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Social appropriation of new technologies

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Abstract: The social appropriation of new technologies refers to technological and social processes of mediation in the interaction between social actors and technological devices. As such, the concept transcends relatively straightforward ideas of access and use of technology to focus on: how users develop technological and cognitive competences; the meaningful integration of the technological devices into subjects' everyday lives and behaviour; the active and creative production of meaning; social mediation within communities of users; and the way that the interests of communities of users are represented in public spaces. This text outlines the key concepts and debates in the appropriation of new technologies through a genealogical reconstruction of relevant academic traditions, including, amongst others, cultural studies and the sociology of the uses of new technologies. This interdisciplinary approach takes into account the technical, cognitive, educational and communicative dimensions of new technologies and how they may be useful for understanding contemporary processes of technological change.

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Definition

Short definition

The social appropriation of new technologies refers to technological and social processes of mediation in the interaction between social actors and technological devices. As such, the concept transcends relatively straightforward concepts of access and use of technology to focus on: how users develop technological and cognitive competences; the meaningful integration of the technological device into subjects' everyday lives and behaviour; the active and creative production of meaning; social mediation within communities of users; and the way that the interests of communities of users are represented in public spaces.

Origin and evolution

To understand the genesis of the concept of social appropriation of new technologies we can start by considering the concept of appropriation in social production and reproduction from two key critical perspectives: Michel de Certeau's social autonomy in everyday life and the materialist psychology of Aleksei N. Leóntiev and Lev Vygotsky (de Certeau, 1980; Leóntiev, 1959).

Firstly, as one of the main influences on the development and popularisation of the concept of appropriation, the work of de Certeau can be situated in the debates on social autonomy that arose in the wake of the May 1968 student revolution in France. Within this line of thought, the conflictive aspect of Marxist debate on appropriation was recovered and translated for use in the analysis of political autonomy in the context of social relations of reproduction (Jauréguiberry & Proulx, 2011). In The Practice of Everyday Life (Certeau, 1980) de Certeau examined quotidian culture as a process of approbation and showed that people's everyday practices deviated from the framework provided by technocratic and industrial cultures. His work opened up the possibility of conceiving individuals not as mere consumers but actors that constitute themselves autonomously in key domains of everyday culture, through practices related to consumption, habitat and reading.

Secondly, from the field of materialist psychology, Leóntiev and Vygotsky challenged the dominant approach of behavioural psychology by developing a socio-

historical perspective that emphasised the social and cultural origins of individual and collective behaviour (Crovi, 2013; Leóntiev, 1959). Building on the work of these two authors, various generations of academics went on to develop a materialist approach to appropriation. In this conceptualisation, appropriation relates to the interaction between individuals and cultural products (including technologies), or can be conceived as a game within which the externalities of the object are combined with the individuals' interiorisation of the semiotic systems, social structures, concepts and techniques inscribed in said object (del Río, 2002; Freire, 1973; Engeström, 2001; Sannino et al., 2009).

Although following different paths, two main lines of work, which eventually converge, can be observed in the evolution of the study of the social appropriation of technologies: media consumption and reception studies, including cultural studies, and the sociology of the uses of new technologies, from the French-speaking tradition.

Media consumption and reception studies have been a central point of communications research since the inception of the discipline in the mid-twentieth century, but it has evolved through various stages. Functionalist perspectives, for example, focused on the persuasive effects of communication on audiences, which were conceived as a homogeneous and passive group (Lasswell, 1948; Lazarsfeld & Merton, 1948; Wright, 1964). In contrast, a turn in reception studies in 1960s saw the gradual introduction of macro-sociological variables and an understanding of media as a socio-cognitive mediation system (Wolf, 1987) that placed the subject at the centre of the analysis of consumption[1]. This turn influenced work in psychology and functionalist theories of sociology (Katz et al., 1974), as well as new approaches from within the field of cultural studies (During, 1993).

In the evolution of media studies, the work of British and Latin American strands of cultural studies stand out as particularly relevant. On the British side, the so-called founding fathers of cultural studies, Stuart Hall, E.P. Thompson, Raymond Williams and Richard Hoggart (Mattelart & Neveau, 2003), opened the door to an understanding of reception that went beyond access and use by taking into account the capacity of the subject to actively and critically construct meaning in specific social contexts. In Latin America, a theoretical framework was developed that shifted the focus from media to spaces where meaning is produced, in other words: the space of mediation (Beltrán & Zeballos, 2001; García Canclini, 1990;

1. Although some authors had highlighted the active nature of audiences before this point in time (Brecht, 2015; Benjamin, 1968), their influence came, fundamentally, through a reassessment of their work in the 1960s.

Martín Barbero, 1987). This interdisciplinary approach brought together concepts from cultural studies, educommunication (Kaplún, 1992; Orozco, 2001) and political economy perspectives (Bolaño et al., 2012)[2]. The result was a new model for the study of practices related to the creation and appropriation of culture, the activation of people's competence and creative experience, and the recognition of differences (Martín Barbero, 2002).

Distinct from reception studies, the second line of work developed in the French-speaking tradition of the sociology of the uses of new technologies in the 1980s (Jouët, 2000; Proulx, 2015). Instead of attempting to extend or prolong the analysis of media uses, it centred on sociological approaches to the contextualised use of technological objects such as the television remote control, home computing, the telephone answering machine and, above all, the experience of Minitel. Traditionally, this theoretical approach has favoured a critical frame of analysis. Inscribed in concepts of social autonomy, it was often defined by research on social struggle, such as the fight for information literacy or the social appropriation of technologies as a possible source of autonomy for individuals or social and political emancipation for groups. Not defined as consumers, the idea of appropriation constitutes social actors as agents that deploy active and creative resistances in their everyday interactions with new technologies (at work, during leisure time, in family relations). Within the framework of daily life and practices, users give technical objects subjective meanings (projections, associations), while uses are embedded in a system of social relations (class, gender, interethnic, intergenerational) and a lifeworld that shapes and is shaped by technological uses (Granjon, 2012; Granjon et al., 2009; Jauréguiberry & Proulx, 2011).

These approaches represented a watershed at various levels. By shifting the focus from the analysis of effects to the study of reception, appropriation is reconfigured as a process of negotiation between the emitter and receiver that is situated in specific sociocultural contexts. And, as an ordinary everyday practice, reception is therefore understood to be a continuous, complex, contradictory and interactive phenomenon. Collectively, this takes the study of appropriation beyond mere reception and a question of simple consumption. Hence, with the evolution of tech-

2. Educommunication, also known as media literacy or media education in English-speaking contexts, refers to an interdisciplinary and transdisciplinary field of study on the theoretical and practical dimensions of two disciplines: education and communication. This concept was popularised by UNESCO in the 1970s and was primarily based on the work of authors like Mario Kaplún who adapted the pedagogic work of Paulo Freire to the field of communication (Barbas, 2012, pp. 159-161). On the other hand, the political economy perspective was also influential due to its concern with the cultural processes of production and reproduction of capital, class relations, contradiction, conflict, and struggles of opposition and resistance that traverse the media landscape (Mosco, 2009).

nological change these currents of thinking gradually abandoned the framework of reception studies because, in new digital networks, the relation between subjects transcends the notion of 'active reception' that had been the dominant theoretical idea. Progressively, research shifted its focus to processes of appropriation and digital competence in new technologies that centre on everyday practises in the current social and cultural context (Ang, 1990; Hall & Du Guy, 1996; McRobbie, 1994; Morley 2010, 2007; Morley & Silverstone, 1990; Silverstone, 2016).

Coexisting uses and meanings

Over time, the theoretical proposals of the different perspectives have hybridised as a result of dialogue between authors and schools of thought. We can therefore identify different ways of defining the social appropriation of new technologies that share common ground, such as a rejection of explanations that are limited to understandings of access and use of technologies in terms of adaptation, integration or assimilation (Crovi, 2013).

One approach uses the concept of 'information capital' as a means of providing a holistic explanation for the process of access, use and appropriation of new technologies. This integrates not just economic barriers of access to digital devices or electronic networks, but "the technical ability to handle network infrastructures, the intellectual capacity to filter and evaluate information [as well as] the motivation to actively search for information and the ability to translate information into social practice" (Hamelink, 2000, p. 91).

Another perspective, proposed by researchers linked to the Latin American Network for Research on the Appropriation of Digital Technologies (RIAT) (Cabello & López, 2017; Lago Martínez et al., 2018; Sandoval, 2019) is to define the process of social appropriation of new technologies as "the set of sociocultural processes that intervene in the use, socialisation and signification of new technologies in diverse sociocultural groups" (Winocur, 2013: p. 62, translation by the authors). Within this perspective, appropriation can be analysed through the interrelationship of various dimensions, such as: availability, access, knowledge, elucidation, reflexivity, competencies, interactivity, use and the development of personal and collective projects (Morales, 2014).

Another way of ordering these dimensions is the ideal-type approach to the social appropriation of new technologies that has been developed by the French sociological tradition. As well as the pre-standing condition of material access to the technological device, this approach uses five levels or conditions (Jauréguiberry &

Proulx, 2011, pp. 81-82):

1. Technical and cognitive mastery of the device.
2. Meaningful integration of the use of the technology in the actor's everyday practice.
3. Repetitive use of the technical device that opens up the possibility of creative (new) uses in social practice.
4. Mediation in a community of practice as a source of exchange (producers of collective intelligence), transmission, and support between learning subjects.
5. At a truly collective level, appropriation implies that users and their needs are adequately represented in the establishment of public policies and that they are taken into account in processes of change and innovation in companies (industrial production and commercial distribution).

Current issues

A central debate traverses the evolution of research on the access, use and appropriation of new technologies in terms of the positive or negative impact of technological innovation for social change. Perspectives that advocate for the potentialities of technologies tend to focus on their dissemination—in particular material access to networks and technological equipment—as a means to overcome the inequality that plagues contemporary societies. This conception of new technologies is linked to post-industrialist theory and authors such as Daniel Bell, Fritz Machlup, Alvin Toffler, Zbigniew Brzezinski, Marc Porat, Nicholas Negroponte and Bill Gates, among others, (Becerra, 2003; Webster, 2004). This group has been highly influential on the technological programmes of various governments and transnational organisations. Examples of projects developed within this ethos include the Informatisation of Society in France (Nora & Minc, 1978), the Information Superhighway in the United States (Gore, 1994), the European Information Society (European Council, 1994), and the World Summit on the Information Society (United Nations, 2005).

In contrast, other research argues that technological development can be damaging as it may exacerbate imbalances in social power and worsen inequality (Robins & Webster, 1999). This line of work ranges from studies that highlight the use of technological innovation for increased surveillance and social control (Lanier, 2011; Mattelart & Vitalis, 2014; Morozov, 2011) to research on the technological determinism of perspectives that focus on material access to technology while neglecting the social aspect of the transformation of information and data into knowledge (Archer, 2017; Mosco, 2009; Servaes & Carpentier, 2006).

Such dichotomies and technological determinism can be avoided by analysing new technologies through the various dimensions of social appropriation and by understanding the process of mediation that takes place between the technical and the social. In this sense, neither can be understood separately: mediation is "technical because the tool used structures practices, and social as the motives, the forms of use, and the meaning given to the practice are drawn from the social body" (Jouët, 2000, p. 497, translation by the authors). Thus, an interesting dialogue is established between the previous lines of thought and those that analyse the conception of technological devices and their technological affordances – the possibilities for action and interaction open to users of specific technologies, but which is always limited by said technology's design (Bardini, 1996; Hutchby, 2001).

Linked to this double mediation is a prolific field of research on the 'digital divide', which focuses on differences in the appropriation of technological objects based on geographic location, socio-economics, gender, and generation, among others, that can lead to social labelling and, frequently, exclusion (Ragnedda & Muschert, 2013; Van Dijk, 2020). Although there is a notable lack of systematic reviews, a significant body of research has examined topics such as differentiated modes of appropriation of subjects based on a lack of equality in the development of technological infrastructures at a global level, as well as between urban and rural areas; how new technologies can generate income and educational inequality; differences in interests between men and women that result from the historical male domination of digital objects (); and the reconfiguration of intergenerational social relations due to a breach in cultural and social practices between digital natives and older members of society (Cabello & López, 2017; Granjon et al., 2009; Gómez, 2012; Lago Martínez et al., 2018; Livingstone et al., 2017; Pereira, 2015; Sáinz et al., 2008).

Finally, we can identify work, from various scientific disciplines, that uses the concepts of technological appropriation or social appropriation of new technologies to analyse the interaction between subjects and digital devices. Beyond studies in communication and the analysis of the reception of new media and technologies, interdisciplinary studies are focusing on digital inclusion, education and media literacy, rights to communication, community computing, social movements and social change, and public policy in the information society.

Conclusion

The social appropriation of new technologies refers to technological and social processes of mediation in the interaction between social actors and technological

devices. As such, the concept transcends relatively straightforward concepts of access and use of technology to focus on: how users develop technological and cognitive competences; the meaningful integration of the technological device into subjects' everyday lives and behaviour; the active and creative production of meaning; social mediation within communities of users; and the way that the interests of communities of users are represented in public spaces.

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