practice, the discourse concerning ICT interventions invariably is reminiscent of the dominant model.

The predominant model is an 'exogenous' one. In the social sciences, and especially in economics, the term 'exogenous' is used in a similar fashion to biology, chemistry or physics to refer to something having an external cause or origin. The term 'endogenous', in contrast, refers to anything with an internal cause or origin. Models aligned with the former term are often employed to justify interventions aimed at using new technologies to stimulate economic growth in the developing world. For instance, investments in ICTs, in the form of the Internet and the World Wide Web, and, more recently, mobile telephony, are seen as 'exogenous' interventions that can close technology gaps between the rich and the poor.[2] When the Millennium Development Goals (MDGs) were announced in 2000 they included Goal 8, aimed at stimulating access to ICTs.[3] Endogenous models have been developed to provide insight into the factors such as those associated with learning and the local context that influence the development processes. Endogenous models are greatly overshadowed by exogenous models in ICT policy discourses. This is partly because of the privileging of economic theories which assume that information and knowledge are synonymous, but also because of a strong neoliberal policy emphasis on market-led development. Market-led policies are often

dominated by the interests of technology developers and content producers in the global 'North' whose principal ambition is profits from the sale of digital technologies and content.[4] This is not surprising, but it has serious consequences because it makes it difficult to encourage development practice that is compatible with "un paradigma atro".

The aim of this paper is to examine key discourses on ICT and development over an extended period to illustrate, firstly, that even when insights from endogenous models inform these texts, there is persistent recourse to a perception of the way ICTs contribute to development goals that is aligned with exogenous models. And, secondly, that even when efforts are made to engage in interventions compatible with insights derived from endogenous models, there are few signs that asymmetrical power relations which work against the valorisation of multiple knowledges are being countered effectively. Section 2 provides a brief introduction to the exogenous and endogenous models. In Section 3, a sample of discourses on the role of ICTs in development that appear in reports produced by agencies of the United Nations and the World Bank is discussed to illustrate how these discourses align with these models. In Section 4 endogenous approaches emphasising multiple sources of knowledge and emergent outcomes of ICT-related interventions are considered as an emerging strand of research and practice that has been gaining traction in recent years. The concluding section considers changes that would be needed to encourage ICT interventions that are better aligned with endogenous models, human development goals and 'bottom up' approaches to investment in ICTs.

2. Exogenous and Endogenous Models

In the economics discipline, exogenous theories inform and justify interventions aimed at stimulating growth because of the way that economic logic deals with technological change as an influence on economic growth. Economists traditionally take technological change to be exogenous. In the exogenous growth or neoclassical model, the long run rate of growth is determined *exogenously* because technological change, a fundamental explanatory factor of labour productivity, is exogenous to the economic system (Solow, 1956, 1957). It comes as no surprise, therefore, that ICTs, as GPTs, became a focal point

for investment, since these technologies are associated with contributions to productivity gains and new organisational forms.

Endogenous economic growth theory was developed in response to criticism of the exogenous model, focusing on factors such as the institutional set-up and policy measures within the parameters of economic models (Arrow, 1962; Romer, 1990, 1994; Rosenberg, 1982). Investments in ICTs and digital content are key issues for endogenous growth theorists because of the way they influence learning and adjustment to changing market and social conditions. However, in spite of their emphasis on endogenous factors that influence change, this model from economics is often used to justify policies encouraging the openness of developing countries to knowledge and technologies from exogenous sources (Cassiolato, et al., 2003; Freeman and Soete, 1997; Perez, 1983).

In the fields of science and technology studies and information systems innovation, there are other endogenous models that offer a more reflexive and contextualised approach to ICT intervention strategies in line with Albagli and Maciel's (2010: 18) claims that "there is no single model that must be followed" and "no culture has a monopoly on the factors for successful socio-economic development". [5] Among these endogenous models are those emphasising the epistemology of knowledge in different communities of situated practice, the role of power, and the implications for learning and development (McFarlane, 2006). Often called 'practice-based approaches', these are associated with action research and with working with local communities on ICT intervention strategies. Such approaches include interpretivist socio-technical perspectives such as those discussed by Avgerou (2002) or Orlikowski (2000) and by Chambers (2008) Friere (1970/1996) or Gumucio-Dagron (2009). As Leach et al. (2008: 731) suggest, there is growing acknowledgement of "multiple knowledges and perspectives (diverse sciences in their broader sense of ways of knowing) in understanding what is going on and why it matters". The next section of this paper examines whether these endogenous models can be seen to be informing discourses on ICT intervention in the development context.

3. ICT and Models for Development

In the late 1990s, then UN Secretary-General Kofi Annan seemed, like many others, to have become captivated by the potentially wealth-creating advantages of ICTs.[6] He

suggested that the "informatics revolution" needed to be harnessed for the benefit of "mankind" (Annan, 1997).[7] The momentum behind a drive to close technology and knowledge 'gaps' in line with the exogenous model, culminated in the World Summit on the Information Society (WSIS), held in Geneva in 2003 and Tunis in 2005, under the auspices of the International Telecommunication Union (ITU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The documentation produced in the lead up, and subsequent, to the WSIS, is the subject of a large amount of research. There was a dialogue about the need to move towards what I characterise as endogenous approaches, but many have argued that this was not evident in the WSIS outcomes.[8] And by 2010, MDG ICT Goal 8 was being understood to relate principally to promoting the diffusion of mobile phones and Internet access points (UN, 2010), still very much in line with the exogenous model.

3.1 Empirical Approach

Key institutions with a global remit to influence policy and intervention strategies concerned with ICTs include the ITU and UNESCO (MacLean, 2011 forthcoming),[9] together with the World Bank, the United Nations Development Programme (UNDP) and the United Nations Conference on Trade and Development (UNCTAD). All of these have allocated resources to ICT interventions in the decades of the 1990s and 2000s.[10] The sample of reports on which my analysis of discourses on ICTs and development is based includes those published between 1998 and 2009.[11] The key texts used to examine the discourses employed by the authors of these reports were derived from a keyword search performed on the selection of reports.[12] A formal discourse method was not applied but a thematic analysis was undertaken of the resulting texts whereby paragraphs containing keywords were copied into a spreadsheet resulting in some 350 entries. These were reviewed and organised according to whether they used language aligned with the exogenous or endogenous models and whether the two models were positioned closely with or without acknowledgement of the different assumptions they imply. The aim of the analysis was not to trace individual authorship or motivation or to examine a sample representative of all reports during the period. The goal was to illustrate the ways of articulating the role of ICTs in development interventions and to detect any shifts or inconsistencies in the orientation of these discourses with respect to the exogenous and endogenous models.[13] It is assumed that power relations are

articulated through the discourses employed in reports discussed in this paper, but I do not develop a theory of power here.[14] The following sections illustrate how some of these texts are aligned with the models.

3.2 The World Bank Perspective

Interventions to foster a global knowledge society based partly on the spread of digital technologies have been informed by the exogenous or neoclassical model which suggests that "knowledge is like light".[15] "Weightless and intangible, it can easily travel the world, enlightening the lives of people everywhere" (World Bank, 1999: 1). The World Bank's report on *Knowledge for Development* at the end of the 1990s, insisted that "information problems" or incomplete knowledge about attributes, such as the quality of products or the creditworthiness of firms, represent knowledge gaps. The key challenge was seen as ensuring access to more knowledge to address know-how problems. The fact that "new communications technologies and plummeting computing costs are shrinking distance and eroding borders and time" (World Bank, 1999: i), provided reason for hope that the diffusion of ICTs would help to fill knowledge gaps, thereby enabling market-led growth in the developing countries.

In line with the exogenous model, there is little differentiation between external and indigenous information and, in fact, external knowledge is privileged over internal knowledge as it is understood to reflect 'frontier' or the 'most advanced' practice. The policy emphasis seemed clear. Emphasis was to be placed first and foremost on an open trading regime, foreign investment and technology licensing, "facilitating the flow of information essential for effective markets" (World Bank, 1999: 2). The role for development agencies also seemed straightforward since the transfer of knowledge and investment in technology were seen as the two main keys to growth. The need for a capacity to absorb new knowledge was acknowledged and this encouraged an emphasis on education (World Bank, 1999).

Despite acknowledging that human capital and education are crucial, however, technologies were expected to provide access to external knowledge and to boost the knowledge accumulation process. Wherever feasible, countries were encouraged to adopt policies to enable them to "leapfrog" the industrial countries, that is, to invest in the

most innovative, leading-edge technologies to boost their economies, just as the 'East Asian Tiger' countries – given their specific combinations of resources – had been seen to do. For the Bank, other countries in the global 'South' similarly were expected to leapfrog obsolete ICTs and to use digital innovations "to take advantage of the new information and communications technologies in *disseminating knowledge"* (emphasis added) (World Bank, 1999: 57).[16] The precepts of the exogenous model of acquiring external knowledge, disseminating it, and ensuring its absorption, appear throughout this report. Although inequalities are acknowledged, the prescribed policies are in line with the exogenous model with its focus on redressing "information problems" to stimulate economic growth. The exogenous or neoclassical economic model takes as its starting point a given income distribution with the result that, as MacPherson (1964: 494) put it, this is a theory that assists in the maintenance of "a massive inequality between owners and workers", limiting the fulfilment of citizen's capacities.[17] The World Bank had maintained its emphasis on "information problems" and "knowledge gaps" (World Bank, 2004: 7) when the WSIS was convened in the mid-2000s.

3.3 Variations on the Endogenous Model

The UNDP (1990) *Human Development Report* saw development as being about enlarging the choices available to the poor. This report put a strong emphasis on individual capabilities, an approach more closely aligned with the endogenous model. In the 1999 *Human Development Report,* published in the same year as the World Bank's report on *Knowledge for Development*, the economist, Streeten, argued that human development is about "choices that are created by expanding human capabilities and functionings—what people do and can do in their lives" (UNDP, 1999: 16).[18] This report was also influenced by the work of Sen (1999). He had argued persistently for a turn away from concerns primarily with income or utility, towards the capabilities available to people to meet their aspirations. As Alkire (2010: 3) reminds us, the 1990 UNDP report asserted that "people are the real wealth of a nation. The basic objective of development is to create an enabling environment for people to live long, healthy and creative lives". Nevertheless, in spite of a strong emphasis on people, their values, capabilities and choices, in line with an endogenous model, those authoring the 1999 report, were also informed by the dominant exogenous model. They turned to ICTs and reducing the "technology gap" as a means of bringing about "development" (UNDP, 1999: 63). Although it is observed

that "when the market goes too far in dominating social and political outcomes, the opportunities and rewards of globalization spread unequally and inequitably" (UNDP, 1999: 2), the solution is to "ensure that the information revolution leads to human development" (UNDP, 1999: 10).

When the UNDP *Human Development Report* turned to human rights issues and to new technologies in 2000 and 2001, respectively, the role of local stakeholders in the human development process was acknowledged in line with the endogenous model, but the primary goal appeared, nevertheless, to be that of meeting the promise of technology and know-how. Thus, stakeholders "..have a role in *transforming the potential of global resources and the promise of technology*" (emphasis added) (UNDP, 2000: 1) and the "*the aim is to diffuse innovations widely*" (emphasis added) (UNDP, 2001: 43). The report's authors turned to exogenous ICTs to promote growth, despite their insistence on policies more compatible with the endogenous model.

The emphasis in UNESCO's reports aligns more closely with endogenous models, given its greater emphasis on cultural and social issues as compared to the remits of other institutions in the sample. UNESCO's reports contain texts that portray the exogenous model of information flows as the antithesis of the encouragement of bottom-up development (Hamelink, 2000: 37; UNESCO, 1996). In 2005, UNESCO's *Knowledge Societies* report emphasized that "every society has its own knowledge assets. It is therefore necessary to work towards connecting the forms of knowledge that societies already possess and the new forms of development, acquisition and spread of knowledge valued by the knowledge economy model" (UNESCO, 2005: 17).[19]

The WSIS meetings in the mid-2000s brought together a wide range of stakeholders advocating strategies for ICT and development in line with technology and market-led (exogenous) development models as well as perspectives more compatible with endogenous approaches to human development, emphasising cultural diversity and participation. A shift towards the discourse of endogenous models and greater acknowledgement of the deficiencies of top-down (exogenous) ICT policies and strategies in enabling communities to make use of ICTs in line with their own choices and aspirations might have been expected to start appearing in subsequent ICT and development reports. Unfortunately, there is little evidence of such a shift.

3.4 Evidence of Learning

In 2009, the authors of the World Bank's *World Development Report* argued that the diffusion of ICTs will drive convergence between leading and lagging areas of the world such that "globalization and technological progress in transportation and communication potentially provide a wider range of means to bridge the economic distance between leading and lagging areas" (World Bank, 2009: 93). It is principally the exogenous model that informs this perspective: "Access to knowledge is easier" (World Bank, 2009: 95) and it potentially enables the poor to benefit from developments at the world's technological frontier, replicating the earlier successes of the East Asian economies.[20] The assumption is that the diffusion of ICTs and the removal of restrictions on the "free flow of ideas", along-side material improvements as a result of urbanisation, will enable "people [to] choose to live where they expect to be best off in material and nonmaterial well-being" (World Bank, 2009: 62).

A similar focus is present in UNCTAD reports, although the authors of these reports exhibit greater concern with the exogenous model, highlighting its failure to focus on power asymmetries. In UNCTAD's *Information Economy Report 2006,* the discourse associated with multi-stakeholder and participatory approaches starts to be visible: "reality shows that different technologies have different contributions to make to poverty reduction and that, in order to be effective, pro-poor ICT efforts must be embedded in poverty reduction initiatives (including national development strategies) and best practices (such as multi-stakeholder and participatory approaches" (UNCTAD, 2006: xxiv). However, in effect, this means little more than the development of ICT master plans, designed in a top-down way to achieve targets and objectives at the national level, with insufficient attention given to local contexts and to bottom-up approaches, despite participatory dialogue in the process of devising the plans (Okpaku, 2002).[21]

In 2008, there is discussion of the knowledge gap and the need to foster technology diffusion, albeit through capacity building. Countries are asked to focus on technological innovation and to establish "the capacity to generate, assimilate, disseminate and effectively use knowledge" (UNCTAD, 2008: 1). References to modernization are in

evidence, as is the economic exogenous model, suggesting that "in the area of knowledge diffusion and technology transfer, externalities and spillovers can yield enormous benefits for the economy as a whole, and for the rest of world in the presence of technology flows among countries" (UNCTAD, 2008: 7).

Earlier ICT gaps are seen to be filled by the spread of mobile phones, suggesting that if one has a subscription to a mobile phone, other factors that lead to persistent poverty will soon start to be overcome (Indjikian and Siegel, 2005). This approach stands in contrast to Sen's position when he argues that "the capability approach focuses on human lives, and not just on the resources people have, in the form of owning – or having use of – objects of convenience that a person may possess" (Sen, 2009: 253), and indeed, to Nussbaum's (2001: 40) observation that "international development projects have often gone wrong through insufficient attunement to cultural variety and particularity". In contrast, the UNCTAD discourse conveys the impression that "the full right to communicate and participate in the information society" might be met by ensuring that "the mobile revolution puts a portable handset in the hands of all adults" (UNCTAD, 2009: 20) – very much the exogenous approach.

UNESCO reports in the post-WSIS period call for actions aimed at the diffusion of ICTs and digital media, but they do so with reference to "core principles" such as equity, gender sensitivity, inclusion and cultural sensitivity (UNESCO, 2007b). As the discourse shifts from ICT diffusion and "information problems" towards "communication for development", [22] UNESCO calls for "a focus on the needs of marginalized groups and an in-depth understanding of the national communication environment" (UNESCO, 2007a: 11). Its 2007 report says there should be greater emphasis on the communicative process, rather than on technology *per se* (UNESCO, 2007a: 33), consistent with the endogenous model. Other UNESCO reports also display criticism of the exogenous vision of the knowledge society. In *Investing in Cultural Diversity and Intercultural Dialogue*, the authors overtly call attention to the 'exogenous modernization paradigm' (UNESCO, 2009: 191). Its authors write, "when 'development' is imposed upon a society from the outside, this invariably leads to ecological and societal dislocation" (UNESCO, 2009: 192). This report drives home the notion that the exogenous model of information or knowledge acquisition should not be privileged.

The authors of these reports do not, however, escape the seduction of technology consistent with the exogenous model. For example, in 2009, ICT benefits are couched, not in terms of investment and access points, but in terms of the benefits of user-friendly software and low cost devices (UNESCO, 2009: 146). The *impacts* of new technologies such as social media and Web 2.0, resulting in new forms of sociability and solidarity, are seen as furthering "exchanges within and between minority groups and between majority and minority groups" (UNESCO, 2009: 237). Technology is, however, uncritically associated with the forces of "the good" as the emphasis is on the positive impacts of technological innovation (UNESCO, 2009: 108). This is so even though there is evidence that ICTs may also be associated with malevolent forces (Bennett, 2003) and it is acknowledged by the authors that the impacts of ICTs have yet to be fully understood.

On balance, it appears that the interpenetration of the exogenous and endogenous models has not resulted in a consistent distancing of the latter from the former in a way that encourages departures from advocacy of investment in technology as a solution. A "one knowledge system" is favoured; one that is out of step with an understanding of human development that "aims to expand people's freedoms – the worthwhile capabilities people value – and to empower people to engage actively in development processes, on a shared planet" (Alkire, 2010: 40). The endogenous model "posits that human beings are the ends as well as the means of development, challenging the focus of many economists and policymakers on *per capita* economic growth" as the principal aim (Hulme, 2010: 15). But policy discourse remains mainly concerned with addressing ICT and knowledge gaps in line with the exogenous model and neoliberal policies privileging external agencies and firm interests in diffusing technologies. Hulme argues that it is the interests of the economically powerful countries and international institutions that are shaping progress towards the MDG targets. This does not fit well with 'bottom-up' approaches aimed at facilitating the capabilities to choose how best to incorporate technologies into people's lives.[23]

Even if there are some signs in the post WSIS period of a shift towards endogenous approaches in the context of development initiatives, there is little evidence of a consistent turn to an endogenous approach that embraces respect for multiple knowledges or practice-based approaches when it comes to ICT interventions. In its 2009 report, UNESCO refers to the fact that "the concept of learning communities or

learning societies has arisen of late to emphasize the value of self-learning and innovative learning in the context of adapting to needs and shaping one's desired future" (UNESCO, 2009: 108). "Self-learning" and what this might imply in practice is a theme in discussions about the importance of multiple knowledges and practice-based approaches in the development process. Notwithstanding this observation, digital technologies such as mobiles or the Internet and software applications such as Web 2.0 continue to be closely linked to the production, circulation and appropriation of external 'knowledge' for development. For instance, what is needed for 'e-development' is the harnessing of the digital network paradigm, one that is "relevant to developed and developing countries alike".[24] This view discounts the political character of knowledge and is inconsistent with endogenous models that emphasise the importance of multiple knowledges.

4. Multiple Knowledges Perspectives

The challenge in developing ICTs in ways that are responsive to a human-centred development process requires a much more consistent move towards endogenous approaches embracing receptivity to participatory approaches and to multiple sources of knowledge. Such a move provides opportunities to overcome persistent biases "favouring knowledge and values that are developed in the North, over the local knowledge, concepts, language and understanding of civil society and staff in the South" (Zirschky, 2009: 8).[25] An analysis of the ways that information derived from participatory approaches is used by international non-governmental organisations concludes that, even when these organisations pursue 'bottom-up' approaches to ICTs, "many of the structures and systems they employ strengthen or reinforce existing power relations, based on wealth and notions of scientific or expert knowledge" (Beardon and Newman, 2009: 24).

A research programme funded by the Dutch government has sought to tackle some of these issues. Participants in the Information and Knowledge Management (IKM)– Emergent programme are attempting to privilege the endogeneity of ICT and knowledge-oriented interventions.[26] The programme, which includes academics and practitioners in the global 'North' and the 'South', has turned to "practice-based approaches" in an effort to develop ICT-related interventions that are responsive to the

aspirations of those for whom policy interventions are intended. Ferguson et al. (2008), for example, have developed a practice-based, community-driven approach to ICTs that aims to privilege "epistemic diversity" (Molenaar, 2006). Rather than emphasizing the export of knowledge, the priority is to foster local knowledge capacities. Here, "different discourses, different *knowledges* can coexist, rather than placing a single knowledge paradigm at the heart of all development discourses" (Ferguson, et al., 2008: 30).

The attraction of "blueprints" or templates for policy and action with respect to ICTs based on the exogenous model developed by economists is attributable partly to the fact that policy makers find it difficult to negotiate a path among the different discourses. The result is a tendency to draw on the dominant model in a decontextualised way and to apply insights derived from it in contexts relating to technology where they have little, no, or different meanings (Jones, 2009). Powell, the co-ordinator of the IKM-Emergent Programme, argues that 'development' is a process which depends on "..an appreciation of the perceptions of local populations as to their options in that reality. Without such 'knowledge', interventions fail, as we have seen time and time again" (Powell, 2006: 520).

Endogenous models that emphasise local knowledge and learning in situated contexts often turn to practice-based approaches which value epistemic diversity and meaning construction in local contexts. One means of achieving this in the case of ICT interventions is to enable the meanings of technology to emerge through open, emergent, processes of dialogue which respect multiple sources of knowledge (Zirschky, 2009: 22). The IKM-Emergent Programme has sought to give a higher profile to alternatives to the dominant discourses on ICTs and development. The aim is to reflect on the positions of those claiming expertise with respect to ICTs which has been acquired in contexts that differ from their application. In this way, there may be opportunities to counter biases in policy prescriptions and actions that make it difficult to be responsive to local aspirations. In line with the discourses enabling talk about "worlds and knowledges otherwise" (Escobar 2002:1), and rooted in resistance to singular, universalising models of social and technical change, participants in this programme seek to acknowledge that the development and application of technologies can best be understood as "a consequence of the interactions of local agents" (Mowles, et al., 2008: 810).

The programme is not without its problems. Some are a reflection of the values embedded in the particular designs of specific ICT systems. As Kirimi and Wakwabubi's study on the use of knowledge yielded by participatory approaches in Kenya indicates "this knowledge is not only *inaccessible to most people* but … it is also stored in formats that are not user-friendly. Learning is therefore hampered by the way knowledge is stored and made accessible by organizations to both internal and external audiences" (emphasis added) (Kirimi and Wakwabubi, 2009: 1). Other problems are linked to the challenge of communicating with those working mainly with frameworks offered by the prevailing models as indicated in the discourses of the reports discussed above. In most cases, these assume a simple cause and effect relationship between ICT programme initiatives and outcomes (Thompson, 2008). In contrast, the IKM-Emergent Programme offers suggestions about how "to set out an alternative, or rather, a series of alternatives to current majority practice" (IKM Emergent, 2010: 12; Mowles, 2008: 6).

The concept of multiple knowledges is helpful in challenging views consistent with the dominant exogenous model because it questions the epistemological foundations that many development organisations are working with. In so doing, it is possible to lay bear assumptions about power relationships, to see how they are being replicated, and to develop strategies of resistance. By insisting on "emergence", that is, an understanding that "uncommon combinations of common events and circumstances" emerge that cannot be predicted (Hedström, 2005: 100), it is possible to move beyond the prevailing endogenous economic models. Meaning construction leading to new knowledge about ICTs can follow a pattern that combines the expected, unexpected and unwanted (Mowles, 2008: 10). Interventions aimed at the use of ICTs in support of development may be encouraged that are open to emergent developments, rather than being locked into the premises of plans created at the beginning of an ICT intervention. Following approaches that are explicitly open to creative bottom-up solutions is more likely to encourage the involvement of disparate groups in a dialogue that leads to a continuous reframing of ideas and actions. In turn, this may enable ICTs are to be more effectively embedded in local contexts in ways that are valued by local groups.

There are indications that community-driven, collaborative production of ICT applications is opening new spaces for bottom-up, potentially empowering developments in the application of ICTs. There can be little doubt that various forms of interactive

social media will continue to spread, notwithstanding the policies and practices adopted by external institutions. Whether these developments will successfully evade existing asymmetric power relationships as they spread is a matter for empirical assessment, especially with respect to their financial sustainability. If those developing creative uses of, for example, mobile phones for payments by entrepreneurs or their use by health collectives to bring important information to rural areas, are successful in eluding the interests of those who formulate ICT projects exogenously and finance them through 'top down' initiatives, then these initiatives may indeed provide important evidence of the benefits of endogenous or bottom-up strategies. However, the exogenous model, and ICT-related funding initiatives promoted by companies and other external stakeholders in the development community in the name of this model, remains well-entrenched. This model therefore needs to be contested, both by exposing its limitations and by demonstrating that it is predicated on assumptions that are inconsistent with a human development agenda.

5. Conclusion

The analysis of the discourses employed by authors of the sample of reports considered here confirms that most of those engaged with the challenge of meeting the MDG goals relating to ICTs continue to be captivated by the idea, informed by the exogenous model, that "knowledge is like light". The exogenous model favouring a focus on "technology gaps", and the economics version of the endogenous model with its focus on "information problems", are present even when reference is made to participatory processes and the importance of local contexts in the development context. Where endogenous models informed by practice-based approaches are emphasised with respect to ICTs, policy is more likely to shift towards capabilities and human development aspirations and lead to a greater awareness of the power asymmetries that sustain measures in line with the exogenous model. Of course, awareness of the existence of such asymmetries is not synonymous with measures aimed at countering them.

Many see great potential in recent ICT innovations such as social networking and Web 2.0, for a "continual dialogue between multiple modernisms and rationalities in a manner that allows for judgement between these, and for a resultant, qualified, impulsion towards

progress" (Thompson, 2008: 823). There is evidence that this is happening, but it is as easy for these technologies to be appropriated by those who would exploit others as it is for them to be appropriated by those concerned with social transformation that is regarded as being positive by local groups. For example, while many micro-entrepreneurs including women are benefiting from the increased accessibility of mobile phones, there are risks associated with these technologies when they reinforce existing unequal gender relations (Ekine, 2010). When the dynamics of development, and specifically those of societies based partly on the use of ICTs, are understood as being emergent, the intended and unintended consequences of ICT-related interventions are more likely to be acknowledged. Interventions informed by this way of thinking are more likely to be flexible and the "outcomes" more consistent with changing local contexts (Rafiq and Gulzar, 2009). However, while understanding of these dynamics can serve as a bulwark against the assumption that social networking is always necessarily empowering, this is but an initial step in the project of resistance against top-down agendas of external stakeholders and, indeed, of internal stakeholders that operate according to the assumptions of the exogenous model, for example, by providing technologies, but without attending to the cultural, social and often political measures that need to be put in place of enable them to be successfully appropriated by local users.

While efforts to acknowledge multiple knowledges can help to move towards greater sensitivity to human development goals when ICT interventions are being developed, the problem of how to deal with those whose visions of technology persist in adhering to the exogenous model, must still be addressed. Practice-based, emergence approaches offer an attractive way forward, but, on their own, they cannot address structures that give rise to power asymmetries and unequal relationships.[27] If we are to enable respect for multiple knowledges to influence action in the interests of the use of ICTs in developing new capabilities, much remains to be done to trace the flows of competing ideas and to advocate institutional arrangements and processes consistent with countering the outcomes commonly associated with the exogenous model.

Research is needed to document the harm done by models of ICTs and development that are not receptive to insights from perspectives that focus on endogenous models, emergent systems and experience in the field. The means for shifting discourses and practices are available to those who persist in advocacy of 'un paradigma otro' in the

forums that are available to them. Explicit acknowledgement of the rationales that motivate different approaches offers a basis for negotiation of the contending discourses and, most importantly, the actions that follow from them. The World Bank, United Nations agencies, donor agencies and other stakeholders play key roles in ICT interventions. If they shift more consistently towards endogenous approaches, including a recognition of multiple knowledges and emergent outcomes, in line with moves more generally with respect the development field as a whole,[28] there may be greater possibilities for influencing programmes of ICT intervention in line with the goals of human development. For this to happen, the realization that "there are no guarantees that improved access to ICTs leads to poverty reduction" (UNCTAD, 2010: xi), will have to take hold and start informing the discourses of debate on investment in the new digital technologies and their applications. In such cases, where greater attention may be given to the potential uses of ICTs in local contexts and questions are raised as to whether and how external agencies should intervene, it is important to recall that costs are incurred and that these must be borne somehow, raising issues of financial flows, stakeholder interests and, inevitably, of power relationships and they way they are articulated in a particular local context.

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1 A version of this paper was presented at the International Association for Media and Communication Research (IAMCR) Conference 2010, 19-22 July, Braga and published as IKM-Emergent Working Paper No. 11 at http://wiki.ikmemergent.net/files/IKM_Working_Paper-11-Robin_Mansell-July2010-final-pdf.pdf. This version benefits from comments by Mike Powell, Claire Milne, and David Souter and by two referees. The opinions expressed here of course are my own.

2 Critical scholars were unconvinced that simply closing technology gaps would address underlying power asymmetries, see, for example, (Hamelink, 1996; Heeks, 1996; Mansell and Wehn, 1998; Ó Siochrú, et al., 2002).

3 "In cooperation with the private sector, make available benefits of new technologies, especially information and communications" at http://www.undp.org/mdg/goal8.shtml. Some argue that this was an afterthought without meaningful indicators, see (Lanvin, 2008) and (Fukuda-Parr, 2010).

4 Corporate representatives of ICT companies often participate in panels discussing the future of ICT developments. For example, at the 5th meeting of the Internet Governance Forum

established following the WSIS, corporate representatives comprised 23% of the participants (badges) of 1,993 as compared to 21% for civil society, 24% for government, 7% for intergovernmental, 3% for media, and 22% for the technical and academic communities, (IGF, 2010). The following comment on the role of private interests in deliberations of this kind: (Adam and Gillwald, 2007; Cammaerts, 2008; Fuchs, 2009; Wilson, 2002).

5. For other critiques of dominant approaches to ICTs and development, see (Avgerou and Walsham, 2000; Nulens and Van Audenhove, 1999; Wade, 2002).

6 In the post-War period, in parallel with the growing emphasis on the "information" or "knowledge" society in the industrialised countries, the potential of ICTs started to become an issue in development planning. United Nations agencies began creating academic and policy expert panels to discuss investment and the diffusion of computers, telecommunication infrastructure and radio, television and, later, satellites to support development goals in the 1060s. Two reports of significance on ICTs, information and knowledge were the MacBride Report (ICSCP, 1980/2004) emphasising an endogenous model (Mansell and Nordenstreng, 2006) and the Missing Links Report (ICWTD, 1984) emphasising an exogenous model. For early discussions see (de Sola Pool, 1974; Melody, 1977; Quebral, 1975; Rangnekar, 1969; Rogers, 1965) and, more recently,(Robison and Crenshaw, 2010; Wresch, 2009).

7 This is not to suggest that Annan personally was persuaded by this view, but rather that he promoted this view in his position as Secretary-General of the UN.

8 This is evident in the main texts produced by the WSIS which have a strong technology-led orientation, see (UN/ITU, 2003a, 2003b, 2005a, 2005b) and see (Padovani and Nordenstreng, 2005; Raboy and Landry, 2005; Raboy, et al., 2010).

9 MacLean provides an overview of the ITU; UNESCO; World Intellectual Property Organization (WIPO); World Trade Organization (WTO); Internet Corporation for Assigned Names and Numbers (ICANN) and the Internet Governance Forum (IGF).

10 'ICT' is a label that encompasses older and newer technologies of media and communication.

11 Texts included in the sample are: UNDP Human development reports, 1999 – 2009; UNCTAD reports on e-commerce and information economy 1999, 2005-2009; UNESCO, various report on information and knowledge, 1999-2009; World Bank World Reports 1998-2009; WIPO selected annual reports 1998-2009 and WIPO Intellectual Property and Development reports 2008-2010 plus minutes of meetings of IP and Development Committee; ITU major reports on ICTs, 1999-2009. In addition, though not formally included in the thematic analysis, UN Millennium Goal documents from 2000 and progress reports 2008 and 2010, plus key WSIS documents 2003 and 2005 plus stocktaking and monitoring reports of 2010 (UN/ITU, 2010a, 2010b). Space limitations make it impossible to present a full exposition of these texts.

12 Keywords included 'investment', 'learning', 'impact', 'transmission', 'knowledge', 'information', and 'ICT'.

13 There are a large number of other UN agencies concerned with development issues where ICTs are playing a role as a result of efforts to 'mainstream' ICT interventions. These reports may be more receptive to endogenous approaches but this requires an analysis beyond the scope of this paper.

14 (Albagli and Maciel, 2010) offer a concise discussion of developments in ICTs in the context of several theorisations of relations of power and discourse, mainly following Foucault. My claim that the texts of documents such as those analysed in this paper provide a useful source, albeit not the only one, from which we can gain insight into these relations is consistent with their analysis.

15. This may also be a conflation of Thomas Jefferson's (1813: 1291) statement: "He who receives ideas from me, receives instruction himself without lessening mine; as he who lights his taper at mine receives light without darkening me".

16. See (Soete, 1985) for an early discussion of technological leapfrogging, (Abramovitz, 1986) for factors that enable countries to catch up with leaders, and (Steinmueller, 2001/2) for the difficulties in undertaking this process. For discussion of the East Asian experience see (Amsden, 1994; Asian Development Bank, 1997; Lall, 1994; World Bank, 1993).

17 See (Mansell, 2011) on how this model favours neoliberal strategies in the context of ICT and development.

18 See also (Streeten, 1982).

19 Citing the work of (Ricoeur, 2004: 78).

20 The model provided by the East Asian economies has been criticised, see (Kim and Nelson, 2000) and (Marcelle, 2004).

21 See also (Manyozo, 2010).

22 See (Unwin, 2009) for a discussion.

23 See also (Gore, 2010: 76) on a "productive capabilities approach" based on heterodox endogenous growth theory.

24 On the persistence of a technology-led perspective, see (Hanna, 2010: 9).

25 There are some who remain sceptical of the benefits of making ICTs available for consumption, see (Heeks, 2005; 2010).

26 The writer is a member of the Steering Committee of IKM-Emergent.

27 Such work could build on research on the influence of ideas in the international relations field (Finnemore, 1996), on the influence of politics in the development context with respect to intellectual property rights (Shadlen, 2009), and on government networks influencing the appropriations of ideas about development interventions (Martinez-Diaz and Woods, 2009).

28 See (Zoellick, 2010).