The Arctic and challenges of the exterior - Knowledge, ICT, and Autonomy

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Abstract

This paper examines in general terms whether Information and Communication Technology (ICT) and their carrying knowledge, pose a challenge to the autonomy of the ways of life and knowledge held by "Northerners". First it examines what knowledge is in more general terms, followed by an epistemological comparison between TEK and "western-rationalistic" knowledge. The second part examines knowledge expectations embodied in ICT. Special consideration is given to assumptions held in ICT, and examines how realistic the threat is from ICT to Northern autonomy by taking a brief look at the infrastructural situation of ICT in the North. The last part examines what from a political perspective autonomy can be and how ICT relates to this autonomy. The paper also examines and summarises the character of ICT through the lens of circumpolar knowledge and varying forms of culture. It concludes with an argument that suggests that the autonomy constraining character of ICT is not a necessary consequence. To avoid negative consequences, dialogue and communication between "North" and "South" that takes into consideration the differences and likeness of both extremes is presented as a solution that can overcome the opaque character of ICT.

Key words: Autonomy/ Northern, Communication and Dialogue, Information and Communication Technology/ Information Systems, Innovation/ Northern, Knowledge

Introduction

There is a paucity of literature that examines Information and Communication Technology (ICT) in the Arctic regions (Lausala & Valkonen, 1999; Hu & Li, 2001; Pekkala et al., 2004; Beck et al., 2005), and even less literature that examines this topic from a knowledge perspective. The reference to knowledge in this paper deals with the knowledge held by the people of the North and that contained in ICT. Some literature does examine this question in a more general perspective vis-a-vis indigenous people (Kamppinen, 1998; Tedre et al., 2006; Lieberman w/o year).

Currently in circumpolar regions, but not exclusively, "Traditional (Ecological) Knowledge" (T(E)K is a "hot" topic (cp. Nadasdy, 2006). The author has examined the relationship between T(E)K and ICT in a series of articles (Krone, 2007 b; Krone et al. 2008). These papers were preceded by an epistemological draft about the differences between TK and "western-rationalistic" knowledge (Krone, 2006). One of the conclusions of these papers was that the often alleged dominance of western knowledge is not necessarily the result of better explanations, but rather the way in which it is communicated and distributed. Based on this argument, in the current paper the question is: *Are ICT a challenge to "Northern" autonomy, when being the examined from a "knowledge" perspective?*

On a conceptual level this question is examined from three perspectives: The first, is that of knowledge itself, whereby it is analysed what "knowledge" is in more general terms, and how it relates to the circumstances under which it is formed. A second perspective examines whether and how ICT are predicated by western-rationalistic concepts of knowledge contained in software and infrastructure. The last part examines how autonomy relates to ICT and knowledge. The main area of interest here is how the "opaque" character of ICT might be opened, by an awareness of "Southern" and "Northern" conditions of life, and how these are related to knowledge sets contained in ICT. Methodologically this paper uses a content analysis approach.

Perspectives onto ICT in the Arctic

In this section the characteristics of ICT are examined in a systematic fashion from a knowledge perspective. In order to provide a frame of reference for this question the examination starts with a suggestion of what knowledge is and how it is formulated. Then it is examines ICT, and how well the Arctic regions are equipped with infrastructural devices that are important for development. In a last part Autonomy is described and related to ICT, under the perspective of knowledge and their presence in the Arctic.

Knowledge

„For there to be knowledge and power there have to be persons, and for there to be persons, the North has to be inhabited“ (Ingold, 2007). In this statement it becomes apparent that knowledge is dependent on communication among people of a dedicated spatial setting (cp. Barnes, 1995; Searle, 1995; Berger & Luckmann, 1999), and how people jointly define the meaning of the objects that are surrounding them; the process of knowledge formation.
By aligning knowledge and power Ingold on the one hand takes up a conference theme, while on the other hand pointing to a characteristic of knowledge that is examined here. When dealing with the "sense-making" (cp. Orlikowski & Gash, 1994; Buckingham Shum & Selvin, 1999) notion of knowledge formation, immediately some elements of subjectivity are part of a discourse on knowledge.

Taking up this subjectivity element, in line with Barnes (1995) and Hesse (1980), the author proposes an argument in which knowledge of "Northerners", TEK, and "Southerners" have very similar foundations (Krone, 2006). Their characteristic science and TEK seem to rest on stories being told from generation to generation. Both sets of allegedly different knowledge perpetuate limited stocks of knowledge (Kuhn, 1996; Ingold, 2007). Thus, Krone (2006) suggested that there is no superiority of any mode of knowing (Cook & Brown, 1999). TEK and science rest on different premises of validity, and how validity is achieved (Nadasdy, 1999; Krone, 2006).

TEK and science are embedded in different cultural modes of communication in general, and knowledge communication in particular. With Ong (2002) the author refers to the modes of assigning and maintaining validity by the means of oral communication versus written communication (Ong, 2002). Written communication in particular has characteristics that allow it to take abstractions, and make those tradable in written communication by means of books and journals etc. (Ong, 2002; also Berger & Luckmann, 1999). To make an absolute argument: Written knowledge allows for permutation, and requires certain sets of methodology to be followed in order to allow for validity (Nadasdy, 1999; Krone, 2006).

So what then is knowledge? For Barnes (1995) knowledge is a not a 100 % matching of the description of nature in which knowledge claims to experiences the environment, taken as the physical and social environment that surrounds human beings and gains in importance as they are shaping humans knowledge (cp. Hesse, 1980; Berger & Luckmann, 1999). Knowledge, according to Barnes, is part of and embedded in culture (Barnes, 1995; cp. Kuhn, 1996). If this argument is connected to that from Ingold, than „Northerners“, irrespective of their tribal connections, have a different knowledge base then „Southeners“(Ingold, 2006)!

Information and Communication Technology (ICT)

ICT, in all its broadness, is first defined and then moulded to the topic of ICT in the Arctic. When the term ICT is used here, the author refers to the combination of infrastructure and its utilisation for a given purpose. Thus, focusing on Information Systems (IS).

IS are defined as "(...) system of communication between people. Information systems are systems involved in the gathering, processing, distribution and use of information. Information systems support human activity systems" (Beynon-Davies, 2002, p.4). Human activity systems can be any kind of human interaction that is happening for a given purpose; organisations as well as states in this perspective can be considered as human activity systems (Beynon-Davies, op cit.); both are social endeavours after all (cp. Krone, 2007 a for the social origin of organisations in an act knowledge sharing). Information Technology, in contrast, refers to the technological side of the "gathering, processing, distribution and use" (ibid. p. 5) of information.

With this dichotomy there emerges an interesting element for the Arctic regions. If IS are supposed to support social interaction, how adaptable are these to different spatial settings (Tedre et al.,2006) as technologies seemingly have different meanings in different regions? In addition we can ask for whom and which communication flows are IS predicated on? Examining the innovation capabilities of ICT, Tedre et al. (2006) observed that their fit into other cultures is not assured (ibid. 128-9). IS are inherently viewed as foreign to Arctic cultures due to a lack of relevance "(…) to the local culture and society" (Tedre et al., 129). ICT are predicated and expect to have as counterpart written cultures (Kamppinen, 1998, 20). Tedre et al. shows that there are inconsistencies in cultural terms that have to be accounted for when planning and implementing IS in other cultural settings then those of development and initial experience making.

If this were true, then the lack of ICT in the circumpolar peripheries (cp. Lausala & Valkonen, 1999; AHDR, 2004) could suggest that "Northerners" have had a choice to opt-out of the implementation of IS and IT. This is in fact not the case as Beck et al. (2005) has shown. There is rather a serious lack of privately available IT infrastructure. This phenomenon is not particular to any one country in the Arctic (cp. Lausala & Valkonen, 1999; AHDR, 2004). Reasons for this absolute lack of integration into the "global village's" net of communication are manifold. Some reasons can be traced to the era of privatisation in the telecommunication-sector in general. Other reasons are attributable to the general shifts in how and for whom telecommunication infrastructure are provided for (Mansell & Wehn, 2000, p. 190; ITU, 1999). An economic reason can be seen in the emergence of new service

providers, and in this case they are also making pathways into Arctic regions. The economic reason is that those new providers, due to their private capital structure, have to have tighter control over their financial figures, as they are mostly traded on stock exchanges (Mansell & When, p. 191; cp. Cowhey, 1990 for the old ITU regime and national monopolies in the manufacturing of ICT oriented services and equipment).

ICT in the current form are dominated by science based knowledge sets (Beynon-Davies). In addition IS are founded on „Southern", „central" infrastructure experiences of designers of infrastructure, software and protocols which are the foundation for today's IS. Often these designers lack experiences of other spatial, cultural, age settings, because to a large extent ICT design (infrastructure and software) is a „central" activity that draws its resources from central labour markets. Moreover, it has been observed that software design in particular, and IS design in general, are increasingly seens as activities undertaken by young people (cp. Hawthorn, 2000; Zajicek, 2005). Thus IS pose a dual challenge to Arctic regions: On one hand there is a strong western-southern knowledge impetus, on the other hand the inhabitants of the Arctic regions are excluded from discussing their needs.

Autonomy

In the field of politics autonomy is defined as the option to conduct and structure forms of life, culture, and in general terms society in a way that is compatible with society's desires unbiased from others.

If this is the starting point then the „North" is already partially a society of its own, because

> *„Everyone's north is shaped by the peculiarities of their own biographical and historical experiences. Yet these experiences do overlap to a very considerable extent... Because of this commonality of experiences, it is possible for people all around the circumpolar North to converse with one another, and understand each other's point of view, to an extent unmatched elsewhere" (Ingold, 2007, p. 12).*

If Ingold's analysis is correct, and we connect this item to that of ICT and knowledge then three questions emerge:

1) Can the North be autonomous given the influx of modern ICT?
2) Does knowledge inherent in IS not supersede „Northern“ knowledge?
3) Can ways be sought that allow for individual „Northern“ approaches to ICT adaptation of „Southern“ origin?

In respect to the first question an interesting phenomenon is observed. The "North", and the indigenous people living there, have shown already that they are in a position to adapt to modern technologies (cp. Christensen, 2001, p. 13). This adaptation happened against a background of "westernized" indigenous people who are familiar with written culture forms of living. Moar (2003) has argued that in particular for the younger members of indigenous groups this co-living in two distinct cultural settings has caused considerable cultural frictions, and led to alienation from the elders in particular (Moar, 2003, pp 159-161; cp. Lieberman w/y;). As such the the same adage may be applied to ICT as it is for almost everything that comes from the „south“: It has to be reworked or it fails (cp. Beck et al.). For knowledge, and the debate that was suggested here, this argument is of utmost importance. It shows that the pragmatic criterion of truth of knowledge (cp. Hesse, 1980; Barnes, 1995) has a bearing for the discourse between „North“ and „South“ and options for realisation of autonomy in light of ICT and IS in particular, but also in more general terms.

The answer to the second question deals with the pragmatic criterion for knowledge, in that it shows that knowledge is a relative form of describing reality, and communicated by different means (the primary oral vs. the primary written culture). Technical knowledge, as it is embedded in IS, then becomes only one description of reality. IS are shaping reality, (cp. Krone, 2007 one perspective resting in a knowledge based perspective as why IS implementation can fail), but they have to fit forms of living in the area where they are supposed to be adopted. IS and ICT in more general terms do not make sense per se, but need to fall on grounds that are receptive (cp. Christensen, 2001, p. 110-111; Tedre et al., 2006). This leads to an another implicit question: How much sense do ICT make in the “Northern“ shared experience, and the implications held by TEK ?

Answering this question, in the author's view will also answers the third question: Considering the forgotten commonality of TEK and „western-rationalistic“ there are options that allow for a dialogue. However, the basic need is to extend the „sphere of experience“ of the North to „Southerners“. This means that the communication and experiences that are forming knowledge about which Ingold spoke in the beginning, have to become embracive;

the homogenity of the „North“ (or the “Northern Experience”) does have its roots entirely in the landscape, and the interactions that scholars and inhabitants of the North have. But if the autonomy of the „North“ is endangered, if it has ever existed, by technologies that are brought from the „South“ it becomes necessary that the „North“ pursues more autonomy demanding discourse of politics in order to keep abreast of the happenings in which the „North“ has been so very often an object of discussion rather then an autonomous agent that can achieve its own aims.

In light of the overall changing conditions that the „North“ is facing, the culture and its carrying communication across the circumpolar region, Northerners must render a vision in which the South and North begin to converse.

Conclusions? - or appreciating the difference

Summarising the arguments made above, it seems safe to argue that TEK as well as western-rationalistic knowledge rest on conversations and stories being told. They differ dramatically in their formation and validation, which renders TEK from a western perspective less valid. Likewise, it is important that the cultural setting in which either set of knowledge is formed will be carried forward in the artefacts that are used by inhabitants living in both spatial settings. ICT, or here in particular IS, render a challenge to the „Northern“ knowledge, because they are so deeply embedded in „western-rationalistic“ knowledge that they need a similar cultural setting. If this is not acheived, there is a great deal of risk attached to their adaption by the local people in general terms. In the „North“, infrastructural and political decisions have led to a very weak, to non-existent integration in the global village, when looking from the periphery Autonomy of the „North“ is a scarce commodity that is endangered by ICT and their inherent cultural expectations, and the knowledge contained in them. To allow for a continuation of „Northern“ autonomy new challenges come up.

Taking up the discourse about innovations in the North (Aarsaether & Suopajärvi, 2004), it is suggested that „Northern“ autonomy now means everything that is in the circumpolar or Arctic regions is dependent on joint actions by all societal groups to allow for innovations. Innovations are defined as the:

> *"[…] the process of bringing new solutions to local problems, as responses to the challenges presented by the transformation of the increasingly globalising and knowledge-based economy. Innovations are new practices creating better conditions for living, employment, and economic activity in the localities*" (ibid., p. 16).

Innovations in this model are dependent on the interaction of the public sphere, the commercial sphere, and the local civil society (ibid. p. 16). This means that innovations are discourse oriented endeavours, a tradition that is according to Ingold very much alive (op.cit.) in the „North". Considering innovations for a „Northern" friendly IS/ICT infrastructure key-stakeholders would not be only be those living in these circumpolar areas, but also those from the South.

Reviewing the legacy of the public and commercial sphere in the „North" in respect to ICT the picture is less rosy. One explanation for this phenomenon is that the homogeneity in experiences is exclusive to „Southerners". In part because they lack the imagination that it takes, and that it can be an enriching experience to live in the Arctic under the constrains of the landscape, the climate, and culture. Another explanation is that the South has to learn to accept and appreciate the differentness of the „North" as a „sphere of experience" and „discourse of and in knowledge" that goes beyond „Southerners" apprehensions.

In simple words there is need for a re-evaluation of the basic concepts that hold societies together in more general terms: these are shared cultures, shared languages and solidarity. The „North" knows how these things look, because of the shared experience as Ingold argues. The South has to relearn this lesson, and can take some examples from the „North" which is seen as a region where the culture is similar because of the external conditions and not as a result of state influence.

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