

## **System error: economies of cultural production in the network society**

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‘The rise of the network society... cannot be understood without the interaction between these two relatively autonomous trends: development of new information technologies, and the old society’s attempt to retool itself by using the power of technology to serve the technology of power’ (Castells, 1996: 52).

In much recent criticism, particularly addressing ‘new’ technologies, there is far too crude a distinction between industrial and post-industrial economies. In contrast, Manuel Castells, in *The Rise of the Network Society* (1996) sees the current technological mode as discontinuous from the industrial mode but its overall logic continuous in serving power. The distinction (or alleged paradigm shift) that Castells points to, is the change in the ways technological processes are organised - from a mode of development focussed on economic growth and surplus-value (industrialism) to one based on the pursuit of knowledge and increased levels of complexity of information (informationalism). In this way, new technologies have enhanced the effectiveness of global capitalism, enabling it to become more flexible, adaptable, faster, efficient and pervasive. Culture, too, has become integrated in the process of the creation of capital, with cultural regeneration as the clearest example of capital’s renewal. To Maurizio Lazzarato, although culture has become subordinated to economics, objections have mistakenly tended to concentrate on the autonomy of culture enforced by intellectuals and artists, as well as some governments (1999: 159). He sees this as a problem, and instead argues that these new modes of the production of knowledge and culture are not the same as the production of wealth, and therefore new strategies are required. Art and art education clearly follow economic imperatives for the most part but do they also offer the possibility of influencing it?

This essay tries to reveal some of the mechanisms and contradictions in relation to cultural production using networked technologies, and the limitations and hierarchies offered under the so-called knowledge economy. It attempts to do this in the context of new formations of knowledge that reflect the current relationship between culture, technology and the economy (often described under the fashionable term of the ‘creative industries’ - especially in cultural regeneration programmes that emphasise the role of culture in terms of capital’s renewal). Castells asks if ‘the new technological paradigm [is] a response by the capitalist system to overcome its internal contradictions?’ (1996: 51) A system error has occurred, but a more detailed understanding of the internal dynamics is required.

### **I. Network preferences**

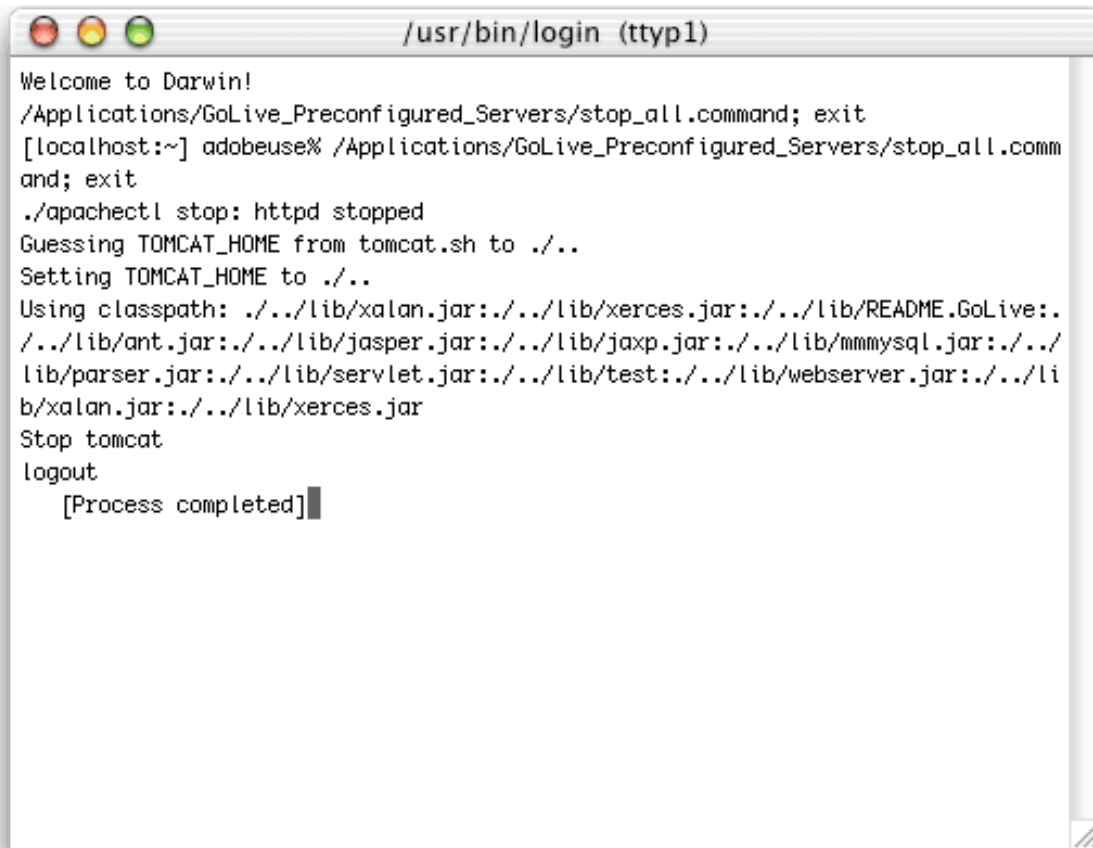
A closer look at the operating system reveals some contradictory tendencies. In ‘The Macintosh Computer: Archetypal Capitalist Machine?’ (1990), William Bowles argues that these tendencies of the capitalist system are not only enhanced by development of

new technologies but also expressed to some extent through the technological tools themselves. For Bowles, the Macintosh computer in particular represents a further development of the rationalised process of development as a 'general tool' for 'generalised education' in that it is designed to be easy to operate – to be 'user-friendly'. Despite appearances however, the underlying processes are decidedly complex and there is a vast amount of expertise invested in the operating system. To all intensive purposes, the operating system "masks" the "real" operation of the computer by interposing itself between the user and the Central Processing Unit' and thus the Macintosh computer presents itself as a 'black box' denying access to its depths (to use terms from cybernetics). This reflects conditions of work and production, and arguably can be extended to describe wider mechanisms of knowledge production and transfer (through research and education) in the network society.

These inherent contradictions somewhat describe the current conditions for creative work and production in network societies. From an overtly Marxist perspective, Bowles examines the peculiarities of the operating system to understand how technology is employed to extort more surplus value from labour. (It is worth adding here, that Apple Macintosh computers are still the machines of choice for most art schools in the UK at least – regarded as more sympathetic to visual culture.) The historical parallel of the introduction of new technologies can be traced to the beginnings of the industrial period not least, in the introduction of machine tools that transfer skills from the human to the machine itself, reflecting a trend to alienate the worker/user from the very processes they are involved in. For Bowles, this is entirely expected:

'What we are seeing is then is an exact duplication of the first industrial revolution where craft skills were stolen and locked into the industrial machine, then perfected to the point whereby general principles could be extracted and applied to ever more sophisticated machines, each in turn, requiring less and less skill (and labour) to operate!' (1990) His argument is that the computer has enhanced this logic and this is to be entirely expected in the generation of surplus value.

What Macintosh tried to do was to make a 'universal' graphic user interface, to set a standardised way of operating a computer that enabled the relatively 'unskilled' user to gain access to computers 'without resort to educating everyone to the level of the university' (Bowles, 1990). In general, the user interacts with the operating system via a command structure, using a toolbox that parallels the kinds of standards developed in machine tools. It may be easy to use but it is made impossible to use it at a greater level of operation. It is a closed system that somewhat 'mystifies' the processes involved and the available choices open to the user. For Bowles, this encourages an 'unquestioning acceptance of the supremacy of technology' (1990). The irony is that much 'educative' and 'creative' work using computers in art and design subjects is delivered on these machines ignorant of the actual working operations. Even in its current form (of OSX) there is little understanding that the operating system is now UNIX-based and that it is possible to work at a deeper level of operation through the command line interface (terminal) - but only if you have the knowledge and skills to do so.

A terminal window titled "/usr/bin/login (tty1)" with three colored window control buttons (red, yellow, green) in the top-left corner. The terminal displays the following text:

```
Welcome to Darwin!  
/Applications/GoLive_Preconfigured_Servers/stop_all.command; exit  
[localhost:~] adobeuse% /Applications/GoLive_Preconfigured_Servers/stop_all.com  
mand; exit  
./apachectl stop: httpd stopped  
Guessing TOMCAT_HOME from tomcat.sh to ../..  
Setting TOMCAT_HOME to ../..  
Using classpath: ../lib/xalan.jar:../lib/xerces.jar:../lib/README.GoLive:..  
../lib/ant.jar:../lib/jasper.jar:../lib/jaxp.jar:../lib/mmmysql.jar:../li  
b/parser.jar:../lib/servlet.jar:../lib/test:../lib/webserver.jar:../li  
b/xalan.jar:../lib/xerces.jar  
Stop tomcat  
logout  
  [Process completed]
```

The importance of the argument is that it is only through this systematic deception that a dominant class can sustain itself: 'If the technical/professional elite are to maintain the system, they must make it as simple as possible to operate' (Bowles, 1990). This is assimilated by society in such a way that it is normalised, and becomes part of the general knowledge of that society.

For a number of complex reasons, art students are generally unable to engage with technology at a deep level of understanding or operation. It seems that art schools neither have the resources nor the willingness to see that a deep understanding of technology is necessary to engage with the cultural realm or network society. On the contrary, in those fields that actively engage in the necessary interaction of culture and technology, much recent creative and critical work emphasises that hardware and software are not merely functional but can have expressive qualities too. In this connection, Florian Cramer draws upon Roland Barthes (in *S/Z*) in making the distinction between 'readerly' and 'writerly' texts and applying this to operating systems. Rather than the readerly properties of a GUI (Graphical User Interface) operating system that encourages consumption, the command-line operating system of UNIX is seen as 'writerly' in terms of openness and encouraging the reader to become a producer of text. This is important for Cramer as it breaks down the false distinction between the writing and the tool with which the writing is produced, and in terms of the computer between code and data. It is almost as if GUI software disguises itself as hardware (Cramer, 2003: 101) using crude and patronising analogies

like desktops and trash cans. On the other hand, the UNIX command line holds multiple possibilities for transformation and manipulation – combining instruction code and conventional written language – that can take poetic forms. Cramer cites the 1998 essay by Thomas Scoville ‘The Elements of Style: UNIX as literature’ in this connection (2003: 102) to insist on the writerly and literary aspects of programming. There has simply been too much emphasis on the visual and graphical aspects of creative computing in art schools in this regard with dire consequences in terms of a wider understanding of the apparatus and cultural expression.

Good pedagogy here would require going against the grain of recent cultural policy-making and traditional art and design education, perhaps upgrading mere visual literacy for more critical work and hardcore programming to situate practice more overtly in terms of the network society. This logic suggests clear lines of continuity from the industrial period, such as Walter Benjamin’s recommendation, in ‘The Author as Producer’ (of 1934), that the ‘cultural producer’ intervene in the production process, in order to transform the apparatus (1983). This is necessary according to Benjamin’s dialectical logic, as it only through an engagement with the conditions of production that the relations of production can be addressed, and it only through this that social change can arise. In this way, the artist is transformed ‘from a supplier of the production apparatus, into an engineer who sees his/her task in adapting that apparatus’ (Benjamin, 1983: 102). We are suggesting that this general line of thinking retains relevance for cultural production at this point in time – even when activities of production, consumption and circulation operate through complex global networks served by information technologies. In this sense, we attempt to draw together hard and soft-wares as well as technical and artistic activity - the traditional mechanical or electrical (hardware) engineer and the software engineer or software artist. If the logic of capital is continuous, the argument holds. Can we begin to think of art education itself in terms of software? If so, do we advocate the use of proprietary software or open source principles? Rather than be determined by economics or technology, art should clearly strive to be free, open and productive.

## **II. Knowledge economy or knowledge society**

If we proceed on the basis that art is produced necessarily in a networked and social context, then this needs further investigation. Castells defines this contemporary condition as the ‘network society’, a social order characterised as the ‘space of flows’ in contrast to the historically created institutions and organisations of the space of places of industrial society. The logic of the network defines a new industrial space, in which technological and organisational factors combine to make production flexible, able to produce goods across different locations but unified through telecommunications linkages. This is the post-industrial factory, if you like, not defined by a fixed site but by flows between multiple sites. The separate units are defined by the processes and labour required for the component parts of the overall operation. Automation has crucially contributed to this in requiring a highly skilled technological labour force on the one hand and relatively unskilled assembly work on the other – deciders and participants or mere

executants perhaps (to use Castells's terms). The geographies often literally reflect the crude terminology of the developed and developing world, in an international spatial division of labour (Castells, 1996: 387) based on cheap labour costs, tax waivers, lack of environmental constraints, under the ruling ideology of globalisation. These new enterprises are multinational, and the networks are international in scope – summarised in terms of economic globalism.

This describes a general tendency, but the forms vary according to cultural specificities. Anita Gurumurthy, in 'Unpacking the Knowledge Economy - Whither Knowledge Society?' (2004) explores some of these issues in the context of India as a rising economy based upon knowledge accumulation and access to technology. She wishes to challenge the newfound optimism in the sobering context of 'the subservience of knowledge society to knowledge economy'. The irony of increased access to internet technologies in a culture where a third of the population remain illiterate emphasises the point of a policy of social stratification that is contributing to a hardening of existing class and gender distinctions. Furthermore, Indian students are a target group for Western Universities keen to reap the benefits of the requirements of an English-speaking workforce with technological skills (the University of Plymouth, in the UK, where we work, is a case in point where students from India, China, Nigeria and Malaysia top the recruitment targets of the International Office; whereas countries like Cyprus have dropped off the list now they have joined the EU; Education appears to be cynically determined by economics). In particular, engineering courses are being set up, sometimes validated by Western Universities and/or students seek grants to study in the West expecting that the investment will pay dividend. And yet, the information technological revolution is contingent on specific cultural, historical, and spatial conditions that determine its future evolution, and certainly does not guarantee any positive effects on society. It seems that a considerable time lag exists especially on those societies at a geographical or social distance from the site of innovation. On a local level, art schools might be seen as particularly slow to change in this respect, and can hardly be seen as sites of innovation. Economic success continues to gravitate towards the United States underpinned by the interface between macro-research programmes and large markets developed by the State, as well as elements of decentralised innovation stimulated by a culture of technological creativity (Castells, 1996: 60). The creative industries are simply meant to serve this scheme.

To Gurumurthy, there has been a systematic abdication of state responsibility by the Indian State to guarantee education for all 'exemplified not only by non-achievement of targets, but in the lack of will to improve quality of education, particularly of the marginalized' (2004). Clearly this critique does not fit the economic plan obsessed with information technology and the enthusiasm to become an active part in the global marketplace to the neglect of more pressing social concerns. In contrast to the claims of the knowledge economy, Gurumurthy points out that recent economic analyses prove how the optimism is misplaced – both in terms of its insignificant contribution to GDP or improved working conditions. The empty promises of more and more jobs (for geeks) in the high-tech industry have been proved in the West too, and there appears to be 'no systematic structural relationship between the diffusion of informational technologies and

the evolution of employment levels in the economy as a whole' (Castells, 1996: 263). In the case of India, call centres are very much a condition of globalisation with few local benefits, that signals 'a new kind of work, and a new kind of worker, whose invisibility (in the network) is mirrored by a rhetorical excess of national wealth generation, new global work culture, and cheap labour, that, in the end, renders the conditions that produce this work and the experience of the worker, equally invisible' (Gurumurthy, 2004).

Outsourcing labour is a cheap solution to the benefit of transnational capital merely disguised under the rhetoric of the knowledge economy. Labour, including creative labour, is transformed by the need for the required knowledge to operate information technology, offering new relational patterns in the performing of tasks (Lazzarato calls this 'immaterial labour'). Castells makes the distinctions between the *networkers*, who set up connections on their initiative, and the *networked*, who are online but without any control over decisions; and another category of the *switched-off* who are tied to tasks and operate through non-interactive, one-way instructions. As mentioned, he presents these characterisations in terms of decision-making: the deciders (who make the decisions in the last resort), the participants (who are involved in decision-making), and the executants (who merely implement decisions) (Castells, 1996: 244). With informational production, constant networked interaction is required between workers, management and machines. Systems must be networked and integrated in order to process information efficiently in much the same way, through an integrated network of computers that link to each other and to mainframes – both arranged in decentralised and centralised working relations.

The relationship between capital and labour has undoubtedly changed making it more flexible and adaptable like the networked technologies that support these changes. Microsoft, the symbolic target of most negative attention in this field, provides opportunities for 'contingency workers' (or 'fleximers' as they are sometimes called), not employment as such but temporary work for 'temp slaves' as part of a 'disposable labour force'. Naomi Klein claims Microsoft 'wrote the operating manual' for this approach, 'engineering the perfect employee-less corporation' (2001: 249). Labour is still crucial, but disaggregated in the network society – for 'on the surface, societies were/are becoming dualised, with a substantial top and a substantial bottom growing at both ends of the occupational structure, so shrinking the middle, at a pace and in a proportion that depend on each country's position in the international division of labour and on its political climate' (Castells 1996: 279). In Gurumurthy's terms, the knowledge economy is therefore a smokescreen for a lack of will to use technology to build a knowledge society. This decision-making process is deliberate, and emanates from the very core of the logic of capital.

### **III. Network enterprise**

These are familiar lines of domination wherein popular forms and interfaces are mistakenly understood as democratic. These ideas have been much explored in

addressing the orthodox Marxist view of the political economy that would tend to see culture as determined. The interaction between culture and economy was famously explored by Adorno and Horkheimer under the term 'the culture industry' to describe the production of mass culture (as opposed to high art) and resulting power relations between capitalist producers and mass consumers. Their account is a bleak one, but one that appears to hold continuing relevance despite being written in 1944:

'Interested parties explain the culture industry in technological terms. It is alleged that because millions participate in it, certain reproduction processes are necessary that inevitably require identical needs in innumerable places to be satisfied with identical goods. The technical contrast between the few production centres and the large number of widely dispersed consumption points is said to demand organization and planning by management. Furthermore, it is claimed that standards were based in the first place on consumer's needs, and for that reason were accepted with so little resistance. The result is the circle of manipulation and retroactive need in which the unity of the system grows ever stronger. No mention is made of the fact that the basis on which technology acquires power over society is the power of those whose economic hold over society is the greatest. A technological rationale is the rationale of domination itself'. (1997: 121)

Today, the pervasiveness of network technologies has contributed to the further erosion of the rigid boundaries between high art, mass culture and the economy, resulting in new kinds of cultural production charged with contradictions. On the one hand, the culture industry allows for resistant strategies using digital technologies, but on the other hand it also operates in the service of capital in ever more complex way. Resistance reflects its organisational structures or chains of command in the emergence of decentralised transnational cultural groups (such as techno-art collectives) that both reflect capital's organisational model and reject its politics. Global resistance is exactly that, as global as capital (and arguably needs to employ networked technology accordingly). Cultural activity is increasingly tied to these dynamics whether we like it or not.

Contradiction is part of the very working dynamism that allows capital to adapt to change so effectively. This flexibility might be characterised by the network organisational form, that Castells calls 'network enterprise' that 'makes material the culture of the informational/global economy; it transforms signals into commodities by processing knowledge.' (1996: 172) In this connection Lazzarato cites Gabriel Tarde who (in 1902) theorised the production of culture, and knowledge in particular, in such a way as to reject the traditional analysis of the political economy. Rather than concentrating on use-value, he posited the idea of 'truth-value' in that knowledge is the result of a process of production. However, unlike other products, knowledge is a mode of production that cannot simply be reduced to the market or through exchange without distorting its production and consumption value (Lazzarato, 1999: 160). Lazzarato's example is the production of books, and we might consider the production of this volume, the intellectual rights and its exchange value - license agreements of the creative commons come to mind, as does the use of freely downloadable PDFs from the internet. A book's exchange value can be determined by the market as a product but not as knowledge that is more determined by moral issues of gift or theft (Lazzarato, 1999: 162). Capital tries to

treat knowledge as it does any other goods, or else suffer the consequences of the threat to property rights and its preferred relations of production. In Lazzarato's terms, capital is obliged to turn 'immaterial products' into 'material products' to protect its logic ('immaterial economy' is Lazzarato's term for the informational economy). Relations of power extend beyond the market in other words.

In the UK, these contradictions were intensified in the 1990s by an increasing trend towards the new cultural economy, establishing links between cultural and corporate sectors with an emphasis on the 'creative industries'. Simon Ford and Anthony Davies refer to the 'surge to merge culture with the economy' (1998: 2) as a result of a wider political attempt to consolidate London and the UK's position at that time as the European financial services centre, with culture as an important element of the marketing mix. In this context, the recent governmental focus on 'creative industries' became a re-branding exercise: 'to boost the generation of wealth and employment in the creative industries and to increase creative activity and excellence in the UK' (1998: 3). Ford and Davies argue that, correspondingly, a new class of cultural workers emerged as did new terminologies to describe them as 'cultural brokers' or 'culture entrepreneurs'; representing a shift from traditional sponsorship projects towards 'co-production' with the formation of new institutions (for example, ABSA is a 'dating agency' for matching business managers with cultural officers). As a result, sections of the art world were transformed into thriving enterprise zones in which corporate and creative networks could interact, overlap and form alliances in 'culture clubs' dedicated to the networking of 'culturepreneurs' and the business community (Ford & Davies, 2000: 30). Much the same tendencies can be detected in both statutory and in turn higher education with the cynical merger of research and enterprise cultures in Universities and the increasingly vocationally focussed drive for mass education. For the most part, new graduates are being produced with suitably poor skills that situate them as consumers more than producers despite surface appearances to the contrary.

Moreover, to simply call for the autonomy of culture misses the point for Lazzarato. If capital appropriates knowledge and culture for its purpose, then its opposition must attempt to use knowledge and culture to influence the economy. A further example of this is provided by pedagogy. Again, the production, communication and appropriation of knowledge can be seen to be different from that of wealth. Changes in government policy appear to desperately want to subordinate knowledge to the economy with the introduction of 'top-up' fees in the UK as the clearest and most recent example of this tendency. The wide and free distribution of knowledge over the internet somewhat reverses this trend (incidentally, the Lazzarato essay was first freely distributed over the *nettime* mail list in 1998, later published in paper form). The significance of this in terms of intellectual production, for Lazzarato, 'is in the process of becoming a new "contradiction" within the information economy, for which the challenges represented today by the internet are but the premises of opposition to come'. (1999: 163) For Tarde, 'artistic labour is productive labour' (Lazzarato, 1999: 165) and holds the potential to influence labour in general. In this way, the economy might be influenced by culture and influence a change of operational logic.



In summary, what this essay attempts to demonstrate is the increasing complexity of production relations that in turn reflect a further problem of the current relationship between consumers and producers predicated on levels of knowledge. Indeed, who are the deciders, participants, or executants within cultural production? Art education in this context appears to be both a reflection of the generalising effect of capitalist production on the labour process which enables the de-skilled and unskilled to access technology tools and products as well as produces a deliberately undereducated work force to handle extremely complex tasks without actually having knowledge to understand them or influence them in any significant way. It also a reflection of specialisation necessary for modern science-based production methods predicated on the existence of a stratum of the work force who are highly trained and possess unique knowledge of the process involved (a technocratic caste). In UK arts schools, a very low level of technical knowledge of hardware and proprietary software is introduced for the most part. Knowledge of networks or server-based programming is barely taught at all. Thus, by analogy, the networked computer is both a means of ensuring the dominant relations of production and offers the potential to make knowledge accessible. The important aspect of this argument in terms of pedagogy is to make sure this happens by encouraging a deep understanding of the apparatus, in the spirit of Benjamin, by encouraging an engagement with the means of 'immaterial' production.

Knowledge is an immanent part of this culture-economy system; therefore current policies underpinning it might be examined in technological terms. If so, paraphrasing Adorno and Horkheimer, the technological rationale might be revealed to be a rationale of dominance dressed up in the rhetoric of the knowledge economy. We ask if the analogy of the choice of operating system or choice of computer interface describe the current conditions and challenges for art education in resisting standardisation and homogenised forms. There is a need to engage with the apparatus at a deep level of understanding. Can we begin to see that conventional interfaces and operating systems cut the majority of users off from a deep understanding of what is actually taking place, and stops them from becoming active cultural producers? Might this be the purpose of art to reveal these tendencies?

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