He is less interested in exploring what the nature of everyday experience might be with these gadgets, what sensual and aesthetic pleasures might attend ludic gadgets and the play with communication they encourage. In an article which documents the tremendous variety of playful and creative uses to which young Japanese people put their mobile phones (in Japan, *keitai*), Michal Daliot-Bul suggests ways in which attention to playful media consumption demands that we rethink the boundaries of and within everyday life:

> Hanging a Hello Kitty charm on one's keitai, playing a simple cell phone digital game or having an animated character hosting one's keitai mail room are all acts of 'deviation' from reality into a play-dimension [. . .] Keitai blurs the distinction between the private and the public, leisure and work, here and there, and virtual cyberspace and reality. As this happens, the boundaries of play as a framed act separated from real life blur as well.
>
> (Daliot-Bul 2007: 967)

If popular media technologies are only ever symbolic and 'textual' and never practical or instrumental, then they may well be these gadgets of Baudrillard's. For Baudrillard tools and machines in contemporary consumer culture lose their instrumental functions, their practical uses, their use value. They instead operate as signs, fashion, toys or games. Digital personal organisers, text messaging on mobile phones, mobile phones themselves, may be sold as useful tools – but all seem to invite us to play. After all, who felt the need to 'text', to change a PC desktop's wallpaper or nurture a Tamagotchi virtual pet until a consumer device suggested we might?

Baudrillard's assertions, on the one hand, illustrate the logical conclusion of the argument that popular technologies are 'textual' and, in themselves, have no causal or instrumental function in everyday use: we are only ever playing at doing things, at performing useful tasks. On the other, his definition of a gadget as a 'ludic' device, a technological artefact with which we play, is a suggestive one. It asks us to consider what the significance of playful technology might be. The mobile phone user's weaving of spoken and written communication through the spare moments of the day may not be 'instrumental', but neither is it reducible to 'fashionable practice', nor to the decoding of Nokia or T-Mobile's marketing strategies. It suggests that much everyday communication is non-instrumental, playful, about making connections and eliciting a response, regardless of the content of any particular message. For Daliot-Bul, texting is primarily phatic communication, 'used for maintaining social contact and conveying feelings rather than exchanging information or ideas. It creates a playful and emotional connectedness among friends. It is about *feeling* and *reaffirming* the connection' (Daliot-Bul 2007: 956).

As the charm of Hello Kitty suggests, the distinction between the consumption of technologies as instrumental use and as play is not always easily drawn.

4.2.4 Issues and questions: meanings and uses

Jean Baudrillard, 'The gadget and the ludic', in *The Revenge of the Crystal* (1990). 'Ludic' means playful

The study of the consumption of new media in everyday life needs to draw on, and challenge, each of the theoretical approaches to consumption outlined above. Though many of the examples and case studies cited in this part of the book come from cultural and media studies, the study of technology in everyday life raises important questions for this discipline. As we have seen already, the meanings and uses of popular new media such as the web or video games are by no means fixed.

The distinction (or lack of distinction) between 'media' and 'technology' underlies these shifting meanings. The sense of excitement (or anxiety) generated by the introduction of a new media technology (such as the domestic PC) or software application (such as Facebook) is inseparable from the understanding that this new device or network is technological: it can be used to do things and make changes. Of course its uses, and even its survival as a consumer technology, are not predetermined, and its meanings will be constructed as much around its symbolic status as its actual uses and effects.

The challenge here is to recognise this dynamic of encoding and decoding, or (and these two pairs of terms are by no means interchangeable) design and use, without losing sight of,

on one level, the unique characteristics and possibilities for popular new media as both media and technologies, and more fundamentally, the materiality and reality of everyday technologies. To assert that a PC, for example, is a 'text' is a useful metaphor for exploring its multiple meanings in contemporary culture, but it begs important questions:

- How do we account for the *instrumental* nature of the PC and its uses in the home (spreadsheets, word processing, etc.)? After all, it is a machine which can be used to do and make things. The practices of computer-related media – programming, information processing, communication, games playing – are not adequately accounted for with these literary metaphors.
- If hardware is a 'text' do we need to distinguish it from software as text? If we accept that a games console, for example, is textual, then surely the game played on it must be seen as a different kind of text?
- What are the implications of a ludic technoculture?

Media technologies enable or invite certain uses, precisely by their status as machines and tools. The negotiation of meaning between producers, advertisers, retailers, government agencies and consumers may suggest and shape uses, but use – the actual operations in everyday life that these technologies facilitate – is not reducible to, or exhausted by, 'meaning'. Many commentators discuss the ways in which information and communication technologies facilitate new relationships between people in their local domestic circumstances and global networks (Moores 1993b; Silverstone and Hirsch 1992). Marilyn Strathern sees domestic information and communication technologies as 'enabling'. In terms which assign agency to these technologies themselves, she suggests that '[t]hey appear to amplify people's experiences, options, choices. But at the same time they also amplify people's experiences, options and choices in relation to themselves. These media for communication compel people to communicate with them' (Strathern 1992: xi).

4.3 The technological shaping of everyday life

As we have already seen, a focus on everyday life and consumption, particularly from Cultural and Media Studies assumptions and methods, tends to militate against conceptions of technological agency in the study of popular new media. Research in this area is underpinned explicitly or implicitly by the Social Shaping of Technology thesis (SST), in particular, first, the foregrounding of the agonistic nature of the production and consumption of technological devices and systems. And second, the explicit resistance to the notion that technologies and technological systems could have agency or effects in the human world. For example, in a book on television, Roger Silverstone argues that we must 'privilege the social', by which he means human agency in general: in its historical, economic, cultural and political manifestations: 'indeed one must do so, since the natural, the economic, and the technical, in their obduracy or their malleability, have no significance except through social action' (Silverstone 1994: 85). Before we address these positions in more detail, we will explore this social constructionist approach and its effectiveness in accounting for the shape and uses of everyday new media technologies.

So, from the 'social shaping of technology' viewpoint, it is not only the choice of particular technical features included in any new black box device that determine its commercial success, its symbolic status, what William Boddy calls 'instrumental fantasies', is also crucial:

CASE STUDY 4.2: The black XBox and the social shaping of videogame technology

4.7 XBox. Courtesy of Microsoft.

> More recently the black-boxing of videogame console and DVD player has had a powerful impact on new formats for domestic television media. Perhaps learning from its failure in the war between its Betamax video format and JVC's triumphant VHS in the 1980s, Sony used its latest console, the Playstation 3, to help it establish the dominance, by early 2008, of its own high definition DVD format, Blu-Ray, over Toshiba's HD DVD.

The development of the first XBox videogame console is an example of the social shaping of a media device. The initial success of Microsoft's console depended as much on the nuances of its marketing strategy as on the console's technical specifications and the quality of its games. Learning from Sony's tremendously successful marketing strategies for the Playstation in the 1990s, Microsoft had to battle against its (and its founder Bill Gates's) staid image. The cosmetic design of the console was therefore very important, and was modelled on hi-fi components. 'People are really into the design, and they've said they weren't expecting something as cool or as sleek from Microsoft, and that they thought it captured the enthusiasm and excitement behind gaming' (*Edge* 2001: 71).

> After interviewing 5,000 gamers and visiting 130 gamers' homes to research the design of the XBox, they went to great lengths to establish it as the antithesis of the desktop computer. Rather than the beige box located in the study and associated with work, the console was promoted as a sexy machine designed to look good in the living room.
>
> (Flynn 2003: 557)

One early strategy for convincing sceptical consumers of Microsoft's commitment to 'serious' game playing was to not allow the XBox to be used as a DVD player for films (distinguishing it from the recently released Playstation 2). Thus the drive towards producing a multifunctional consumer entertainment system, and a potential selling point, is balanced against the need to match the device's symbolic status to the attitudes and preferences of the target audience (Microsoft later changed this strategy and XBoxes were allowed to play DVDs).

> Every electronic media product launch or network debut carries with it an implicit fantasy scenario of its domestic consumption, a polemical ontology of it as a medium, and an ideological rationale for its social function.
>
> (Boddy 1999)

Science and Technology Studies (see **4.3.3** below), alluding to consumer media devices such as hi-fis and televisions, use the term 'black box' to discuss this only-ever-temporary fixing of components, technologies and functions in any particular device or system. The term is used in cybernetics as well, denoting a system or device analysed in terms of its effects rather than its inner workings. STS analyses aim to 'open the black box' and reveal its contingency and heterogeneity, whereas cybernetics has used the term to refer to a system the workings of which have either yet to be analysed, or whose workings are of less immediate interest than its input, output and effects (Wiener 1961: x–xi)

The development of the XBox demonstrates that the creation of a commercially successful digital media technology is dependent at least as much on its social form, its symbolic status, as on its technological capabilities.

There are two further important points to raise here. One is that new media technologies are rarely, if ever, entirely new. The XBox is a particular assemblage of existing technologies (PC hardware, DVD player, etc.) just as television and cinema as we understand them today were not 'invented' as such, but rather were, as Raymond Williams says of television, a complex of inventions and developments, a complex which at all stages 'depended for parts of its realisation on inventions made with other ends primarily in view' (Williams 1990a: 15).

The sheer flexibility of digital technologies, and the convergences between different media forms that digitisation affords (for instance the promiscuities of USB) accentuate this complex nature of media technological development. Games consoles can also be DVD players or networked for online play and communication. A mobile phone can also be a games console, a text-based communication device, a camera, a web browser. A key task for manufacturers and retailers then, in the process of production, is to identify possible uses or practices for their technologies, and build these into the consumer device. This would seem to support the social shaping thesis. And yet, as we will argue in more detail later in this section, while the fantasies spun around the launch of any media device shape and the symbolic status it may accrue in its everyday usage, shape its meanings and uses, they by no means wholly determine these uses and meanings. The 'black-boxing' of heterogeneous technologies is driven by factors that are at once technological and social (economic, historical, political). All videogame consoles are effectively computers black-boxed as games machines rather than as more 'open' PCs (see **4.3.2** below). The XBox in particular is built on a PC architecture and Microsoft operating system and so became the target of attempts to reverse-engineer or hack it, freeing up other potential but restricted uses, from the long-established practice of console 'chipping' (inserting hardware to get around security measures, allowing the playing of copied or other region games), to use as a media centre (playing CDs, VCDs and MP3s for example), to unlocking something like full PC functionality. We see here activities that are in important ways distinct from established notions of consumption or decoding: the production of the XBox was shaped by, exploited (and attempted to limit) the physical nature and capabilities of its arrangements of technologies. Its 'consumption' then can be predicated more on freeing up its technical potential than challenging its 'meanings'.

For a different account of the significance of the PC, see **3.6**

4.3.1 The 'open' PC

The user is an unreliable creature though. It was not clear for example, despite the excitement that attended their production and sale, quite what the owners of early home computers in the 1980s would *do* with them. They were often sold as information technologies (bought by parents anxious to prepare their children for the 'information revolution'), but were widely consumed as games machines (once the children got their hands on them). As research by Haddon and Skinner shows, 'producers and consumers constantly searched for and tried to construct the "usefulness" of this mass market product after it had been developed and launched' (cited in Haddon 1992: 84). So despite the 'black box' intentions of PC manufacturers and retailers, the machine (or perhaps more accurately, grouping of computer-based information, communication and entertainment technologies) has been widely seen as a uniquely multifunctional 'open device' (Mackay 1997: 270–271), 'chameleonlike' in its applications and possibilities (Turkle 1984).

See Levy 1994 for an entertaining account of this important aspect of new media history. It should be noted that the term 'hacker' did not originally mean the mischievous or malicious figure familiar today. See also **4.5.2**

The multifunctionality, and playfulness, of the PC is rooted in the history of the

See **4.5.2** for more on the playful pre-history of personal computing

development of computing. Ambiguity around its use can be traced back at least to its origins in the hacker culture of students at the US universities MIT and Stanford from the late 1950s. This culture has been seen as a struggle against the rigid rituals developed around the use of number-crunching mainframes in university research and business applications, by the hackers' celebration of experimentation and the free sharing of computer code and information. The hackers' development of real-time, interactive information processing led to the first commercially available domestic computers in the 1970s (Levy 1994). At first the hackers' 'do-it-yourself' ethic meant that the first domestic computer users had to build the machine themselves from a kit, and even when home computers became available as completed products they retained their hobbyist image and market for some time. To use a home computer in the late 1970s and early 1980s the owner had to learn programming. Indeed, if nothing else the purpose and pleasure of home computers lay in learning to program, exploring the machine and its system, not, initially at least, consuming commercially produced software and services.

These early users of home computers would seem closer to the hobbyist enthusiasts of early crystal radio than Ted Nelson's dream of Computer Lib activists espousing 'libertarian ideals of accessibility and excitement' (cited in Mayer 1999: 128). However, as Leslie Haddon pointed out in his research into the discourses of home computing in Britain in the early 1980s, the spare room tinkering with these new devices could not be separated from a sense of excitement about this machine as evidence of an unfolding information revolution. Through the exploration of these enigmatic machines, some users felt a sense of participation in the larger technological forces of a changing modern world (Haddon 1988b). As Klaus Bruhn Jensen puts it, 'The personal computer . . . offers both a symbol and a touchstone of the information society' (Jensen 1999: 192).

The migration of the Apple or IBM-compatible personal computer from office to home in the late 1980s served to establish dominant platforms over the multitude of home computer formats, and signalled the end of the hobbyist era. If the home computer fostered a new media cottage industry of hardware and software manufacturers, then the PC marked the beginning of the commercial development of this technology as a mass medium. The marketing of PCs through the existing channels of advertising and promotion added further levels of complexity to the polysemic machine. Jensen sees in the advertising of PCs in the 1980s a contradictory discourse of individual empowerment through technology and images of social revolution. He points to Apple's television advertisement inspired by George Orwell's *Nineteen Eighty-Four*, and to the print advertisement, in a *Newsweek* special election issue in 1984 under the headline 'One Person, One Computer'. Thus the PC fits into an established pattern of individualised domestic consumption, but, Jensen argues, the desires and anxieties surrounding PCs in the information revolution may still threaten this consumerist norm (Jensen 1999).

Whether toy or tool, the domestic computer has invited excitement and contemplation that mark it out as distinct from the average consumer electronic device. It has been seen as a device within which we could see or create artificial 'microworlds' (Sudnow 1983). On a mosaic level this may mean individual customisation of the computer: changing desktop 'wallpaper', adding distinctive screensavers or sounds. On a more profound level it has suggested some fundamental shifts in our relationship with technology. In particular it invites comparisons with the human brain and has inspired both popular ideas of artificial intelligence and popular, but actual, artificial life applications, for example the computer game *Creatures* (see Kember 2003). Sherry Turkle evokes these aspects in her study of the culture of programming. When programming, the computer is a 'projection of part of the self, a mirror of

The association of the computer and the self can also be an anxious one however. See Andrew Ross (1991) on the popular association of AIDS and computer viruses, Turkle (1984: 14) on parents' fears about their children's intimate relationships with electronic toys, or Pryor's (1991) critique of the notion of 'disembodiment' in the association of computer and brain

See **4.4** for further discussion of identity and new media

the mind' (Turkle 1984: 15). She quotes an interview with a schoolchild: 'you put a little piece of your mind into the computer's mind and now you can see it' (ibid.: 145).

> When you create a programmed world, you work in it, you experiment in it, you live in it. The computer's chameleonlike quality, the fact that when you program it, it becomes your creature, makes it an ideal medium for the construction of a wide variety of private worlds and through them, for self-exploration. Computers are more than screens onto which personality is projected. They have already become a part of how a new generation is growing up.
>
> (Turkle 1984: 6)

It is not only information and images that computer technology allows this generation to experiment with and manipulate, she argues, but also the users' personality, identity and sexuality (Turkle 1984: 15). Such experimentation offers us, the artist Sally Pryor asserts, a way of 'thinking of oneself as a computer' (Pryor 1991: 585).

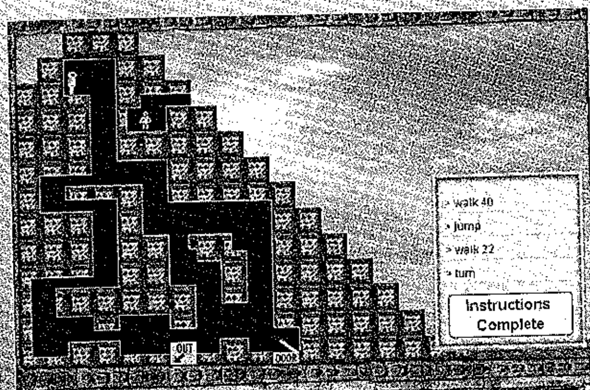
Since its arrival as a popular new media form in the 1990s, the domestic PC has been embroiled in a struggle over developments in the media technology market. The arrival and popularisation of the World Wide Web introduced a new set of meanings and predictions, not least of the 'death' of the PC itself, through its proposed replacement by dumb terminals on networks to (more recently) distribution to smaller, mobile devices such as PDAs and mobile phones. Alternatively, new convergences of domestic media technologies have been developed around the PC and its functions; both unsuccessfully (digital television systems offering email and interactive service), and successfully (e.g. networked videogame consoles for online multiplayer games). However, the widespread adoption of broadband access in developed countries has transformed the domestic PC into a widely-owned domestic media centre, its use no longer predicated on programming, but rather on the accessing of online information and the acquisition, distribution and sharing of media files from music to television programmes, from blogs to social networking. Wireless technology has set the PC free from the back bedroom as laptops cluster around wifi oases in cafes and libraries.

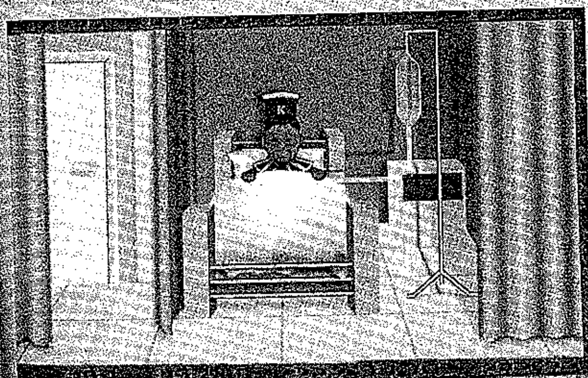
4.3.2 Edutainment, edutainment, edutainment

As we have seen, the purchase and use of home computers and new media in the home was, until relatively recently, often for broadly educational reasons. Both optimistic cybercultural discourses and more cautious analyses of the effects of computers on everyday life share the view that digital technologies cannot be understood only at the local, domestic level but through their linking of individual use and global forces and relationships. So, if we take a concern with 'knowledge': on a local level the computer may invite comparisons with the human brain, while on the 'global' level a broader sense of information or networks is invoked to explain current economic and social transformation.

However, home computers, from micros in the early 1980s to contemporary PCs and laptops, have been caught up in conflicting interests and discourses about the proper use and meaning of domestic computing. The lines of this conflict are most clearly drawn between education and entertainment: are home computers educational machines (in educational parlance, ICTs) or games and toys? The dividing lines between ICTs and computer entertainment media – or between educational software and games – are not so much blurred as constantly renegotiated and re-established. Helen Nixon's study of Australian parent-consumer magazines on domestic software shows how a publishing genre has been

CASE STUDY 4.3: Crystal Rainforest





4.8 Images from *Crystal Rainforest 2000* reproduced by kind permission of Sherston Software Ltd.

An ecological drama unfolds in a multimedia story as the reader or player clicks on hot spots and navigational symbols. The king of an alien rain forest tribe is shot by a poisoned dart, fired by an agent of a logging company. While the king is in hospital, the player is directed to guide a small robot through a pyramid using simple strings of commands. The game reveals its secrets and stories through a collage of graphics, animated sequences, puzzles and photographs. The knowledge thus mediated is similarly eclectic – despite appearances this is not primarily a narrative about the environment; rather, the anthropological, ecological elements are laced with eco-friendly science fiction/fantasy. The game operates on two levels: the pleasures of the narrative, graphics and puzzles lure the player in, and frame the real pedagogical project – through playing with the robots the player learns the programming language Logo. There is a hierarchy of discourses here: the mathematical discourse of programming (and, inadvertently perhaps, popular fantasy genres) over the geographical or socio-political.

established largely on its promises to help parents differentiate between the educational and the entertaining. The kinds of educational software reviewed by these magazines represent a commercial strategy to reconcile this historic conflict in children's computing, a strategy sometimes referred to as 'edutainment', the use of entertainment, toys and games as a medium for learning.

The dual connotations of the term 'edutainment' illustrate the contradictory discourses around new media and education. On the one hand it is a derogatory term, a trivialising 'dumbing down' or commercialisation of knowledge and learning. This fusion of popular media forms and learning is identified with other media offering hybrids of knowledge and information with commercial and/or fictional forms: the 'advertorial', 'infotainment' and 'docu-soap'. On the other hand edutainment has now been adopted, without irony, by the educational software industry itself. However it is used, 'edutainment' alludes to a broad belief that boundaries are dissolving between education and the consumption of commercial media. This phenomenon is not limited to new media, but it is the digital multimedia forms of CD-ROM encyclopaedias and learning games (and new technologies such as interactive whiteboards in schools) that seem to be of central significance.

The promotion of educational software for domestic PCs, and the ambitions of governments' policies, together attempt to reconstitute the home and time spent at home as no longer separate from school, but connected and interrelated. This is more than a simple technologising of traditional homework however: edutainment software is promoted by both manufacturers and governments' educational policies as central to an emerging 'knowledge economy' in which divisions between work and play, home and school are to be less and less important. These media technologies and texts are intended to transform young people's domestic leisure activities into 'more productive' and stimulating learning.

CASE STUDY 4.4: Visual Basic sucks!

The Screen Play researchers argue that the dominant discursive construction of young computer users as 'future workers' in the knowledge economy leaves little space for them to articulate their pleasure in using computers in non-authorised ways – primarily, though not exclusively, gameplaying. The following exchange, in which parents discussing their agenda for encouraging computer use at home are interrupted by their 'earwigging' teenage son, captures something of the ways in which these broader discourses and policies (and their contradictions) are struggled over in everyday family relationships:

Dad But we did get stuff for the kids to use on it.
Mum We got some educational software for the kids, at that point we were determined they weren't going to play games. [Laughter] I would like Steven to get involved in other things. I've tried a few times to interest him in various things and it's the games, definitely, that dominate his computer usage.
Q Right. And so that's a . . .
Mum Steven, what's the problem?
Steven I'm just saying that I'm going to bed now. And games rule!
Steven Visual Basic sucks!

(Facer *et al.* 2001a: 103)

Steven's outburst, like the immediate pleasures of computer gameplaying he refers to, disrupts the discourses of future rewards for 'educational' computer use.

4.3.3 Beyond social shaping

However 'open', domestic computer media technology is not infinitely flexible in use and meaning. For SST its 'openness' is always shaped by powerful discourses and practices. As we have seen, since computing became a 'family' rather than a hobbyist activity, both producers and consumers have struggled over the proper use of the home computer and PC as educational or entertainment device, providing the home computer with a dual heritage and identity (Haddon 1992: 91). However it is crucial to note that home computers and personal computers are *actual* information (and playful) technologies, not mere images of them; their openness and flexibility is inseparable from their technological nature, their materiality. The computer's polysemy is predicated in the range of uses to which it can be put, its *affordances*, as well as its symbolic circulation. Remember the assertions of Mackay and Ellis cited earlier: that the material form and capabilities of technologies have *no bearing* on their uses. This position is unsustainable: the XBox may be 'socially shaped' as a DVD player as well as a games console, but it plays games and DVDs because its physical form, design and capabilities allow it to do so. Its range of meanings is inseparable from this technical reality. It could conceivably be interpreted, and then deployed, as a rather expensive doorstop, but it could never be repurposed as a fridge or a tin opener.

The term 'affordance' has recently been applied to such debates. As a concept it goes beyond the assumption that technologies in everyday life circulate primarily as 'meanings'. Technologies are symbolic, but they also allow us to do things, make things, change things. They facilitate. A device's affordances are the range of uses to which it can be put. See **1.2**

Most research on technology and culture in the humanities and social sciences then, argues that technologies are never external to society, they are always already socio-technical. And yet the necessary other side of this assertion is rarely acknowledged: that if technologies cannot be separated from the social and cultural forces that shape them, then social and cultural forces cannot be separated from the technological forces and forms that shape *them*. Just as human knowledge and actions shape machines, machines might shape human knowledge and actions. A critique of 'technological determinism' is more often than not included in any book on new media, but the rejection of naive technological determinism and the equally crude extolling of human agency often means that serious questions of how technological agency might be understood are not addressed. The materiality and agency of technologies are sidestepped and the 'meanings' or discursive construction of particular devices are assumed as the objects of research. The study of everyday media technological cultures tends to take as its object the 'insertion' of a particular technology (the PC, satellite TV, etc.) into households and lives, and its subsequent 'impact' on everyday life, space and identities. The emphasis is generally on how the social forces and contexts of production and consumption, households, generations and gender difference 'limit' technological possibilities; any notion that technologies shape their uses is resisted. The language of insertion and impact is symptomatic of an entrenched discursive opposition between the human and the everyday on one side and technologies on the other.

What follows then are two suggestions for re-thinking the complex relationships between technologies, media, people and social forces.

Science and Technology Studies and Actor-Network Theory

Science and Technology Studies (STS) and actor-network theory (ANT) offer ways of thinking about the relationships between technologies and everyday culture that avoid a priori assumptions about 'shaping' and agency, and argue for the conceptual and material inseparability of culture, nature, science and technology. Actor-network theory is concerned with 'the reciprocal relationship between artefacts and social groups' (Mackenzie and Wajcman 1999: 22). Or, as John Law puts it

See **1.6.6** A new focus for old debates: Science and Technology Studies

> If human beings form a social network it is not because they interact with other human beings. It is because they interact with human beings and endless other materials too [. . .] Machines, architectures, clothes, texts – all contribute to the patterning of the social.
>
> (Law 1992)

A study proceeding from an ANT hypothesis then would address the agency of both humans and non-humans (whether artefactual, scientific or natural), implicitly or explicitly rejecting the human-centred worldview of the humanities and social sciences. The implications of this are far-reaching and go beyond the nuances of the effects and determinations studied as the Social Shaping of Technology. It questions engrained conceptual distinctions between nature and culture, humans and artefacts, subjects and objects: '[b]oth society and technology, actor-network theory proposes, are made out of the same "stuff": networks linking human beings and non-human entities' (Mackenzie and Wajcman 1999: 24).

New media ecologies

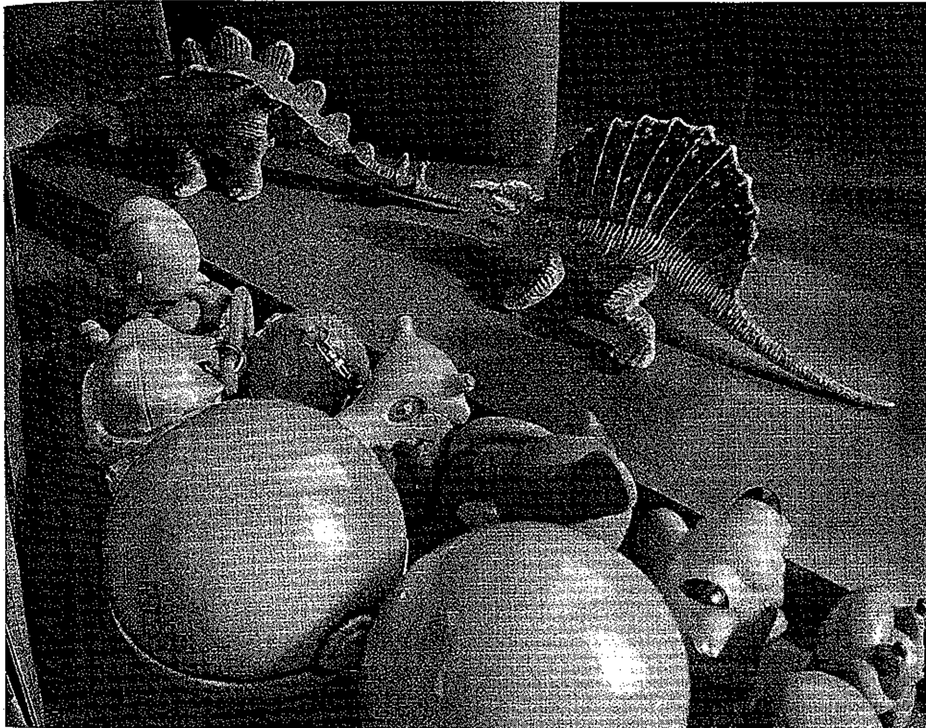
> McLuhan has developed a theory that goes like this: The new technologies of the electronic age, notably television, radio, the telephone, and computers, make up a new environment. A new environment: they are not merely *added* to some basic human environment . . . They radically alter the entire way people use their five senses, the way they react to things, and therefore, their entire lives and the entire society.
>
> (Wolfe 1965)

As the novelist Tom Wolfe's contemporaneous commentary on Marshall McLuhan's theories of the environmental nature of everyday media demonstrates, the notion of 'media ecologies' is not particularly new. It has, however, been deployed by a number of contemporary media theorists to describe and account for the distinct characteristics of new media culture and everyday life.

Mizuko Ito contextualises her ethnographic studies of Japanese children and young people's playful engagement with the transmedial worlds of *Yu-Gi-Oh!* and *Hamtaro* in these ecological terms. The characters, dramas and worlds of *Yu-Gi-Oh!* and *Hamtaro*, like *Pokémon* before them, are distributed across videogames, trading cards, books, comics, toys, merchandising and television and cinema. Ito uses the popular Japanese term 'media mix' for these phenomena, a term synonymous with Henry Jenkins's 'transmediality' discussed in **3.22**. Her work echoes Jenkins's emphasis on the creative possibilities of these media ecologies, indeed she argues that their young consumers must engage with them productively, an 'activist mobilization of the imagination':

> New convergent media such as *Pokémon* require a reconfigured conceptual apparatus that takes productive and creative activity at the 'consumer' level as a given rather than as an addendum or an exception.
>
> (Ito, undated)

This approach suggests that media technologies have always generated changes in the everyday environment, but that with transmediality at the level of creative media production and digital convergence at the technological level, we are seeing a significant qualitative shift in the intensity and characteristics of connections between people, technologies,



4.9 A monstrous ecology

imaginations, and economies in lived popular technoculture. The Internet in particular mixes old and new media, develops geographically dispersed yet socially intense communicative and participatory networks, while from the establishment of common technical formats and standards in hardware (USB, flash memory) and software (MP3, AVI) has emerged a digital ecosystem of hybrid devices (cameraphones, MP3 sunglasses, USB powered and controlled toys) and chains of media reproduction, through sharing, manipulation and multiplication of digital images, sounds and sequences.

Whereas in the late 1990s Daniel Chandler could describe children's digital communication culture as the 'little hole in the wall' drilled through the construction of a home page, the current media environment in many children's lives in the developed world today is one in which the actual and the virtual worlds have thoroughly interpenetrated. Communicative and entertainment practices, activities and media such as MSN, texting, online games, blogging, social networking sites, etc. are not so much holes in everyday life as its cultural warp and weft, filling a few blank minutes at the bus stop, enlivening homework on the PC, forging and sustaining friendships and networks, playing and creating in the virtual worlds of videogames and media mixes. On the one hand this appears to make 'cyberspace' less exotic and more like the pre-digital communicative activities of (terrestrial) telephony, chat, letter-writing and socialising, yet on the other the sheer accessibility and ubiquity of these new media both through the home PC and broadband connection, and on the move via mobile phones, surely marks a qualitative difference from both pre-digital everyday communication and early Internet communication.

See **4.5.2** for more on *Pokémon* as playful media environment