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Introduction to the updated student edition

Book section

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Handbook of New Media:
Social Shaping and Consequences of ICTs

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The manuscript for the first edition of the *Handbook of New Media* went to the London publisher in mid-2001. In that volume, we and our contributing authors made numerous observations about the history, role, functions, meanings and implications of new media technologies and uses across a diverse range of social, cultural and institutional settings. Perhaps the most accurate was our sense of how rapidly the study of networked information and communication technologies was spreading across disciplines, specialities and perspectives. If anything, the proliferation and fragmentation of work we identified has accelerated since the first edition appeared in print. In the introduction (which is included in the present volume), we argued that the intellectual eclecticism and openness of new media studies was one of its great strengths, difficult as it might be to survey or synthesize the field from any single point of view. We offered the *Handbook* then, as we do now, as our effort to counter the 'Balkanization' of new media studies that was dividing the field into dozens of specialized, non-communicating academic niches.

Some of the changes anticipated in the first edition were fairly predictable. New media (with 'the Internet' at the top of the list as a kind of archetype) have become everyday technologies, thoroughly embedded and routinised in the societies where they are most widely used. New media have not replaced older media, any more than broadcasting replaced print in the mid-20th century. Rather, people's information and communication environments have become ever more individualized and commodified, integrating print, audio, still and moving images, broadcasting, telecommunications, computing, and other modes and channels of communication and information sharing.

As this last point suggests, the convergence of new media with other media and information sources and services has also continued apace, although the rush of technological innovation and novelty in the 1990s has given way to more incremental refinements and adaptations in the 2000s. ICTs have gone from radical to routine, in part because of two major events that neither we nor our contributors foresaw. In 2001, the dot-com bubble was about to evaporate, and the events of September 11 of that year would soon bring the dangers of global technology networks employed in the interests of radical ideologies -- and of those who would suppress those ideologies -- into stark relief.

Reduced economic expectations and the hovering threat of terrorist violence, both vividly portrayed in the mass media, quickly dampened what many analysts considered to be an 'overheated' and speculative information technology sector, and created new demands for ICT systems that were safe, stable, and ubiquitous. Popular interest in new media shifted from invention, novelty and risk to regulation, reliability and safety. Among researchers, perspectives on social change likewise turned from revolutionary to evolutionary processes. As several contributors to the fifth anniversary issue of the journal *New Media and Society* noted in 2004, the previous five years had been notable for the 'banalization' of ICTs, and their assimilation and reconfiguration to suit the demands, norms and expectations of everyday life, including expectations about communication itself and its constitutive role in society (Lievrouw, 2004).

None of these changes, however, has caused new media studies to lose momentum -- far from it. It is precisely the astonishing success of new media that now confronts researchers with new questions of scale and capacity, of network architecture and infrastructural robustness, of international legal and regulatory frameworks, and of public trust, security and e-crime (Livingstone, in press). The routinisation of new media has also required richer and more sophisticated theorizing, and in this volume the chapter authors identify multiple paths ahead and maintain a healthy scepticism as they examine the claims for change, weigh evidence, seek to clarify concepts and, always, acknowledge the limits as well as the insights of research.

As research has continued to pursue what we called the 'moving target' of social and technological innovation, certain milestones have been noted. For example, in his contribution to the special issue of *New Media & Society* mentioned above, Wellman (2004: 124) describes three 'ages of Internet studies.' The first age, beginning in the mid-1990s, was what he called 'punditry rides rampant': the optimistic celebration of the transformative potential of the Internet, peppered with dystopian prognostications from the sceptics. Then, with the dot-com bust at the turn of the twenty-first century, the second age turned to a more serious engagement with evidence, seeking to document users and uses of the Internet; or as Wellman and Haythornthwaite (2002: 4) put it, researchers sought to study the Internet 'as it descends from the firmament and becomes embedded in everyday life'. Our hope is that this updated edition of the *Handbook* will contribute to the present, third age and the move 'from documentation to analysis' (Wellman, 2004: 27).

Definitions, Revisited

In the first edition, we also rejected definitions of new media based solely on particular technical features, channels or content. Instead, deliberately incorporating both technological and social, political and economic factors, we defined them as 'information and communication technologies and their associated social contexts', and specifically (following the lead of our contributors Leigh Star and Geof Bowker) as infrastructures with three components: the *artefacts or devices* used to communicate or convey information; the *activities and practices* in which people engage to communicate or share information; and the *social arrangements or organizational forms* that develop around those devices and practices. For this updated edition, we have reorganized the chapters along these lines. The first section examines practices in

cultural and social context. The second section focuses on the technologies themselves and their design and development. The third section takes a more macro-level, institutional view of the ways that new media technologies and practices are organized and governed. Within this three-part structure, we have asked all our chapter authors to provide the 'back story' to their topic – how did research get to where it is today, by making what assumptions, encountering which problems, and cross-fertilising with which other fields?

Of course, all technologies -- not just ICTs -- can be framed and analyzed in terms of artefacts, practices and social arrangements. For communication research and related fields, the central question concerning technology today is whether the particular configurations of artefacts, practices, and social arrangements associated with new media differ, and in what ways, from those that characterized older information and communication technologies.

Our main conclusion is that new media require us to reconsider the longstanding dependence within media research on theories and phenomena of mass society. In the days of *mass* media, a related but different three-part framework, encompassing *production*, *text*, and *audience,* dominated media research and scholarship. As in our three-part scheme, each aspect is essential, and the dialogue among the various disciplines that has evolved to address each part is part of what has made media studies so engaging. The differences between the two frameworks are also important, however. Not only are *artefacts*, *practices*, and *social arrangements* broader terms than *production*, *text*, and *audience*; they are also more thoroughly 'socialised' and inherently culturally and historically conditioned.[1]

Most important, we do not specify *a priori* any set relationship among the three component processes of infrastructure. Where the mass communication tradition has spent decades struggling with, and, more recently, unpicking the linear relationship among production, text, and audience (i.e., production makes texts which have effects or impacts on audiences, consistent with the sender-message-receiver model of communication), in new media research no such linear assumption is necessary. This is why we emphasize social shaping and social consequences together, in Michel Callon's term, as an *ensemble*: it is precisely the dynamic links and interdependencies among artefacts, practices and social arrangements that should guide our analytic focus. These dynamic interrelations are not infinitely flexible, however, and our use of the term *infrastructure* is intended to suggest that artefacts, practices, and social arrangements -- and the relations among them -- can and do become routine, established, institutionalised, and fixed to various extents, and so become taken for granted in everyday life.

As many of the following chapters demonstrate, new media studies has been strongly influenced by theories of post-industrial, late modern, or post-modern society, which posit 'the emergence of a new economic order characterised by the central importance of information and theoretical knowledge, and by a shift from a goods-producing to a service society' (Golding, 2000: 169; see Webster, this volume). Signs of this shift, including the commodification of information, widespread diffusion of ICTs, diversity of message and content forms, interconnected social and technical networks, the rise of 'information work,' and the privileging of abstract knowledge are all pivotal elements in accounts of new media technologies within the framework of post-industrial or information society (Schement and Lievrouw, 1987), and are taken for granted in new media studies. But they play little if any role in theories of mass society and mass media.

The impressive array of literature that has now accumulated in new media studies demonstrates that in many ways, the relatively orderly terrain of mass society has been transformed into a new and emergent environment of network forms, roles, relations, and dynamics. Mass production, distribution, and economies of scale now contend with network

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[1] As, of course, were *production*, *text*, and *audience* -- yet the effect of the administrative research tradition in communication studies was to detach these phenomena from the contexts that constituted them.

externalities, cumulative advantage processes and power laws[2]. Research that formerly examined audiences, reception and effects must now account for users and uses, interactivity, reconfiguration, and reciprocity. Linear narratives and genres that were associated with particular media technologies and forms in the past -- the novel, the Hollywood film, the LP record album, the crime drama -- are absorbed into hyperlinked, hybrid content that is generated and shared via diverse channels. The inextricably linked phenomena of information, communication and mediation are no longer the sole province of communication research and a few related specialties; today they are the focus of intense interest and study across the social sciences, arts, and humanities. Multidisciplinary approaches are thus essential in new media studies, even as they pose both theoretical and methodological challenges and bring hitherto distinct fields into conjunction (and sometimes, confrontation) with each other.

Communication and media research, then, is at a conceptual and disciplinary crossroads. As we argue below, it is time to rethink the role of 'the mass' in technology and society. First, however, we revisit the proposal that what make new media 'new,' and what distinguishes mediation today from the mass media of the past, are the distinctive ways in which the technologies develop -- their *social shaping* -- and their social *consequences*.

Social Shaping of ICTs

The term social shaping, borrowed from science and technology studies, is usually associated with the critique of strong technological determinism and a shift toward strong social determinism in the 1970s and 80s in that field (Mackenzie and Wajcman, 1999). As Raymond Williams noted of mass communication research several decades ago, 'in *technological determinism*, research and development have been assumed as self-generating. The new technologies are invented as it were in an independent sphere, and then create new societies or new human conditions' (1974: 13). Although recent writing about new media in cultural studies and media arts and design often takes a technologically deterministic tone (e.g., Manovich, 2001; Poster, 1990; Stone, 1995), new media researchers in the social sciences are virtually united in rejecting accounts in which technological innovation is the cause and society is the effect (e.g., see Woolgar, 2002). Instead, they have adopted the counter-view that 'the technological, instead of being a sphere separate from social life, is part of what makes society possible – in other words, it is constitutive of society' (MacKenzie and Wajcman, 1999: 23). This social-determinist view 'migrated' to communication research, cultural studies, information studies, and other fields in the 1980s, and by the early 1990s, it had displaced the technologically-deterministic, 'new society' discourse common in communication research at the time. It has subsequently become the dominant perspective in new media studies (Boczkowski and Lievrouw, forthcoming; Livingstone, in press).

The inclusion of 'social shaping' in the subtitle may thus seem to associate the *Handbook* with this strong social-determinist view. However, by social shaping we mean to suggest more of a mutual shaping process in which technological development and social practices are co-determining (for a fuller discussion, see Boczkowski, 2004). As we put it in the introduction to the first edition, 'On the one hand, there is a concern with agency and action; on the other, a concern with social effects, structure and impacts'. Or, to quote Bruno Latour's memorable phrase, 'technology is society made durable' (Latour, 1991). People always have choices about how technologies are created, understood and used. However, when certain technologies become very extensive, embedded and taken for granted (e.g., voice telephony, broadcast television, newspaper publishing, and increasingly, the Internet), they can also

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[2] For more on network externalities, see Lievrouw, in this volume. For a concise explanation of cumulative advantage processes and power laws, especially in relation to the Internet, see Huberman (2001).

constrain or limit the range of available choices. This too is a social process, as Agre (2004: 27) points out when he observes that, 'every system affords a certain range of interpretations, and that range is determined by the discourses that have been inscribed into it'. Thus, technology, action, and social context are inseparable phenomena, each influencing the other.[3]

Technology, action and social context are usefully located within the wider analytic framework of late modernity, a framework that identifies multiple vectors of change. Appadurai (1996: 33–6) identifies five key dimensions of change along which we can analyse the 'social' that prefaces the 'shaping' and 'consequences' of the *Handbook* title: the ethnoscape (the shifting landscape of persons, identities, diaspora), the technoscape (the fluid, networked configuration of technologies), the financescapes (the disposition of global capital), the mediascapes (the distribution of information, images and audiences) and the ideoscapes (the ideologies and counter-ideologies which link images and ideas to the power of states). Whether or not one agrees with these, especially the separation of technoscape and mediascape, his purpose, like that of many of our chapter authors, is, importantly, to examine the disjunctures between economy, culture and politics that arise from the interaction among diverse flows, thus opening up dynamic rather than a static conception of 'the social'.Recombination

In the first edition, we focused our analysis of this dynamic in relation to two modes of social shaping which we believe distinguish new media from more conventional, linear, one-to-many, mass media processes and effects. The first is *recombination*, the 'continuous hybridization of both existing technologies and innovations in interconnected technical and institutional networks'. Recombination has two main forms – convergence and divergence - both of which are readily observable in the development of new media technologies, message forms, social practices and cultural/economic institutions. As the product of an ongoing cycle of human action and available technical and cultural resources, new media technologies are continuously 'renewed'. Although they are usually created with particular purposes or uses in mind, they are commonly adopted and used in unanticipated ways -- reinvented, reconfigured, sabotaged, adapted, hacked, ignored. This process, with its often-unintended consequences, reinforces the persistent sense of 'newness' and pivotal change associated with ICTs.

Certainly, recombination and a sense of novelty are still associated with new media design and use. New features and options continue to be introduced, even if they currently tend to merge, elaborate or extend existing functions rather than constitute radically new and unfamiliar ones. As Star and Bowker point out in their chapter, like other established infrastructures, new media are 'built on an installed base'. However, unlike mass media, which by the late 20th century had stabilized into a few major channels or forms (due to spectrum scarcity and the establishment of technical and formal standards), the forms and genres of new media continue to branch, recombine and proliferate. Marshall McLuhan (1964) observed that older media often become the content of newer media. Today, this has become an ongoing process of 'remediation' in which older media are appropriated, refashioned or absorbed by the

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[3] Here MacKenzie and Wajcman's (1999) distinction between technological determinism as a theory of technology and as a theory of society proves useful. As the former, technological determinism clearly fails: technological innovation is a thoroughly social process, from conception, design, production, marketing, diffusion, appropriation, use and consequences. But as a theory of society and social change, one may agree with MacKenzie and Wajcman (1999: 3) that technological determinism contains 'a partial truth'. In other words, provided it is firmly understood that technologies are social products which embed human relations in their very constitution, we may – for convenience in our arguments and discussion – cast them in the role of actors, along with other kinds of actor, when explaining social processes, whether education, political life, childhood, labour and so forth. But this is only a shorthand, for 'precisely because technological determinism is partly right as a theory of society (technology matters not just physically and biologically, but also to our human relations to each other), its deficiency as a theory of technology impoverishes the political life of our societies' (1999: 5).

new, therefore simultaneously shaping the new and reshaping the familiar (Bolter and Grusin, 1999).

To cite just a few examples, web logs (blogs), which have grown from an arcane curiosity to a common and popular mode of online communication in just a few years, are created with easy-to-use software that merges the graphic and hyperlinking features of web pages with those of older, collaborative, computer-mediated communication forms such as bulletin boards, teleconferencing, and e-mail (Coleman, 2004). Similarly, text messaging combines the tight, telegraphic style and 'emoticons' of ARPANET-era e-mail messaging with the mobility and person-to-person access of cellular telephony (Ling, 2004). Multi-user games use web sites, hyperlinks and chat as gateways to richly animated, cinematic 'worlds' in which hundreds of players participate and interact simultaneously, as both 'audiences' and 'players' (Gee, 2003). Each of these not only expands the range of information and communication possibilities, affording new or different forms of social relationships and experiences, but it also 'remediates' (rather than replacing or displacing) older forms such as diary-writing, voice telephony, or video games.

The Network Metaphor

The second mode of social shaping of new media, the *network metaphor*, suggests that

'...the point-to-point "network" has become...the archetypal form of contemporary social and technical organization...[it] denotes a broad, multiplex interconnection in which many points or "nodes" (persons, groups, machines, collections of information, organizations) are embedded. Links among nodes may be created or abandoned on an as-needed basis at any location in the system, and any node can be either a sender or a receiver of messages -- or both.'

Networks in this sense depart from the hierarchical, one-way distribution configurations typically associated with mass society, mass production and consumption, and mass media. To the extent that society is a 'network of networks' (Castells, 2002), researchers are rethinking the once-dominant 'one-to-many' frame of mass communication and its role relative to one-to-one and many-to-many (or n-way) modes of communication. These multiple, shifting configurations have important implications for the management of authority, trust and participation in social relations, and the control and diffusion of information. Perhaps even this distinction – between n-way and mass or broadcast communication -- is being surpassed by new and hybrid modes of communication and information seeking and sharing that incorporate whatever forms of transmission that best suit the purposes at hand. Certainly, the network metaphor increasingly dominates cultural, social, and technological discourse in technologically advanced societies. It is the basic assumption underlying both the advocacy and the critique of globalization, for example, and a central trope in the discourses surrounding security, community, migration, transportation, trade, political mobilization, and information flows, among many others, that have evolved since the events of 9/11.

Consequences of ICTs

The *consequences* of new media technologies -- the socio-technical outcomes of the mutual shaping process -- also distinguish them from mass media systems, mass communication processes, and mass audiences. In the first edition, we discussed two consequences in particular: ubiquity and interactivity.

Ubiquity

Ubiquity is the sense that new media technologies 'affect everyone in the societies where they are employed', even if not everyone in those societies actually use them. One example of the sense of ubiquity – or, more accurately, the sense that ubiquity is both desirable and inevitable -- was seen over a decade ago when the existence of a 'digital divide' was identified in the U.S. (National Telecommunications and Information Administration, 1995, 1998). Subsequently, this single issue stimulated an enormous outpouring of empirical research and commentary, both supporting and critical, around the world. Some observers argued that the uneven or inequitable distribution of ICTs and the abilities to use them constituted a clear and pressing social problem. Others questioned the extent and/or the significance of the differences among social groups, or suggested that the problem would solve itself as the technologies diffused (see Bucy and Newhagen, 2004; Compaine, 2001; Gandy, 2002; Lievrouw and Farb, 2003; Light, 2001; Loader, 1998; Murdock, 2002; Selwyn, 2004; Warschauer, 2003). The debates themselves generated a variety of policy and regulatory schemes intended to rectify various divides or gaps among ethnic and economic groups, states, neighbourhoods, nations, regions, and so on, such as the e-rate subsidy for Internet access in U.S. public schools and libraries, and the European Union's Information Society initiative.

Perhaps what is most notable about the sheer volume of interest and work in this area is that it has been built on the assumption that the ubiquity of ICTs is a public good, with surprisingly little analysis of whether ICTs are, indeed, to be uncritically promoted, or whether gaining access to the Internet or other new media technologies is so obviously a 'good thing'. The model of access most often invoked with regard to ICTs is that of voice telephony, where telephone service is seen as a basic necessity and therefore governed or regulated on the basis of 'universal service' or 'universal access' principles or obligations (Lievrouw, 2000). In contrast, the ubiquity of mass media (or lack thereof) was not generally framed this way. No literature sprang up to document and criticize television or radio 'divides', for example, when those technologies were introduced. On the contrary, considerable research effort was devoted to controlling or minimizing exposure to television – to reduce children's viewing, or to regulate adult tastes for films, video and electronic games.[4]

Another example of how expectations of ubiquity have influenced the development and use of ICTs is the growing use and versatility of mobile technologies. As transistors, microchips, and more recently, nanotechnologies have made it possible to build smaller and more portable electronic devices, expectations have also shifted about where those devices can be used, by whom, and for what purposes. 'Mobility' today is an expectation predicated not only on miniaturization, but also on ubiquitous, interoperable transmission networks with common or 'convertible' standards (e.g., tri- or quad-band GSM for mobile phones, or 802.11b/Bluetooth/wi-fi for wireless Internet access; Ling, 2004). In traditional workplace, classroom, and household settings dominated by mass media, technologies are physically fixed and typically shared; mobile technologies today, in contrast, are designed as personal tools or accessories that

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[4] It can be argued that historically, the single exception related to mass media has been print literacy and reading, long considered a prerequisite to economic, social and political participation, self-efficacy, and self-determination in developed Western societies. The basic necessity and 'right' of literacy thus underpins publicly-funded education, libraries, and postal services. In recent years the language of literacy and reading has been appropriated to discuss other types of media use and consumption, and thus to draw parallels between literacy and other types of communication and information skills, and thus the 'right' to those other skills. See, e.g., Kellner, 2002; Kress, 2003; Livingstone, 2004a; Luke, 1989; Manguel, 1996; Snyder, 1998). Analogously, access to the telephone system has been framed in terms of universal service in the U.S. since the 1934 Communications Act, but telephony has not been considered a mass medium, or indeed a 'medium' at all, in communication studies until relatively recently (Sawhney and Barnett, 1999).

provide access to a variety of individualized content and communications services, no matter where the users, services, or resources happen to be (Livingstone, 2002).

Interactivity

The second consequence that in our view distinguishes new media from earlier mass media channels and content is the pervasive sense of *interactivity* associated with newer channels, that is, the selectivity and reach that media technologies afford users in their 'choices of information sources and interactions with other people.' The immediacy, responsiveness, and social presence of interaction via new media channels constitutes a qualitatively and substantively different experience than what was possible via mass media channels (even those to which the term 'interactive' was sometimes too generously applied, such as remote control television). Although debates continue about the nature and quality of mediated interaction, especially in contrast with face-to-face conversation as the presumed 'ideal' mode of interpersonal communication (Lievrouw and Finn, 1990), mediated interactivity nonetheless has long been cited as a definitive difference between new media and mass media (see McMillan, in this volume; also Ball-Rokeach and Reardon, 1988; Bryant and Street, 1988; Rafaeli, 1988; Reeves and Nass, 1996; Rice and Associates, 1984; Rogers, 1986).

From Mass Media to Mediation

Mediated communication today, then, differs from mass media 'processes and effects' in that it is recombinant, networked, ubiquitous and interactive. New media research and scholarship have moved away from a dependence on theories of mass society and toward post-industrial or post-modern theories of society. What are the implications of these developments for media and communication studies more generally?

As we noted in the first edition, the difficulties for the field are illustrated by the persistent problem of how to characterise people *collectively* with regard to their sociality and cultural practices via media and information technologies. As the dominance of mass communications began to unravel at the end of the twentieth century, audience researchers were already seeking different terms for understanding the power of the media – moving away from the language of effects or impacts, towards a conception of the active audience (Livingstone, 2004b), the diffused, embedded audience (Abercrombie and Longhurst, 1998), or more broadly, towards 'new audience studies' (Gray, 1999; see also Ang, 1990; Hartley, 1988). However, among audience researchers this rethinking, prompted by the interpretative and ethnographic turn that swept the social sciences more generally, remained focused primarily on television which, despite becoming more globalised, diversified, and even 'interactive', was (and still is) mainly used within the domestic domain of leisure and entertainment.

The convergence of ICTs that has been facilitated and shaped by the parallel convergence of entertainment, education, work and civic activities, and interpersonal communication, requires a more radical rethinking of people's relations with, and understanding of, ICTs. Today, mediated content and interaction are socially diversified (rather than directed primarily at the masses), channels are technologically convergent (rather than distinct systems), and mediated communication processes are interactive (rather than one-to-many, with separate producer and receiver roles). As we said in the first edition, 'new media and information technologies open up new, more active modes of engagement with media -- *playing* computer games, *surfing* the Web, *searching* databases, *writing* and *responding* to email, *visiting* a chat room, *shopping* online, and so on'. These activities have since been joined by *blogging*, *mobbing*, *texting*, *IMing, spoofing,* and a dozen more; the list of new media uses, applications,

activities and contents is in continual flux. Some of the terms are individual, some collective, some are mixed modes; some describe the content of the communication, some the act of communicating, some both.

Obviously, the single term *audience* does not capture this diversity of activity. We cannot say, *the internet audience*, though some try. 'Users' does not work either, though more try this. The word is too broad (having no particular relation to information or communication), too instrumental (if people are 'users' of computers or telephones, they are also users of pens, batteries, washing powder, automobiles and a host of other things that don't involve human contact), too individualistic (lacking both the collective status and power suggested by 'audience' and the relational sense of interaction and shared understanding), and too material (referring to the tools and techniques of communication rather than to content, meaning, interaction, or shared understanding). *Internet users* works only because it is entirely vague: it doesn't exclude anything; neither does it suggest that there is anything specific about the ways people engage with or understand the technology. It's an empty term that homogenizes uses and 'users' as a category, contrasting them only with an equally empty category of 'nonusers'. So the language problem remains in conveying a sense of what might be new, and specifically related to communication and information, in contemporary engagement with ICTs.

What shall we say instead? *People* is as good a term as any, and better than some. This is not a trite suggestion: try putting *people* in place of *users* in social science and engineering accounts of ICTs. Immediately, human interests, concerns, knowledge and rights leap into focus (while it seems peculiar to talk about the civic potential of audiences, the rights of users, or the creativity of consumers). *People* captures their individuality and their collectivity; the word is neutral about their abilities and interests, but resolutely advances their needs and rights and takes their plurality and diversity for granted. *People* can be used by any academic discipline, introduces no new jargon, and includes us, the observers, in the frame of analysis. And it works in other languages besides English (unlike *audience*, *users*, and *consumers*; Livingstone, 2005).

The word also puts people's agency and action at the centre of new media studies, rather than the labels or categories we apply to them or to the devices they use. Again, this contrasts with most concepts of 'mass society', where individual and group agency tends to be underplayed or discounted, and of 'mass communication', where communicative behaviour is seen primarily as a response to stimulus, in terms of reception and effects, rather than in terms of action. Interestingly, the attempt by some media researchers to rescue and rehabilitate the term 'audience' by emphasizing audience members' agency and aligning them with creative, self-organising publics (Livingstone, 2005), itself demonstrates a shift in focus from simple relation to the medium to a more contextualised account of agency in everyday life.

If we take agency and action seriously, we must reframe media and information technologies not just as powerful message-generating entities that influence behaviour and society, but also as resources that provide people with opportunities to cultivate their agency and as tools that allow them to act. By thinking of new media as resources for agency and action, we move away from the predominant view of 'mass media' as relatively fixed, stable and depersonalized institutional entities that have effects *on* people, to a view that considers what people do *with* media and each other -- that is, we reorient communication research and scholarship toward the process of mediation.

Previously we defined new media as infrastructures for communication and information that comprise particular types of artefacts, practices and social arrangements; they are socially shaped in distinctive ways and have characteristic social consequences. We can further define *communication* as coordinated action that achieves understanding or shares meaning (Rogers and Kincaid, 1981), and *information* as the organized, expressed and intelligible representation or product of the communication process; the two phenomena are inextricably linked and interdependent (Lievrouw, 2001). *Mediation* therefore enables, supports or facilitates

communicative action and representation. It is not simply the intervention or insertion of technology into the communication process or information production; it entails all three elements of infrastructure: artefacts (e.g., alphabets, electrical grids, keyboards and mice, operating systems, telephone switches, film stock, satellite dishes, money, etc.), practices (e.g., gestures, vocalization, telephone or email etiquette, language, manuscript formatting, typing, online file sharing, fashion, contract law, television program schedules, blogging, etc.), and social arrangements (e.g., single-parent families, recorded music labels, think tanks, national film boards, political campaigns, community advice networks, movie studios, etc.). The ubiquity of information and communicative action, recombinant modes of access, use, and content, dynamic point-to-point network structures, and the sense of personal engagement and interactivity afforded by new ICTs can be thought of as contemporary modes or patterns of mediation that differ from those that were possible via mass media.

Several observers have already proposed that mediation itself should be a central framing idea in new media studies, for 'our communication society is based on mediations between texts and people, in that people pass and meet each other through texts, just as texts pass and encounter each other through people' (Fornas, 2002: 104). New information and communication technologies raise particular and challenging questions regarding these processes For example, Stefaan Verhulst (2005), in arguing for a 'new mediation ecology', points out that

'The arrival of new information and communication technologies led to a belief that we witnessed a decrease of the importance of mediation and the arrival of abundance. Yet, instead of the widely predicted process of disintermediation that was supposed to accompany emerging technologies, we are currently forced to confront a process of reintermediation, marked by new actors and methods of disseminating information and framing reality...we are only on the verge of understanding what the social implications of the new mediating forces might be...'

Likewise, Roger Silverstone (in press) critiques the traditional, modernist view among some communication researchers that mass media technologies, and by extension mediation itself, distort or corrupt an otherwise idealized, symmetrical experience of interpersonal interaction. He suggests that mediation today must be understood as both 'literal and metaphorical', as technologies, institutions, messages, and meanings all interact and influence each other recursively (Silverstone, in press: 30).

Moves from mass society, singular, towards networked societies and relations, plural, have entailed corresponding shifts in people's engagement with media technologies and each other, from mass audiences (powerful in their collective response, yet contained in the realms of the domestic and the local) to a diverse repertoire of mediated and unmediated communication and information sharing (in which collective power and individual action are mutually shaped and often extend beyond domestic and local boundaries). These shifts are clear in all the domains included in this volume, though the ways in which people are positioned, or position themselves, in particular domains varies considerably. A new focus on mediation, rather than on media themselves, invites a new phase of critical and empirical examination for new media researchers.

How to Use the Updated Student Edition

With this Updated Student Edition of the *Handbook*, we depart from the usual model in academic publishing of simply reproducing the first edition in soft cover. Nor have we put together an entirely new second edition. The book still provides a current and comprehensive

introduction for non-specialist colleagues and advanced students who are new to the field, as well as a reference for new media scholars. However, this edition of the *Handbook* is aimed primarily at students and instructors teaching at the upper-division undergraduate or introductory graduate level, either as a primary text or as required background reading that provides more depth and range than is possible with more superficial textbook treatments. For this edition we have selected contributions from the first edition that provide the most clearly structured overviews of major concepts and issues in new media studies. The authors have revised and updated their chapters in light of the most recent scholarship and developments in their respective specialties.

As noted above, we have reorganized and streamlined the original six sections into three broad areas that address culture and society, system design and industries, and institutions and governance, respectively. Each chapter focuses on a single key issue, concept or set of related questions, and each combines an overview of foundational literature with a conceptual organization or framework to help put the literature in larger perspective. Introductory courses might cover all three areas, for example; more advanced syllabi might focus just on one or two. Alternatively, instructors might choose their own selection of chapters according to the requirements of their particular programmes or specializations.

One reason we have taken this approach is that most students enrolling in new media studies courses today have grown up with the technologies and are already sophisticated users of mobile phones, personal computers, PDAs, wireless networks, and so on. Many author and host their own web pages and blogs, download music, video, and mobile phone ring-tones, play online games, chat online with or send text messages to family and friends, make long distance phone calls via the Internet, shop for everything online from clothing to textbooks, organize and participate in political and cultural groups via technology. Their technical sophistication is far greater than that of students ten or even five years ago.

What students are often missing, however, is a familiarity with the historical, economic, social or behavioural context of the technologies they use every day and take for granted. They lack the knowledge and background that would enable them to think critically about new media -- where they come from, how they're used, who benefits and who is disadvantaged by the ways that systems are configured and run. The overviews provided here can help students understand more about their own communication and the devices they use to do it, as well as give them a base of knowledge to help frame their future choices and uses of media.

We have asked chapter authors to identify and draw out the key debates and problems in their fields, in the context their various intellectual and disciplinary traditions. Therefore, the student of new media should also pay keen attention to relations among the chapters and the sections. Do the different authors agree with each other, and are their views mutually compatible, therefore 'filling in' the picture of new media studies for a particular domain? Or do they present the reader with competing visions of new media studies that require the reader to choose which author to follow, which route to take through the tangle of alternate accounts?

For example, Nancy Baym's chapter on interpersonal relations online shares some themes with Nicholas Jankowski's chapter about how new media facilitate community-building. The student of new media might ask whether Baym's micro-level analysis, focused on interpersonal communication and relationships, fits well with Jankowski's meso-level approach, focused on groups and collectives (Alexander et al., 1987). Do they draw similar or different conclusions about mediated relationships, about the future research agenda, even about the most productive research methods? Are similar methods used and results found when mediated relationships are studied within organizations, as in the chapter by Andrea Hollingshead and Noshir Contractor? Does their focus on 'networks' offer a more useful framework for research than, say, 'communities' or 'relationships'?

Similar questions apply when sections of the volume are compared. For example, in Part One, David Buckingham sees children as uniquely individual new media users, even pioneers,

in the digital age. Stefaan Verhulst's chapter in Part Three traces the regulatory frameworks that are intended to empower and protect the public as they encounter new media, especially the Internet. Children, or legal minors, are frequently thought of as more vulnerable to the dangers of indecent or violent media than other groups and thus in need of such protective laws. But is the picture of children as vulnerable targets consistent with the depiction of them as heterogeneous, pleasure-seeking, and participatory, presented in Buckingham's chapter? Do either of these authors, from their different perspectives, take into account the three forms of interactivity that Sally McMillan proposes in Part Two? Or, perhaps, do they add to or elaborate her classification by focusing on even newer forms of interactive media? We encourage students to undertake a critical and comparative reading across the chapters and sections of the *Handbook*: the outcome is likely to be both unpredictable and stimulating.

Students and instructors alike should also consider the ideas that we (Lievrouw and Livingstone) have presented in this introduction and in the Introduction to the First Edition. We have proposed that new media differ from mass media in terms of the recombinant and networked ways they develop, and their ubiquitous and interactive consequences. How, and to what extent, are these four themes reflected in the other chapters? Where and how should we look for evidence of recombination, the network metaphor, ubiquity or interactivity? Have we left out other characteristics that might be just as (or more) important? What are the comparable characteristics of mass media? Based on the record of new media research, we also take the position that communication studies should shift its primary focus from mass media to the mediation process itself. Do you agree? Should mass and new media be studied differently, that is, using different theories and research methods? If so, which theories and methods are best in each case?

We close this edition of the *Handbook* with a chapter by Frank Webster, a prominent 'new media sceptic'. Like several of the other chapter authors, Webster is rightly wary of hyperbolic claims made for new media and the breathless language of 'cyber',' 'hyper,' 'wired,' and 'virtual' that are so often invoked by governments, technologists, industries, and in popular culture. As we said previously, new media research has been strongly influenced by theories of post-industrial, post-modern, and information society; Webster sets some tough standards for deciding whether the 'information society' has actually arrived. He suggests that if we look at large-scale economic processes, rather than the customized, personal, interactive experience of 'going online,' contemporary society remains crucially hierarchical. Like some of the other authors here, and in line with a longstanding 'continuity' perspective in critical communication research regarding the information society (Schement and Lievrouw, 1987; Schiller, 1981; Turow, 1990), he insists that questions of power, resources and inequality still matter. Readers should test their ideas against this argument as well.

We wish to make one final point about the role research and scholarship can or should play in social change.   A persistent theme running through new media studies, and in popular culture generally, is the pace and even urgency of social and technological change associated with ICTs. The hype surrounding new media is usually enough to generate a sceptical response from the academy: there are genuine difficulties in knowing social change when we see it, and in measuring and evaluating it when it does. But this caution also presents a challenge for new media researchers who seek to critique, intervene, or otherwise influence the political and economic management of new media. Just as we must not bypass conventional standards of intellectual and empirical rigour in our assessments of new media, neither should the academy itself risk being bypassed by neglecting questions about new media when they rise to the top of public and policy agendas. This is not simply a matter of the trade-off between academic standards and timely policy intervention; it also reflects the long-standing debate within media and communication studies between so-called administrative and critical traditions of research (Levy and Gurevitch, 1994; see also Ferment in the Field, 1983). Ultimately, new media researchers must ask: is it the responsibility of research actively to shape social and

technological change? Or is it more appropriate to evaluate the social shaping process independently, from a distance? Should new media research produce knowledge in order to inform or to critique the strategic activities of powerful or established interests? How will the public interest be served?

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