A Hundred Possibilities: Creativity, Community and ICT

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Until the sixteenth century, creation (from the same Latin root as 'create') was used solely in the context of divine creation, the beginning of the world. The view that '*creatura non potest creare*' (the creature who has been created, cannot himself create), was integral to the medieval religious belief system. Indeed the use of 'creation' to denote *present* or *future* human-making was not to emerge in English until the major transformation of thought that accompanied the birth of humanism during the Renaissance.

Long after that period the word continued to be used to invoke a godlike creator. Even the first recorded use of 'creative' seems to have been in this older sense – 'this Divine, miraculous, creative power' (Cudworth, 1678). By the time Haydn came to compose *The Creation*, the association of the word creative with *human* art and thought was becoming conscious and much more acceptable. It remained so throughout the nineteenth century. In 1815, for example, the poet Wordsworth wrote to a friend, 'High is our calling, friend, Creative Art'. Only during the second half of the twentieth century was 'creative' used with increasing frequency across a wide variety of domains. This constant use, notes Raymond Williams in *Keywords*, significantly diluted the impact and power of the word; nevertheless, he argues, such changes of connotation are inevitable when 'we realise the necessary magnitude and complexity of the interpretation of human activity which "creative" now so indispensably embodies' (Williams, 1984, p.84).

Despite this gradual but significant shift across the centuries, establishing creation as an essential element of human meaning-making and development, contemporary views of creativity continue to carry the legacy of the medieval world view. Creativity has come to be understood by many as an innate human faculty. Unlike the often similarly attributed faculty of language (Pinker, 1995) however, it is frequently characterised as an elusive, somewhat magical or god-like quality; an attribute to be found only in rare and unusual people. Folk psychology's spin on creativity is resonant with the notion of an inspirational, unique Creator.

This emphasis on the rare, inspired individual has recently been termed the *élite* view of creativity (Robinson Report on Creativity, Education and Culture, DfEE, 1999). It is a view that underpinned the development of psychological studies of creativity throughout the twentieth century, beginning with Binet's (1896) empirical tests of childhood imagination at the turn of the century, and closely followed by Jung and Bergson's (1911) explorations of individual intuition.

A plethora of psychological studies between the 1960s and 1980s further strengthened interest in 'creative' activity, particularly in the areas of literature, music and art. These studies variously identified creativity on the basis of individual achievement, individual personality characteristics or cognitive processes such as hypothesising or problem solving (e.g. Torrance, 1963; Hennesey and Amabile, 1988). Domains such as science, business, sports, teaching, or parenting were

largely disregarded, and thus the concept became firmly associated with the arts. This has been dubbed the *sectoral* view of creativity (DfEE, 1999), vividly reflected in the title of Bruner's (1965) seminal study of creativity '*On Knowing; occasional pieces done for the left hand'* [which signifies the 'dreamer, the intuitor, the hunch-follower, the artist].

From the 1990s onwards, creativity research has looked more closely at the influence of environmental and social factors on creativity (Ryhammar and Brolin, 1999). However, even in this research, the emphasis on the individual remains. Whilst the anecdotes describing the composition of *Paradise Lost*, and *The Creation*, might at first sight confirm the view of creativity as an essentially individual process, on closer inspection they raise interesting questions, highlighting the enduring difficulties of defining such a concept in these ways. None of the 'artists' in our opening accounts, for example, could have achieved what they did without the collective knowledge and understanding of the intellectual communities in which they participated. It is also unlikely they could have achieved what they did if they had worked within discrete knowledge domains such as music, poetry or physics. Galileo's work was essential to Milton's composition, just as theirs proved to be some centuries later to the work of the Herschels and Haydn. Indeed it is possible to trace an ongoing dialogue between creators across time and domain, far from accidental in its cross-links.

Here we can discern communities of thinkers with common preoccupations, shared conversations and acquaintances; a common knowledge which in the Renaissance did not care for artificial divides between astronomy, technology, poetry, physics, music, chemistry and art. Such creativity existed not simply in the forging and exchange of new knowledge or innovative products such as poetry, oratorios, optic glasses or novels. It also existed in the collaborative processes of blending and reconfiguring existing ideas, hypothesising, working with others on common problems from different standpoints, and communicating such 'inter-thinking' (Mercer, 1999) in a way that eloquently could speak to others.

From this alternative perspective, creativity – be it in music, science, business, poetry, technology, education, art, industry, the philosophy of ideas or politics – can be viewed as a social process. A process dependent on, and arising out of, particular kinds of communities and collaborations, rather than from any innate or unusual gift. The *democratic* view of creativity (DfEE, 1999) from such a perspective, is far more resonant with this idea of creativity than the élite or sectoral formulations:

'all people are capable of creative achievements in some areas of activity, provided the conditions are right, and they have acquired the relevant knowledge and skills…creative *possibilities* are pervasive in the concerns of everyday life, its purposes and problems… creative *activity* is also pervasive… *creativity* can be expressed in collaborative as well as individual activities, in teamwork, in organisations, in communities and in governments….' (DfEE, 1999, p.28).

Recent research on learning (e.g. Lave and Wenger, 1993; Bredo, 1994; Rogoff, 1999) supports this perspective. Such work emphasises that learning is a situated, social process, dependent on interaction and communication. Processes traditionally associated with creativity are integral to this process. New and innovative thinking is never conducted unassisted, even when it would appear to go on 'in the head' of the individual. The creation of new knowledge is dependent on the interaction of materials, activities and people in particular settings, as well as in the way these interactions are collectively understood. Thus cognition is also distributed:

'stretched over, not divided among – mind, body, activity and culturally organised settings (which include other actors), across persons, activity and setting' (Lave, 1988).

From this 'situated' or 'cultural' perspective (Bruner, 1996), knowing and communicating are inseparable. The human mind is viewed, not as a pre-formed, innate symbol processor, complete with a range of innate attributes including (and only if you are lucky) creativity. Mental life is shaped to be communicated, is lived with others and always unfolds in activity with others. Rogoff (1999) puts it this way:

'an individual's actions and skills cannot be understood out of the context of the immediate practical goals being sought and the enveloping socio cultural goals into which they fit. It is the communities to which they belong that provide the communicative tools for organising and understanding experience and generating new knowledge' (p, 126).

This does not mean of course that there can be no direction or progress in creativity. Communities can collectively and explicitly value and develop creative processes. In the intellectual communities in which Milton and Galileo participated, musical, scientific, literary and philosophical expertise was both valued and shared. But as Sloboda (1999) has argued, with illustrations drawn from the field of music, a preoccupation with innate creative talent has inhibited the scientific understanding of the complex phenomenon of creativity, ignoring the importance of a range of other factors, such as technical practice, persistency and motivation. Such factors, he argues, are dependent on a supportive, mutual community – encouragement, early pleasurable [musical] experiences in one's own family or with friends, and the approval of others (be they peers or adults). He cites Messenger's (1958) account of the Anang Ibibo community where in many 'aesthetic' areas, creative achievements are far more widespread than in the West and considered as communal knowledge.

Research carried out by Zuckerman (1997) also indicates the importance of community in relation to achievement hitherto regarded as highly individual – the winning of a Nobel prize. Zuckerman found that the chance of winning a Nobel prize increases enormously by virtue of the fact that you have worked in the laboratory of somebody who has already won one. Not solely because of the stimulation, or 'visibility', but because of the shared access to a richer knowledge distribution network. This is in line with Pagano's work (1979) which suggests that creativity develops in association with other creative people. Research also shows that expertise can emerge very quickly in communities, including educational communities, often as a result of deliberate efforts. For instance, in eighteenth-century Venice, the orphanage La Pietà established a cultural ambience in which musical expertise was valued and encouraged. Plentiful opportunities for training were made available, thus creating a community in which a substantial proportion of the orphans became highly accomplished musicians (Howe, 1990).

But if the processes and products commonly associated with creativity in any domain can be seen to be related in a significant way to participation within communities, as well as in the knowledge valued and demanded by that community, they must also be dependent on the technological and communicative tools, the reckoning devices and other artefacts and resources of that community. For communities generally cannot be understood or represented without account being taken of the technologies, as well as related skills and meaning-making activities, intrinsic to them. The specific use made of communications technologies, be they clay tablets or the internet, have changed some communities in often quite momentous ways. Similarly, the technological practices in which Galileo and the Herschels participated, significantly transformed the knowledge and understanding of the intellectual communities to which they belonged.

Technology is integral to the expression and development of communities – their values, their goals, and the activities through which we come to know them. It therefore has a critical role to play in contributing to the development of creativity in every field of human endeavour.

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