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National Programmes, Technical Projects

An ethnography of the One Laptop per Child (OLPC) programme in Uruguay

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Declaration

I certify that the thesis I have presented for examination for the MPhil/PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

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Abstract

This thesis is an ethnographic study of the Uruguayan programme CEIBAL, which aims to promote social inclusion by providing children and teachers with laptop computers. The novelty of the study lies in the fact that it illustrates empirically the complicated work of conceiving, implementing and sustaining policy in practice, both at the macro level and through local instantiations. This was achieved in three inter-related ways. First, by looking at how the national project of development was conceptualised around themes of techno-modernity and consolidated the promise of inclusiveness through claims on the universality of 'technical needs'. Technology provided the conceptual space in which to resolve a presumed dichotomy between themes of equality, education and paternalistic state and those of economic development, modernisation and innovation. Second, it was analysed by exploring the way in which heterogeneous assemblages of people, values, laptops, and interests, were mobilized to stabilize the programme's material and conceptual order across a wide range of sites and actors. This was based on the recognition of a 'natural affinity' between CEIBAL and Uruguay, which concealed differences, provided coherence and built a strong sense of 'national consensus'. And finally, as a result of the other two, it was analysed by examining the relationship between 'the technical' and 'the social' as inscriptions and 'fudged' values objectified in the device faced users and their expectations.

This implied looking at how CEIBAL officials attempted to make the laptop embody a political and moral project of inclusion, and its infinite promises, so that it could *perform* them. People in the three localities studied in this thesis (Montevideo, Paysandú and Queguayar) created very tangible strategies for dealing with notions of 'social inclusion', expressed different understandings of how technologies created possibilities for them and enacted these beliefs through a wide range of practices. This included the creation of new metaphors of 'social inclusion' through the notion of 'connectivity,' reconfiguring both social values and definitions of what constitute 'connections' as a result: the laptop's ability to connect children with each *'wired up the social fabric.'* These negotiations over the possibility of making connections are explored through a new concept that I refer to as 'geographies of possibilities,' which describes topographies of power that influence people's ability to make technology perform. The key to this notion lies in the recognition of several forms of agency that are enacted in strategies to navigate through different geographies: people are not mere recipients of policy but active constituents of its various forms and instantiations in practice.

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To Alan, *"mi amor, mi cómplice y todo..."*

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Abbreviations

AGESIC   National Agency for Electronic Government and the Information Society

ANEP   National Agency for Public Education

ANII   National Innovation and Research Agency

ANTEL   National Telecommunications Administration

CEIBAL   Basic Education Connectivity for Online Learning

CEIBAL JAM   Local software and content generating volunteer group

CEIP   Primary and Preschool Education Council

CITS   Centre for Technological and Social Inclusion

LATU   Uruguayan Technological Laboratory

MEC   Ministry of Education and Culture

OLPC   One Laptop per Child

PANES   National Assistance Plan for Social Emergency

RAP CEIBAL   Volunteering network for CEIBAL

XO   Portable computer (laptop)

Chapter I: Introduction

No country has ever taken technology's infinite promises of social transformation as seriously as Uruguay. This small, middle-income nation in the south of South America has transformed the 'one laptop per child' dream of Nicholas Negroponte – former Director of the Massachusetts Institute of Technology's Media Lab and founder of the One Laptop per Child Foundation (OLPC) – into its vehicle for articulating visions of the future. In 2006 the then President Tabaré Vázquez announced the creation of a programme whereby every child and teacher in state-funded primary schools would receive a laptop computer with internet connectivity, which they could take home and keep upon completion of their studies. The plan, 'Conectividad Educativa de Informática Básica para el Aprendizaje en Línea' (CEIBAL[2]), which translates into 'Basic Educational Connectivity for Online Learning', constituted the very first commitment by a developing country to implement OLPC's vision using the laptop computer that they had designed: the XO. The mobile aspects of the XO laptop, supported by its wireless connectivity, tumble-proof design and small dimensions, light weight, long battery life and high-contrast screen (works great outdoors) allows children to use it everywhere, not just in a classroom setting. According to official documents, the programme's objective is to provide children and teachers with laptop computers to promote a 'national knowledge society that is inclusive, pluralistic, equitable, open and participatory by reducing the digital divide within the country and by favouring the creation of new learning environments in which Uruguayan students can respond to the demands of the global information society' (UNESCO, 2008:19). Perhaps another way to describe it is to allude to Artigas' most famous phrase: it is a brave effort to 'enlighten'.

This study, however, is neither about the CEIBAL programme nor about its effects on 'beneficiaries'. It is a story about the country that implemented it and about the co-configurative relationship between the programme as a material and discursive achievement and the Uruguayan people; a story about how different social values and

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[1] Uruguayans are called 'orientals' because the official name of the country is the Eastern Republic of Uruguay as the country is located to the east of the river Uruguay.
[2] The acronym CEIBAL also alludes to Uruguay's national flower: the ceibo (known in English as the Cockspur Coral Tree). Ceibal means a ceibo's tree.

devices were brought together in practice in a way that is perceived as 'successful' policy regardless of its actual effects. It is also a story about those values as they are increasingly mediated by and drawn into moral and political controversies about the nature of a good society. And it is, finally, a story about how technology became the central means by which modernity is imagined and assembled as part of this moral and political project. In turn, this study unpacks interactions between a complex set of elements – policy assumptions, political interests, technical devices and personal identities – that are naturalised as the problems and prospects of a particular time and place in Uruguayan history. It is, in summary, a story about why CEIBAL 'works'.

In a more general sense, this thesis is an ethnography of policy: an empirically rich description of the contingent, emergent and mediated way in which national programmes are materially and symbolically realised in practice. It is a country-wide study of the implementation of a particular technical programme aimed to bring about 'social development'. However, instead of treating policy as the framework with which to evaluate the achievement of certain technical goals (that presumably 'solve' social problems, such as 'development'), it examines *how* policy goals and *forms* are produced and translated into very concrete everyday practices. Taking this approach has important political and methodological implications. First, from a political perspective, it allows me to take an autonomous view of the programme and to think about social interventions in relation to the values that policymakers are actively trying to realise and to the kinds of resources mobilised to create its material and conceptual order. Because national programmes are intrinsically bound up with aspirations and expectations of social change, the approach also gives people a much stronger sense of agency as it recognises them not as mere 'recipients' of policy but as active constituents of change. Second, from a methodological standpoint, it enables me to engage with policy without reproducing it as an analytical and organisational framework. As discussed below, this involves exploring how the programme achieved stability by weaving together its different components – laptops, practices, meanings, social values, policy documents, skills, wires – across a wide range of sites and actors. Rather than questioning the adequacy of CEIBAL's policy instruments or identifying its effects, this involves the more holistic aim of ethnography in which phenomena and its complex context make sense of each other. In turn, the novelty of the approach lies in the fact that it illustrates empirically the complicated work of conceiving, constructing, implementing and sustaining policy in everyday practice.

One clear way of analysing all of these issues was by making sense of CEIBAL as a national development programme and of the very specific story behind the XO laptop. This

was pursued in three interrelated ways. First, by exploring the relationship between CEIBAL as a national project and CEIBAL as a technical project. This meant looking at different ways of articulating expectations for the country's technocratic and inclusive future, for instance, through claims about the universality of 'technical needs'. Put differently, the nationalistic project of development was built around themes of techno-modernity that needed to be conceptually unpacked. This involved exploring the different ways in which the programme was designed and implemented as it effectively determined *how* that relationship was established. The key lied in the programme's framing, which was based on the premise that there were three interrelated components: technical, social and educational. Distinctions between them created corresponding ontological zones and classifications, inscribing values upon actors and actions. Debates over whether the programme was a technical, a social or an educational one, therefore, were important means of expressing judgements about right and wrong ways of modernising Uruguay.

In that sense, because the implementation of the programme was delegated to the Uruguayan Technological Laboratory (LATU) – the governmental agency responsible for technology and innovation – it became the 'obligatory point of passage' (Callon, 1987 :196) in the programme by consolidating its profile as the only agency capable of the efficient technocratic delivery of a technological future. As discussed in great detail in the chapters that follow, because objectives were not clearly defined from the start, CEIBAL failed to connect its overarching aims with practical operational needs, effectively transforming the project into a laptop deployment and connectivity-provision one.

The second research aim, inextricably linked to the first one, was to trace how national values were mediated in the laptop's multiple translations as they connected a long chain of actors, from OLPC's offices in Boston to children in remote rural areas. This implied looking at relationships of continuity and discontinuity between them, at conflict and power, as they recruited supporters and worked to sustain different interpretations. The chapters that follow explore how heterogeneous assemblages of laptops, people, ideas, skills and software were mobilised in everyday practice to conform the programme's material and conceptual orders. In that respect, CEIBAL was conceptualised as a negotiating space in which different actors created a sense of coherence in what Latour (1996) called 'political acts of composition'. The narrative stabilising this material and conceptual order was based on the construction of a 'natural affinity' (Miller and Slater, 2000) between CEIBAL and Uruguay, which concealed differences, provided coherence and built a strong sense of 'national consensus'. It was a process of *political* composition in the sense that, by defining the national project around themes of techno-modernity, it reflected assumptions

about the nature of a good society and the types of subjectivities required to be 'included' into it. This led one to the conclusion that the coherence attributed to CEIBAL was certainly not a matter of policy design but an accomplishment worth exploring. Rather than questioning the adequacy of CEIBAL's policy instruments or identifying its effects, this prompted me to pursue the more holistic aim of ethnography in which phenomena and its complex context make sense of each other.

The third research aim, which was the outcome of the other two, was to explore the relationship between 'the technical' and 'the social' as the laptop became the material culture of CEIBAL, the space in which inscriptions and values encountered users and their expectations. In other words, to examine the relationship between the laptop, as an emergent object, and 'fudged' social values, particularly that of 'social inclusion'. This implied looking at how CEIBAL officials attempted to make the device embody a political and moral project of inclusion, and its infinite promises, so that it could *perform* them. In that respect, one important research finding was that new metaphors of 'social inclusion' were created around the notion of 'connectivity', reconfiguring both social values and definitions of what constitute 'connections' as a result. The laptop's ability to connect children with each other was perceived as a way to enact the core value of 'social inclusion' and to perform the country's perceived cohesiveness: CEIBAL had *'wired up the social fabric'.* These negotiations over the possibility of making connections were explored through a new concept that I referred to as 'geographies of possibilities'. Borrowing conceptual elements from actor-network theory (ANT) and from the work of Pierre Bourdieu, this notion is introduced to describe the different topographies of power that influence people's ability to make technology perform. More concretely, 'geographies of possibilities' are conceptualised as fields of connections made visible to different actors from their respective positions that need to be 'navigated' by establishing different types of heterogeneous assemblages. People's positioning within their 'geographies of possibilities' not only determines what they believe is 'possible' or 'necessary' for them to do but also reinforces it through the types of socio-technical connections established as a result.

In addition to this, the relationship between 'the technical' and 'the social' was examined through the various tensions arising when XO laptops entered contexts of use. One of them was the paradox underlying the laptop's scripting, characterised by both openness and closure: the laptop's prescription was, precisely, to be open and non-prescriptive. As explored extensively below, the laptop's ill-definition, when combined with the multiple possibilities of its affordances, generated an extremely diverse and rich array of responses and practices. One of these responses was, ironically, the use of the laptop for

very conventional purposes – the laptop is just as capable of conventional pedagogic use as of 'exploratory' and innovative ones. A second theme through which tensions between 'the social' and 'the technical' were articulated was through the laptop's breakage. Breakages are conceptualised here as moments in which projected users, as imagined by the designers and scripted into the device, encountered not only real users and their practices but also the ways in which the device has been signified in different contexts of use. What it means to be 'broken' is just as social as it is technical, and it can only be understood in relation to normative notions of proper function and use in practice.

This chapter introduces the thesis: the next section situates it within the ever-increasing body of literature on development policy and the sociology of science and technology, and gives a general overview of the conceptual framework used to make sense of empirical findings. This is then followed by a brief description of Uruguay and the CEIBAL programme in an effort to contextualise my research. The last section presents the structure of the thesis and reviews the different arguments presented in it.

Conceptual framework

This section explores the conceptual underpinnings of the thesis with the hope of producing some sort of theoretical convergence from which to make sense of empirical findings. There are numerous approaches that examine technology in one way or another and even more that look at what has been loosely referred to as 'development'. However, these two corpuses of work rarely overlap with each other, either by looking at how 'development' is actually practiced and the role that technology plays in those processes, or alternatively, at how technology is assembled and stabilised in everyday life and how 'development' mediates such processes. It is my intention to bridge this gap, developing a dialogue between abstract theories about technology and development that are usually kept distinct, with rich empirical material. More specifically, by defining and grounding debates in material culture studies, actor network theory and anthropology of development, it becomes clear that CEIBAL is an excellent example with which to integrate, or at least move between, these different perspectives. Only such a wide-ranging discussion can enable one to examine both the macro-level issues posed by a large national programme and the micro-level politics of its local instantiations.

The starting point for examining CEIBAL's 'political act of composition' (Latour, 2000) is the role that technology is imagined to play in the project: it promises a technical

solution to the country's 'development' problems. This premise responds, to a great extent, to decades of Northern future-oriented views on the relationship between technology and social transformation. Perhaps the more prevalent of those narratives, which was constantly referred to and enacted in Uruguay, is the one that defines the presumably 'global' 'information society' or 'knowledge economy' as the result of a new 'mode of development' called informationalism (Castells, 1996: 21). Informationalism is understood to be characterised by the globalisation of economic relations, the informatisation of social and economic life, the flexibilisation of production and the de-regulation of the economy. The most renowned exponent of this view is Manuel Castells (1996, 2001, 2006), who defined globalisation as 'an economy with the capacity to work as a unit in real time on a planetary scale' (Castells, 1996: 92). This rhetoric has rapidly entered academic and media discourse, portraying the 'new economy' as the result of an unprecedented coexistence of economic growth and low inflation (Greenspan, 1998); the flexibilisation of working conditions associated with deregularisation (Sennett, 1998; Beck, 2000) and the increasing number of goods and services that take the form of 'knowledge goods', namely: weightlessness, infinite expansibility and non-rivalry (Quah, 1996, 2003). Central to this is the belief that technology is transforming patterns of consumption and everyday life and that information is the greatest source of economic, political, cultural, and social value precisely because it can be transmitted across geographic boundaries.

Within these narratives, 'underdevelopment' is generally understood as exclusion from these flows of information and networks, and has been referred to in the literature in relation to an emerging 'digital divide'. Technology-led development projects, such as CEIBAL, claim to respond to the need for 'bridging' the gap between 'the information haves' and the 'information have-nots' (World Bank, 2007). Deploying technology as a solution to development and informational or educational needs led to the proliferation of an extensively researched field (Avgerou, 2010; Buckingham, 2003; Livingstone *et al*, 2005; Livingstone and Helsper, 2007; Livingstone and Haddon, 2009; Madon, 2006; Papert, 1980; Prensky, 2001; Warschauer, 2006; Winner, 1977; among others). Studies in this area have ranged from analyses of how and why people use new technologies (for example, DiMaggio and Hargittai, 2001; Facer *et al,* 2003; Hargittai and Hinnant, 2008; Livingstone & Helsper, 2007), to more specific examinations of the impact of interventions on specific types of 'social outcomes', such as governance and civic participation (Norris, 2001), health and efficiency of health care systems (Madon *et al,* 2010), student literacy practices and learning (Warschauer, 2003), and so forth.

Among them, there are already a number of studies that have specifically examined the one laptop per child programme, including evaluation reports from multi-lateral organisations such as the Inter-American Development Bank (for example, Cristia *et al*, 2010) and academic efforts from a variety of disciplinary perspectives, ranging from information systems (for example, Silva and Westrup, 2008) to media studies (for example, Warschauer and Ames, 2010). Despite enormous enthusiasm in academic, policy and IT circles, critical literature on OLPC has also been quite prolific (for example, James, 2009; Kraemer *et al*, 2009; Leaning, 2010; Nussbaum, 2007a; Nussbaum 2007b; Winocur, R. and Aguerre, C. 2011; Winston, 2007). Arguments vary from broad critiques to OLPC Foundation's orientation as technologically determinist with a 'one-size-fits-all' approach (Leaning, 2010) to more pragmatic or specific ones such as MIT's top down product development approach (Nussbaum, 2007a) or the fact that it encourages fewer students per computer than what is pedagogically recommended (James, 2009). What these efforts have in common – irrespective of what their assessment of OLPC efforts are – is that technology is unequivocally defined both as a representation of modernity and as an instrumental tool to achieve it, so it becomes the space per excellence in which development futures are systematically performed.

This is important because technology is already reified as a 'key enabler' of development and features prominently in policy frameworks as a catalyst of social change. In fact, middle-income countries like Uruguay think about social change as part of 'modernisation' processes (not necessarily as 'development') precisely because this term bears a closer relationship to technology. Technology is perceived to be the central means by which modernity is made possible in no small measure because the future is defined in technical terms. For those located in certain geographic and historical spaces (that is, the 'modern' North) technology functions as a symbol of hope, of an urban 'new' and 'rational' way of life. In addition to being 'technical', this means that modernity is also, in quite an old fashion way, ideological. As it is explored in more detail throughout the thesis, the concept of 'modernisation' has allowed Uruguayans to articulate projects capable of conforming to the North's expectations of economic restructuring and liberalisation while still maintaining promises of equality and social justice. This is because the use of the concept has allowed the country to reinforce the idea of its positioning closer to 'modern' societies than to 'underdeveloped' ones: as a middle-income country, what Uruguay needs is 'to modernise' through technology, instead of 'to develop' like some of the world's poorest nations do.

The concepts of 'modernity' and 'development' are in themselves normative Northern-based collections of representations and narratives that theorise the direction of

social change (Slater, 2013), and organise the relationship between North and South within the same historical framework. The concept of 'modernisation', in particular, directly emerged from 1950s and 1960s 'modernisation theory', whose underlying assumption was that traditional, low-income societies had to move through a series of stages of development to eventually reach a point of economic self-sustaining growth (Lewis, 2005). As Morley (2007: 158) pointed out, 'the fundamental problem with the cartographic imaginary on which modernisation theory is founded is that the West is conceived not simply as one particular form of modernity, but as a universal template for mankind'. These discourses are then enacted in the formulation of individual and collective strategies for survival; they become ways of 'understanding and acting upon the future' (Slater, 2013: 6). So the notion of modernity, in turn, 'only shows to the others, to the less developed, the image of its own future' (Morley, 2007: 158). Crucially, factors that were deemed important for the successful modernisation of the North, such as industrial production and literacy, were subsequently transformed into 'policy targets' for the developing world. Unfortunately, what appeared to have worked for England in the nineteenth century has often damaging consequences for people and the environment in Asia, Africa and Latin America today.

Assumptions about modernity are not just inscribed in particular geographical locations – the West, the North – but they are also posed in temporal terms. As Morley (2007: 15) eloquently explained, the 'Occident/Orient binary is itself a-temporal (as much as geographical) division and conversely, the extent to which the 'temporal' division between modernity and the realm of the pre-modern (or the 'traditional') has long had a crucial geographical sub-text'. The question that arises is therefore *how* these conceptualisations are interpreted and naturalised across spatial and temporal divides between the centre and the periphery, between what is considered modernity and forms part of the 'traditional' past. In that respect, it appears that the heterogeneity of Latin American 'cultures', created out of the discontinuous, multiple and hybrid parts of the continent, challenges these distinctions: not only because they are located in the Western hemisphere but also because multiple temporalities coexist as those 'cultures' are historically linked to different epicentres of power (Morley, 2007). For all of these reasons, the concept of 'modernity', just like 'development', is considered here as an object of study rather than as an analytical framework, that is, as topics rather than resources (Slater, 2013: 42). The aim is to problematise, as Miller (1994) has done in Trinidad, Uruguay's active production of its own 'modernity', both in relation to the West and to its future.

Although 'development' would not necessarily be the term used to characterise social change in Uruguay, literature emerging from development studies can provide important resources for understanding CEIBAL both as a national project and as a technical project. For instance, conceptual tools from the anthropology of development can help describe how representations and narratives of 'modernity' are stabilised in practice, as has been the case most notably in the work of Farmer (2005), Mosse (2005), Mosse and Lewis (2006), and Ferguson, (1990), among others. These studies point to the discursive elements used by development policy to preserve the appearance of technical planning, encoding it within institutional and individual interests, ambitions and optimisms, and legitimising it as a result. Rebecca Sutton's work (1999), for example, identifies conceptual differences between development 'discourses' and 'narratives'. According to Sutton (1999), development discourses are 'systems of values and priorities that distinguish some aspects of a situation and marginalise others, providing the threads from which ideologies are woven' (Sutton, 1999:7) – they are 'the framework'. This is particularly the case when development discourse also includes the use of specific labelling, such as the language of science and technology. As it is clear below, classifications such as 'educational', 'social' and 'technical' used to characterise elements of CEIBAL not only represented a way of defining a problem but had also serious material consequences for the process of policy-making.

In contrast to discourses, Sutton (1999) characterises policy narratives as stories used to simplify development processes. They are 'an attempt to bring order to the complex multitude of interactions and processes which characterise development situations. Policy-makers often base their policy decisions on the stories outlined in development narratives' (Sutton, 1999: 7). A narrative, therefore, 'is part of a discourse if it describes a specific story that is in line with the broader set of values and priorities of a discourse' (Sutton, 1999: 7). Within the development world, narratives have been criticised because it is believed that they cause 'blueprint' development; that is, 'a prescribed set of solutions to an issue used at times and in places where it may not be applicable [as] they serve the interests of certain groups' (Sutton, 1999: 11–12). The notion of 'narratives' is a useful conceptual tool with which to describe how different actors conceptualised the role of technology in CEIBAL's national project. The contribution of this thesis is precisely its attempt to step outside of development discourses as analytical frameworks.

A second way in which development ethnography can aid the analysis of CEIBAL is by providing conceptual tools to describe the relationship between those narratives and project design. This is referred to by Mosse and Lewis (2006: 4) as analysing 'mobilized simplifications of policy and politics'. Doing so emphasises 'the ways in which development

meanings are produced and negotiated and how development processes and interactions have different significance for the various actors involved' (Mosse and Lewis, 2006: 9). As Mosse (2005: 2) has pointed out in relation to a Department For International Development project in Bangladesh, this is important because 'the things that make for good policy are quite different from those that make it implementable [...] the practices of development are in fact concealed rather than produced by policy'. Put differently, practices of development produce policy by maintaining coherent sets of representations of what they are about and of their effects. Policy, in that respect, legitimises and orients practice while mobilising and maintaining political support. As CEIBAL's example extensively illustrates, these strategies of translation conceal ideological differences and therefore help enrol different organisations that are necessary to bring the project into existence, particularly from civil society. Behind these practices and policy narratives, however, there are still ideas of whom or what should be responsible for the accomplishment of the project's objectives: it is an intrinsic part of the simplified narrative of development processes. That is why although competences within CEIBAL might not always have been made explicit, they were revealed as controversies developed.

A critical component of CEIBAL's implementation, of the programme in practice, was the XO laptop and the way in which it was used to negotiate new types subjectivities required for 'modern Uruguay'. In order to shed light to the device and to the importance it has had for the development of the programme, we draw upon conceptual resources from material culture studies and from the sociology of technology and science. Rather than insisting on reducing everything to the interplay of social forces, these traditions highlight the importance of the characteristics of technical objects and the meanings of those characteristics.

Material culture studies have mainly been associated with cultural anthropology and the study of everyday life, both materially and linguistically. Contemporary work in this tradition includes Daniel Miller's (1998, 2003, 2005) explorations of how people assemble and relate to the things they surround themselves with. In this view, objects embody – and thus reveal – aspects of gender, age, and identity, and mediate social relations and understandings, reproducing particular forms of social life. Regarding the object as material culture therefore means attending to the different ways in which it objectifies values, meanings, practices, but also to exchange processes through which it takes particular forms. This issue is discussed extensively in chapter five and in the conclusions because the capacity of the laptop to embody social values is a crucial part of broader processes of social reproduction. More specifically, we draw upon the concept of 'objectification'

developed by Miller (1991) out of Simmel to make sense of how laptops took certain aesthetic and value forms to objectify broader concepts that the notion of 'inscription' cannot capture. A case in point is how laptops embody 'modernity.' People in Uruguay know, narratively, that laptops are modern in a different way than notebooks or televisions are. Although abstract notions of 'modernity' can be potentially materialised in the laptop's design (for example, through bright colours and clear lines) the process of embodiment is much more profound: it involves not only constructing specific affordances or properties but also enacting particular *forms* that are connected to others in distinctive ways.

Another tradition looking at how objects are appropriated is that of media studies, which focuses more specifically on devices like video machines, televisions and computers in the domestic sphere. Coming from this tradition, the term 'domestication' has been used to describe how technology is integrated into the home and becomes an integral part in people's routines and daily practices (Silverstone and Hirsch, 1992). The emphasis is generally on the extent to which these devices are assembled and used to reproduce habits, routines and moral economies of family life. From this perspective, subjects and objects co-configure each other, so they cannot be analysed independently. Put differently, objects and their materiality mediate the social by embodying certain values and relationships, which also transform devices as a result. The main point is that 'new technologies are transformed (in effect), and stabilised by the contexts and situations in which they are adopted' (Shove et al, 2007:8). The problem with this tradition, however, is that moments of socio-technical closure or 'domestication' are illusionary even when the design of devices appear 'fixed', as 'objects continue to evolve as they are integrated into always fluid environments of consumption, practice and meaning' (Shove et al., 2007: 8).

The sociology of science and technology also recognises the co-construction of people and devices but focuses more broadly on the mutual shaping of technology and society: technology is socially shaped but society is technically shaped too. In particular, technology scholars have claimed that technical artefacts sometimes have built-in political consequences (Winner, 1977), that they may contain gender biases (Wajcman 1991; Bray 1997), that they determine their users' behaviour (Latour 1992), that they presuppose certain types of uses or may fail to accommodate others (Akrich 1992) and that they can modify fundamental cultural categories in human thought (Turkle 1984, 2007, 2011). Within this tradition, the social construction of technology (SCOT) approach refers not just to such recognised functions or effects of technologies, but to the multiplicity of functions and meanings that always accompany the use of a technology. This goes considerably beyond the claim that technologies may open up new possibilities for change, or that

technology might have side effects. As Wiebke Bijker and John Law (1992) have eloquently put it, 'social and technical change come together, as a package, and if we want to understand either, then we really have to try to understand both' (Bijker and Law, 1992: 11). Within this approach, people too play a part in the construction of technology: different social groups can construct radically different meanings because devices have 'interpretative flexibility' (Pinch and Bijker, 1984; Bijker and Law, 1992). That is to say that 'the artefact presents itself as essentially different artefacts' (Bijker, 1992: 76) to different groups. This is discussed in detail below when analysing children's relationship to their laptops and appropriation processes in different sociocultural contexts in Uruguay. The approach also stipulates the analysis of processes where interpretative flexibility is closed, a predominant use is stabilised and co-produced meanings and social relations emerge. This process of stabilisation may or may not 'involve tensions, conflicts and disparities in power and resources among the different actors involved' (Oudshroon and Pinch, 2003: 16). The problem with the SCOT approach, however, is that it gives special theoretical treatment to social elements such as groups and interpretations processes.

In contrast, ANT claims that all elements in heterogeneous assemblages (social and technical) have a similar explanatory role, which is termed 'generalised symmetry' (Callon 1987; Latour 1987; Callon and Latour 1992). In other words, objects are too seen as actors (or 'actants'), and agency is distributed in, and emergent from, interactions between humans and nonhumans. The assumption is that there are no elements, non-human or human, that can somehow work autonomously of its multiple associations with other elements. These assemblages, which are heterogeneous in character, make up institutions, such as states and families, -they make society durable. In that respect, Latour (2000) goes so far as to claim that,

> The great import of technology studies to the social sciences is to have shown, for instance, how many features of the former society, durability, expansion, scale, mobility, were actually due to the capacity of artefact to construct, literally and not metaphorically, social order... they are not 'reflecting' it, as if the 'reflected' society existed somewhere else and was made of some other stuff. They are in large part the stuff out of which socialness is made. (Latour, 2000:113)

This simple but radical move erases boundaries between the social and the technical and opens the way for new lines of enquiry regarding the role of artefacts in social life.

As it becomes clear in the following chapters, the language of ANT is particularly useful for the analysis of CEIBAL as a socio-technical project, as it allows one to describe it not just as human but also as material, addressing the importance of laptops and their features in constructing specific kinds of realities by means of inscription. Asking how the

laptop may or may not distinctively afford certain social practices is the only way to recognise that it enables certain consequences *precisely* because it has been shaped to do so. To follow Latour (1996 quoted in Mosse and Lewis, 2006: 8), 'there is not just a relativity of points of view on a given object (a question of perspective); rather, objects appear or disappear depending upon the interpretations given them by people of different standing'. It is for this particular reason that connections and associations are always provisional and can always change (Latour 1999; 2005). As Law (1999: 3; 2007: 2) has pointed out, it is 'the enactment of materially and discursively heterogeneous relations that produce and reshuffle all kinds of actors, including objects, subjects, human and non-human entities to take up their form and acquire their attributes as a result of their (material and discursive) relations with other entities'.

Put it differently, actors assume identities through interactions with each other, particularly in negotiations over competence and power, as they seek to establish or maintain socio-technical arrangements and with this, a set of social, economic or organisational relations. As Suchman (2007:2) pointed out, the question then shifts from 'one of whether humans and machines are the same or different to how and when the categories of human or machine become relevant, how relations of sameness or difference between them are enacted on particular occasions'. In general, then, if technologies are stabilised, 'is because the network of relations in which they are involved – together with the various strategies that drive and give shape to the network – reach some kind of accommodation' (Brey, 2003: 10). As Mosse and Lewis explain (2006: 14):

> The overall system can be stabilized only when actors are able to reconstruct
> the network of interactions through the creation of coherent representations
> which they do through a process of 'translation' that permits the negotiation
> of common meanings and definitions and the mutual enrolment and
> cooptation into individual and collective objectives and activities.

A main focus of ANT, then, is on tracing such relations and on following the paths these relations leave behind; this is why it is usually not regarded as a theory but rather as a method that helps to trace associations (Callon 1987; Latour 1999, 2005). Translation, in that sense, is the work through which actors, human and non-human, modify and displace conflicting interests and protect their own interpretations. It is 'the mutual enrolment and the interlocking of interests that produces project realities' (Mosse and Lewis, 2006: 13). This process of translation implies the widespread acceptance of a dominant view on how to interpret or use technology, so their contents are 'black-boxed' (Latour 1987), no longer subject of controversy: 'a black-box contains that which no longer needs to be considered, those thing whose contents have become a matter of indifference' (Callon and Latour,

1992: 284). The following sections thus describe how actors negotiate different interests in CEIBAL's institutional landscape, creating enrolment and legitimising interpretations (Latour 1996; Mosse 2005).

In that respect, processes of interpretation and translation need to be viewed as *performative* (Law 1999: 174). As it is clear below, in order to understand why government officials hold a given position on CEIBAL, and how they came to these views, it is important to examine the space in which negotiations took place because – as with all public policy – a government official's view of the programme was bound up with his or her roles and interests and effectively influenced the shape of the programme. In fact, CEIBAL's negotiation space has been – and perhaps continues to be – a battle ground for conflicting views on how to construct Uruguay, in which the laptop is often just a mere proxy: an object whose that reflects competing visions of the future.

Because these views are then enacted in fluid environments of practice and meaning, attention must also be paid to the co-evolution of objects, subjects and everyday practices (Suchman, 2007; Shove et al., 2007). The assumption here is that practices reflect the interdependency of the human and the material as they 'consist of embodied, materially mediated arrays and shared meanings' (Schatzki, 2001: 3). More specifically, those working within what has been loosely defined as 'practice theory' emphasise the ways by which people's usage of an object, such as the laptop, 'leaves a trace for future action so that, with time, technologies and artefacts are experienced as more or less relevant or contextual, as negotiable or resistant, as facilitating or obstructing everyday life' (Bruni, 2005: 395). In that sense, it locates practice within pre-existing systems of technologies, habits and expectations because as Shove et al. (2007) have pointed out 'technologies configure and are domesticated not only by individual users, but more broadly, by and in relation to the practices of which they are a part' (Shove et al. 2007: 70). This idea is particularly important in the case of the XO laptops because new practices did not always fit with old ones and capturing those processes of inscription allowed me to make sense of 'the shape and form of the object also as a consequence of the context into which it fits' (Shove and Southerton, 2000: 314).

In summary, this study draws upon several conceptual frameworks in order to understand how notions of 'development' and 'modernisation' were enacted in discursive and material ways in everyday practice. It also looks at how these practices were concealed as policy models as 'consensus' was established and maintained in CEIBAL's material and conceptual orders. It was through political acts of composition (Latour, 2000) that practices were stabilised, that the gap between them and policy was reduced to make the project

more coherent for a wide range of actors involved. In that sense, the narrative thread cutting across the various chapters that follow will attempt to weave together the way people in Uruguay imagine their future, the different roles that technology plays in those imaginaries, how they use materials and meanings to construct their everyday practices, and how the laptop's built-in affordances resist and 'bite back' as people, objects and practices co-evolve. It is only at this level that one can fully understand how the XO gets a place in classrooms, within homes and in the construction of Uruguay's future.

The 'Switzerland of Latin America'

This section provides a brief account of Uruguay by presenting key elements of its recent history. As the second smallest country in South America, Uruguay is home to 3.4 million people, of which over half (1.7 million) live in the capital and its metropolitan area. It is a middle-income country with a per capita income of US$ 12,600 (World Bank, 2012) and a long-term history of social protection, which explains why it performs well in all indicators of human development as defined by the United Nations Development Programme, which ranks it in 48th place (UNDP, 2011). It also has the second most equal income distribution of Latin America, the first one being Costa Rica, as measured by the distance between the top and the bottom 10 per cent of the income distribution. This results in part from the fact that, since it origins as a nation state, Uruguay has assigned the greatest importance to social justice and to equality. There are strong reasons for this, mainly the role that the educational reform, which established by law a free, secular and compulsory education system, played in the unification of the country under Coronel Latorre's[3] military government in 1875. The unification was crucial to the construction of the nation state both by facilitating the practice of governing and by building a shared sense of national identity to support it.[4] As one of the most influential political scientists in Uruguay, Gerardo Caetano, has explained, 'Uruguay was born before the Uruguayans, the State preceded the nation' (Caetano, 1992: 81) and so schools provided the space in which Uruguayan subjectivity has been historically reproduced. Although this is discussed more extensively in chapter three, it is important to point out that ever since its reform, the education system

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[3] Cornel Lorenzo Latorre was first Minister of War and then President of Uruguay between 1876-1879. He was known as 'the dictador' until he resigned in 1880 after declaring Uruguay 'ungovernable.'
[4] Although Uruguay was declared independent from Spain in 1825, from Brazil in 1828 and from Argentina in 1830 with the signature of the national Constitution, historical accounts of these times point to the fact that inhabitants in the countryside were not aware of these changes and still identified themselves as members of the *Cisplatina* (province of Brasil) or as *Orientales* (and therefore part of Argentina's federation) until later.

has been perceived as the vehicle for the creation of modern Uruguay and as having a major role in promoting inclusion and social mobility.

This process of unification was later complemented and consolidated by the creation of a modern welfare state during President Jose Batlle y Ordonez's[5] government at the beginning of the twentieth century (1903–1907 and 1911–1915) which included progressive reforms in education, healthcare, labour legislation and women's rights. By then, the country had experienced rapid economic growth and the population's wellbeing was comparable to Europe's, which made Uruguay be known from then onwards as 'the Switzerland of America'. This also built the historical foundation for a lasting engagement in the country with Western notions of modernity that resulted in the establishment of a national moral project based on democratic inclusiveness. This 'modern' Uruguay also consolidated a series of myths of exceptionalism based on images of the nation as well educated with middle-class lifestyles and values, which differentiates the country from other Latin American ones characterised by inequality and violence. As Perelli and Rial (1986) pointed out, emphasis was placed on social welfare provided by a 'paternalistic' state that protected its citizens with job security. This explains, in part, why Uruguay's national project needs to be conceptualised differently from what it is usually understood as 'development' in the global south.

During the second half of the twentieth century, however, the situation deteriorated significantly and by the return to democracy in 1985, after thirteen years of a brutal dictatorship, the economy was drastically weakened. Two decades of democratic neoliberal governments – whose measures included market liberalisation, decentralisation of salary negotiations, changes in the welfare system and the dismantlement of the safety net – immersed the country into severe macroeconomic problems. These issues, alongside neighbouring Brazil's currency devaluation in 2000 and Argentina's recession and crisis of 2001, led Uruguay to one of the most severe economic crises since its inception. According to Manacorda *et al* (2009: 6), between 2001 and 2002 'per capita income fell 8 per cent, the poverty rate increased from 18.8 per cent to 23.6 per cent and unemployment reached its highest level in twenty years (at 17 per cent)', the exchange rate collapsed, and a financial crisis led to bank runs. As a result, 'poverty increased steadily by 108 per cent affecting more than one-half of urban children (INE, 2004) and a total of 900,000 Uruguayans' (La Republica, June 13, 2004: 13 cited in Renfrew, 2004: 28). Interestingly, the crisis exposed

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[5] Jose Batlle y Ordonez, President from 1903 to 1907 and from 1911 to 1915, championed what is now referred to as 'batllismo', a strategy of populist industrialism through state-led protectionist policies. This was largely followed by his processors, including his nephew Luis Battle Berres, who was President from 1947 to 1951. It was however broken by Jorge Luis Batlle, grand-nephew of Batlle y Ordonez, and son of Batlle Berres, who was elected President from 1999 to 2004.

weaknesses in the existing welfare state, particularly in the pensions system, and created widespread dissatisfaction within traditional parties' management of public resources.

It was precisely this outrage that led Uruguayans to elect, for the first time in its history, the left-to-centre coalition Encuentro Progresista-Frente Amplio-Nueva Mayoria ('Broad Front')[6] in the 2004 ballot box, which promised during the presidential campaign to implement extensive pro-poor redistribution and structural economic reforms. People demanded change and Frente Amplio presented itself as the only party that could restore the country's 'social fabric' and to reconstruct its historical foundations as an egalitarian nation. It was almost an offer of 'collective redemption', an opportunity to restore what is seen as core national values and to break away from the 'old way' of doing politics. Perhaps not surprisingly, Frente Amplio's first administration under Tabaré Vázquez's leadership took significant measures to implement what were then seen as urgent structural reforms. Among these initiatives, President Vázquez created the Ministry for Social Development (*Ministerio de Desarrollo Social*, MIDES) which implemented the National Social Emergency Plan (*Plan de Atención Nacional a la Emergencia Social*), a temporary conditional cash transfer programme, and later its extension, the National Equality Plan (*Plan de Equidad*), focused on social protection, particularly family credits. Additionally, the government implemented a comprehensive reform of its fiscal system, instituting for the first time a progressive tax rate and instigating improvements in public healthcare provision.

This implies that government authorities had to construct, from early on, a narrative that could justify their interventions while promoting a very specific normative idea of what 'progress' should look like, a very clear image of the future. In that respect, these changes were framed as part of a broader political and moral project that would restore the country's egalitarian past. It is for this particular reason that CEIBAL, framed as a project that would promote 'equality of opportunities' and 'social inclusion', appeals to the national myths of a middle class and well-educated Uruguayan people that have dominated the country's nationalist projects of social welfare since the early twentieth century. As is discussed more extensively in chapter three, CEIBAL objectifies these mythical attributes, providing the space for Uruguayans to project a novel version of their past into their present and to become the educated people that 'they have always been'.

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[6] Broad Front (in Spanish, *Frente Amplio*) was founded as a coalition of more than a dozen fractured leftist parties and movements in 1971 but was illegal until the return of democracy in 1984. Many members of the party used to be associated with the guerrilla movement, Movimiento de Liberacion Nacional – Tupamaros, including the current President José Mujica.

Plan CEIBAL

Plan CEIBAL has its roots in the One Laptop per Child (OLPC) project created in 2005 by faculty members from the MIT Media Lab 'to design, manufacture, and distribute laptops that are sufficiently inexpensive to provide every child in the world access to knowledge and modern forms of education' (OLPC, 2013). As it is discussed in greater depth in chapter four, the project is based on the principles outlined in Nicholas Negroponte's book 'Being Digital' (1995) and on constructionist theories of learning pioneered by Seymour Papert, Negroponte's long-time colleague at the MIT. Although prior to the emergence of OLPC, a number of one-to-one laptop programmes had been implemented in the United States and other countries, OLPC was unique at the time of its creation because it developed a radically new low-cost computer (the XO) and its own software interface and package (called Sugar) especially designed for children and educational purposes. OLPC also chose a different implementation model than the one used in previous programmes as it specifically stipulated that laptops should be owned by children rather than by schools. When the programme was launched in 2005, Negroponte predicted the initial distribution of 100 to 150 million laptops by 2008 to targeted developing countries; fewer than two million had actually been delivered or ordered as of this writing and the vast majority of them were purchased by countries categorised as high or upper-middle income countries by the World Bank (Kraemer *et al*, 2009). Although there are projects and pilots in about 25 countries (Hirji *et al*, 2010) the only two implemented on a national basis were Uruguay and Nieu (which has a total school-age population of 500 students).

   While the programme's implementation approach has been broadly criticised by academics and development specialists, the XO laptop itself has generally been praised. The XO laptop is small and light (weighing only 1.45 kg and measuring 24.2 x 22.8 x 3.2 cm) low cost, highly mobile and energy efficient. It incorporates a video camera and three external USB-2.0 ports and supports WiFi connectivity. Other features include a 19.1 cm high-contrast screen (to be used outdoors), the use of flash memory instead of a hard disk, and a keyboard made of rubber to protect it against spills and dust. Its battery lasts approximately two hours and can be used in handheld mode by rotating the screen and folding it atop the keyboard. The computers distributed in Uruguay use Sugar as its basic operating system, which is open source and operates under a 'skinny' Fedora distribution of Linux. Regarding specific software, the Uruguayan government chose a list of basic applications to be included by default, which can be modified easily by the student afterwards. These applications include Navegar (an internet browser), Journal (an

automated diary that records everything a child does with his or her laptop), Write (a word processor), Paint, Scratch, Pippy and Etoys (programming tools), Turtle Art (improved version of Seymour Papert's Logo Programming Language), Tam Tam (music production), Hablando con Sarah (interactive programme for basic literacy), a Calculator, and Conozca Uruguay (game with maps of Uruguay).

The CEIBAL project in Uruguay was conceived in late 2006 as part of a series of policies and initiatives for the promotion of the 'Information and Knowledge Society', which were first designed in 2005 with the creation of the National Agency for the Electronic Government and the Information and Knowledge Society (AGESIC) and the elaboration of the Uruguay Digital Agenda 2008-2012 dedicated to 'development and social inclusion' (AGESIC, 2008). The plan's directives were established, from the start, by a political commission integrated by representatives from the Uruguayan Technological Laboratory (LATU); the Central Directives Council (ANEP);[7] National Telecommunications Administration (ANTEL); Primary Education Council (CEP/ANEP); Ministry of Education and Culture (MEC); AGESIC and the National Innovation and Research Agency (ANII). The pedagogical foundations were established by ANEP, which is the body responsible for educational policy in early, primary and secondary education, as it is discussed in more depth in chapter three. The implementation process, however, was delegated from the start to LATU, the agency responsible for technology and innovation, and not to educational agencies which usually run these types of programmes. During the second year of the programme, a new organisation called Centre for Technological and Social Inclusion (CITS) was created, within LATU, with the sole responsibility of overseeing CEIBAL and its complementary programmes. At the time of writing, the organisation was called 'Centre CEIBAL for the Support of Children and Youth's Education'. The programme was entirely financed by the Uruguayan government with a budget that has totalled approximately $110 million US dollars, of which 84 per cent were allocated to purchasing laptops, 10 per cent for connectivity, services and associated equipment, and approximately 6 per cent to costs associated with the execution of the plan: logistic services, training, other operating costs, and so on (Universidad de Montevideo, 2009). At the time of purchase, the price of each laptop was on average US$187, so the total cost of the programme was estimated at

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[7] Public education in Uruguay is the primary responsibility of three institutions: the Ministry of Education and Culture (MEC), which coordinates education policies: (a) the National Public Education Administration (ANEP), which formulates and implements policies on early, primary, and secondary education, and teacher training; and (b) the University of the Republic, responsible for university education. These three institutions constitute the Coordinating Commission of the National Public Education System, which has consultative status. ANEP is headed by a governing body, the Central Executive Council (CODICEN), which guides the management of the various levels of education through four decentralized education councils: Early Childhood and Primary Education; basic secondary; upper secondary; and vocational education (CETP), which includes tertiary technical education (technical degrees).

US$300 per child when including infrastructure, repair system, connectivity, and so on. During the implementation phases, this represented 0.099 per cent of GDP, 0.41 per cent of central government's spending and 2.7 per cent of total spending on education (Rivoir, 2009: 13).

To date, the country has distributed approximately 400,000 XO laptops, equipping every single pupil and 18,000 teachers of its public primary education system with a laptop. The first step in the project's implementation process was the establishment of a pilot project in Villa Cardal, a small town of 1,500 inhabitants in the Florida Department, with 200 laptops donated by OLPC. The second stage, in the other half of 2007, was the distribution of laptops in the rest of the department of Florida. This was followed by the distribution of laptops in all other departments finalising in Montevideo in late 2009. Figure 1.1 is a map of Uruguay which shows the sequence of distribution with the number of XOs delivered and the date of delivery for each of the country's nineteen departments. Although the country's size and flat geography eased the process, the management, distribution, tracking and connectivity of laptops demonstrated unprecedented efficiency in the country's management of social policy.

Figure 1.1. Map of Uruguay illustrating the sequence of laptop distribution
Source: CEIBAL Social Impact Evaluation Report, 2009

This is particularly the case because in addition to distributing laptops, the implementation process also included the provision of a technical service for laptop repair, solar panels for schools that did not have access to the national electricity network and the installation of internet connection in schools and public places (youth centres, cooperatives, parks, public squares). In that respect, 98 per cent of the primary schools

involved with the programme now have internet access and 150,000 children need to walk less than 300 meters to the next public WiFi hotspot. Other efforts to complement the delivery of laptops included the creation of a television channel in order to offer resources and more informal training to teachers and parents, which is also broadcasted online on YouTube, and the creation of an educational portal where relevant information and materials for teachers, students and the community is regularly uploaded. An interesting side-effect of this implementation process, which I discuss in great length in chapter five, was that the programme made evident the fact that six thousand children had not received national identity cards at the time (which means that they had not been registered as citizens of the country).

This implementation process was, to a great extent, facilitated by the creation of groups within civil society that mobilised in order to support CEIBAL. Although this is discussed in chapter three, it is worth mentioning at least three of these groups as they played – and continue to do so – an important role in the stabilisation of the plan. The first one of these groups was a network of volunteers, Red de Apoyo al Plan Ceibal (RAP CEIBAL, Support Network for Plan Ceibal) that covered basic activities such as handing out and repairing laptops as well as introducing parents to Plan CEIBAL in general and to basic features of the XOs in particular. The second group, CEIBAL JAM, originated from the School of Engineering at Universidad de la República – Uruguay's largest and only public university – and focuses on developing local software and content for learning. They played a key role in producing two applications for the laptop: Conozco Uruguay, an activity developed in Sugar for learning about the country's geography, and JAM Media, which allows children to tune in to Uruguayan TV and radio channels online. Finally, the third group, Flor de Ceibo, also emerged from the university but includes both professors and students from different disciplines and is responsible for community outreach through a wide variety of projects, for example, special programmes for single mothers. In addition to this, CEIBAL has joined efforts and articulated projects with other governmental initiatives, such as the Ministry of Education's MEC Centres, which are centres in small towns across the country that provide free local training programmes for parents and community members on how to use PC computers as part of the 'National Digital Alphabetisation Plan'.

At the time of this writing, the programme was already extended to secondary and technical education and had created other programmes and initiatives that included the conversion of science labs in primary and secondary schools into 'digital labs;' the piloting of a new educational robotics curriculum; an online nationwide mathematics contest; the use of laptops for remote online English instruction; the expansion of pilot efforts in online

learning assessment and evaluation; a roll-out into kindergarten classrooms on a voluntary basis and the creation of a Plan CEIBAL Digital Library to include books and other educational materials hosted on local school servers. In very general terms, the creation of the CEIBAL implied that 220,000 people received their first computer as a result of the programme, of which half are located in the lowest quintile of the income distribution (CEIBAL, 2009: 10). Figure 1.2 shows access to computers (PCs) and XOs in households by income and indicates that 85 per cent of households in the lowest quintile of the income distribution only have an XO computer available whereas 90 per cent of households in the highest quintile of the distribution have both a PC and an XO. Internet access also increased significantly since the creation of the programme as approximately 75,000 adults started to use the Web since 2007 (RADAR, 2010). Processes of appropriation of the technology and the wide variety of uses that it facilitates are explored in more detail in chapter five and discussed in their full complexity throughout the rest of this thesis as it becomes clear in the section that follows.
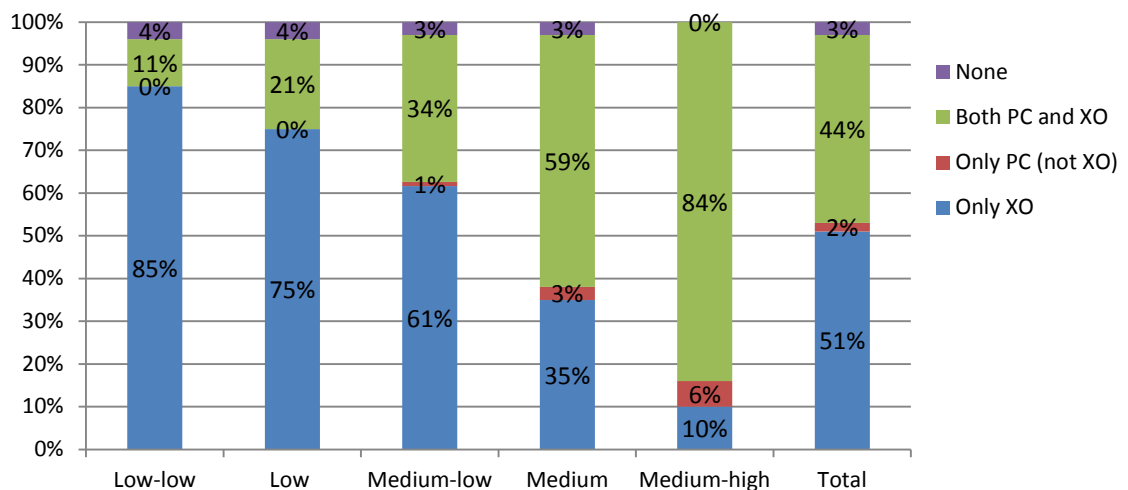
Figure 1.2. Access to computers and prevalence of different types of computers by income
Source: CEIBAL Official Social Impact Evaluation Report, 2010:10

Structure of the thesis

The next chapter discusses the methodological aspects of the research in detail, including key aspects of the six-month fieldwork undertaken from June to December 2010. I first propose ethnography as a central approach for researching CEIBAL. Given that ethnographic field methods are bound to study social life as a set of contextual and mediated practices, this choice of methodology functions as an empirical extension of the conceptual assumptions discussed above. The second part of the chapter focuses on the

particularities of the fieldwork experience, including detailed accounts of the field sites, the informants that participated in the study and the techniques used to collect data. The chapter ends with a reflection on the practical challenges posed by researching development policy and the ethical issues involved.

Based on these conceptual and methodological considerations, the following chapters then explore different aspects of the material and conceptual order of CEIBAL. Whereas the first empirical chapter focuses on how the programme was assembled politically and conceptually, the other two look more explicitly at the material elements, as well as the core social values, that were mobilised in contexts of use. In other words, chapter three focuses on the creation of the programme and the stabilisation of a particular framing objectified in a technical device, and chapters four and five analyse the transformation of the social and technical arrangements needed for that device to come into meaningful use. Doing so allows one to describe the large variety of practices, narratives and materialities put in place in order to construct a national programme of development and to make technology perform it.

Chapter three focuses on the mobilisation of national historical identities and projects in CEIBAL's political act of composition (Latour, 2000). It argues that, as an inclusive, egalitarian and educational programme, CEIBAL allowed Uruguayans to reconnect with their history of development by providing a space in which core national values could be enacted. The first section of the chapter explains how and why Uruguayans could construct this 'natural affinity' between the programme and the country's history: CEIBAL translated 'development' policy into the language of experience, moral imperative and common sense – an alternative *ethic* to that of the neoliberal decades that had preceded Vázquez's election. However, precisely because it was connected to broader narratives of 'development' and social change, this framing had to combine the resonant themes of equality, education, and paternalistic state, with the aggressive themes of economic development and innovation. A 'modern' Uruguay had to both solve the problems originated by neoliberalism – which endangered this essential Uruguayan-ness – but also to respond to the pervasiveness of normative Northern-based representations on the direction of social change. Interestingly, technology proved to be the conceptual space in which this presumed contradiction was resolved: the concept of 'connection', as is discussed in subsequent chapters, allowed CEIBAL to embody both notions of 'social inclusion' and of modernity at once. The consolidation of this shared discursive space allowed for different actors to support the programme despite having what could even be perceived as conflicting sets of interests. The fact that these terms were vaguely and

ambiguously used to frame the programme meant that its objectives were 'fudged' and whatever resulted from it could be claimed as 'impact'. The constant recombination and reshuffling of these 'floating signifiers' closed down the space for contestation and sustained the notion that its 'success' was good policy well executed.

Chapter four attempts to take the technical device seriously and to bring the materiality of practice firmly into view. This implies examining the process of inscription of certain values into the laptop's design and associated forms of value in order to describe how they interacted with broader assemblages of meaning, expectation and understanding. The chapter has two parts. **Part A** examines processes of inscription as the XO laptop had materialised a very strong sense of normative use and competence delegation, which was strongly influenced by its origins at the MIT Media Lab. Because users were going to be children from the global south, the device embodied OLPC officials' notions and understandings of 'underdevelopment', for instance by having a thicker keyboard to bear the stresses of 'extreme' physical conditions. In addition to this, and responding to its Pappertian roots, the laptop had a very clear delegation of competence built into its design: children were projected as capable of constructing their own learning processes. In other words, to learn appropriately rational and calculative modes of thinking to perform as part of a 'globalised' technological workforce. Interestingly, this set of values had to be negotiated and reconfigured by CEIBAL as laptops encountered different contexts of use, particularly classrooms where learning processes are still very much teacher-centred. Whereas OLPC projected an innovative and creative *user,* capable of 'learning through play', CEIBAL constructed the projected image of a much more serious *citizen* that would acquire skills to enter the labour market of the 'global economy'. Acquiring these skills was seen as fundamental for the consolidation of the country's technocratic and inclusive project, which presumes a shared belief in the universality of 'technical needs'. From this perspective, the computer was framed as educational and therefore as something specifically not designed for playing.

Disjunctions between OLPC's and CEIBAL's inscriptions were made distinctively visible as the materiality of the laptop 'bites back', conditioning its use. In particular, promises embedded in CEIBAL as the carrier of modernity generated technical requirements that were enacted in users' expectations of what a laptop 'should be'; these, when located against the materiality of the XO laptop, not only attributed a specific type of value to laptop-related practices but also became a strong political claim. More specifically, the laptop's toy-like aesthetics and play-based metaphors in its software contrasted sharply with discourses of modernity signified in CEIBAL; this led many informants to explicitly

claim that the laptop is not a 'real' computer – is not perceived to be the 'appropriate' means to achieve the serious end of modernity. Children went to great lengths to transform their XO laptops into what they saw resembles best 'a real computer' (rather than 'a toy'), for example by using a Windows emulator, which allowed them to play certain games that do not run in Sugar. The articulation of this demand, of needing a 'real' computer in order to achieve CEIBAL's modernisation promises, was a profoundly political statement as it was bound up with normative assumptions about the relationship between 'technology' and 'modernity' and about how people would, could, or should use the former to bring about the latter.

Part B of chapter four examines how children, parents and teachers internalised and externalised the normative within broader processes of value attribution as XO laptops were integrated into Uruguayan classrooms and households. In the case of children, modern romantic constructions of childhood were usually identified as crucial elements in initial processes of appropriation and discovery. Children's curiosity and their 'exploratory nature' allowed them to discover the laptop's possibilities in a way that adults would presumably not have been able to do. These notions of 'childhood' were also intrinsically related to the construction of normative uses as they determined distinctions between what was considered 'playing' and what was considered 'learning'. In other words, what it meant 'to play' was bound up with notions of what it meant to be a child, which was defined in opposition to 'work' or to instrumental practices to become better workers – that is, formal education. The 'naturalness' attributed to playing was defined in opposition to an almost 'un-natural' practice of learning, which was precisely the root of the divergence between Uruguayans' and OLPC's notions of play. Although children are expected to play, adults – teachers in particular – were delegated the role of making sure that the laptop was also used for 'educational' purposes as well. In contrast to OLPC's insistence on children's ability to learn independently, this implies that adults were perceived as necessary for making sure the laptop is used 'appropriately'.

This dichotomy between 'play' and 'learn' featured prominently in parents' negotiations over the laptop's function. One way in which this was solved was by identifying internet connectivity as the property that performed purposes imagined as 'natural' or 'necessary' in computers. In fact, internet connectivity was the only property that the XO laptop undeniably shared with all other laptops, with 'real' computers. This was so much the case that connectivity was materialised as a technical requirement for the XO laptop to be perceived as 'working': to be helpful and useful, laptops needed to have internet connection. This was then translated into a particular criterion for judging whether

or not CEIBAL accomplished its goals and the laptop performed its 'function:' it was not seen as useful in itself, but as a vehicle to go online. The fact that 'information' was available over the internet, and that it was so strongly bound up with emerging ideas on the importance of the 'knowledge economy', meant that it was a clear way to enact their perceptions of expected normative use: they allowed children to use the laptop to 'work' (that is, not to play).

The need to define the laptop's function was particularly acute for teachers, who were challenged by the delegation of competence inscribed into the laptop's design: children were capable of learning by themselves, they were no longer needed. This was felt as having the potential of reconfiguring power relations within the classroom, so teachers' role in learning processes needed to be substantially transformed. There were two main ways in which the integration of laptops took place. First, during early stages of the implementation process, some teachers identified the laptop's pedagogical and didactic function in relation to pre-existing practices. Laptops, in those cases, allowed more 'effective' ways of doing what teachers have always done. For example, it was used for practicing writing skills or testing grammar with dictations on the laptop's Word processor. Ironically, the reason why teachers were able to use XO laptops this way is precisely because of MIT's delegation of openness – they are entirely as capable of conventional pedagogic use as of exploratory use in 'problem-based learning'. These 'conservative' or more 'traditional' uses were in fact one of the possibilities. The second way of conceptualising the laptop's function was in relation to its affordances and the applications it contains. Interestingly, the value that teachers attributed to laptops increased as they encountered more and different didactical possibilities in them. This was then translated into more frequency of use within the classroom and resulted in more pressure on children and parents to care for, and better maintain, their laptops. Put otherwise, teachers who used laptops the most were the ones that had the largest number of working laptops in their classrooms.

Chapter five focuses on how children enacted, reconfigured and/or resisted specific aspects of the technology (and the project as a whole) as they encountered core social values governing CEIBAL's self-conception. The chapter looks at differences and similarities in these negotiations in three different sites explored in fieldwork (Montevideo, Paysandú and Queguayar) in an effort to explain how class cultures and city life mediate the ways in which children contested notions of 'exclusion' or 'inclusion' posed by CEIBAL. The chapter is also divided into two main parts. **Part A** argues that there are three main ways in which core national values were encountered: firstly, through the government's representation of

'marginal' people as policymakers' mobilised and materialised their notions of 'exclusion' in policy design; secondly, through the actual delivery of laptop computers, which instantiated the education system's attempt to reproduce 'appropriate' subjectivities for modern Uruguay and thirdly, in the case of a considerable number of children, through the provision of identity cards, which implied, among many other things, actually being registered as a citizen of the country. The irony was that, in the process of generating 'social inclusion', the programme made some people feel excluded for the first time precisely because it positioned 'beneficiaries' as 'the excluded'. In other words, the programme was so successfully framed as an initiative to promote 'social inclusion' that led those receiving laptops, the 'beneficiaries', to question their own positioning as members of such 'egalitarian' society and in certain cases, to feel the need to act this condition out. If they were recipients of such benefit, then 'they must be excluded'.

The process of delivering laptops had very distinct characteristics. First, it involved the provision of a tangible – and very noticeable! – object: a modern, luxurious, expensive 'gift' from the newly elected government. Wrapped in promises of social change, the laptop embodied them and, to a certain extent (precisely because of its materiality) it kept them. Secondly, the process of delivery was instantiated in a choreographed sequence of events, with a distinctive structure, that enacted broader processes of reproduction. This ritual of sorts implied the mobilisation of different types of actors and resources, from 'preparatory' meetings with parents to a whole reconfiguration of space within classrooms and public spaces, particularly squares. The third characteristic of this process of delivery, – which at least partially resulted from the two – is that it transformed children's relationship to 'the state' as expectations of reciprocity were made explicit as part political discourses on social justice. It is worth mentioning that such reciprocity was assumed to be rather indirect and often times projected onto the future: it was a gift from current taxpayers to future ones so that they could create, in exchange, the type society that the country wanted to be. This means that reciprocity towards CEIBAL had to be analysed as part of a broader reproductive system with a long set of obligations that switches back and forth between givers and receivers through time. Interestingly, children's day to day interactions with 'the government' were through conversations about laptop repairs, software or logistics, when they called CEIBAL's institutions – repair shops, the call centre, and so on – to discuss problems with a technical support team. Negotiating their entitlement to a public service through these technical conversations, was a very clear way in which the notion of 'digital citizenship' was enacted.

Finally, part A concluded by describing the process by which some of the most marginalised children in the country got to receive their identity cards as a result of the programme. CEIBAL's objective of promoting 'social inclusion' was at least partially accomplished just by taking that very first step of officially registering six thousand children: technology provided them with existential legitimacy. Getting those identity cards, however, implied navigating through a complex web of texts and government bureaucracy, urban development and the public transport system, job insecurity and poverty, gender relations, unstable family units, and so forth. The process illustrated how 'exclusion' was felt – and constructed – in both technical and social ways: not having the piece of paper that enabled children to get an identity card, which then allowed them to receive a laptop computer, was just as social (in terms of having the 'cultural capital' necessary to get around the paperwork) as it was technical, assembled through pieces of paper, money and presumably databases, office spaces, bus routes, and the like. In that respect, 'inclusion' was perceived to be precisely the process of negotiating these associations, which reflected a particular type of geography of power that enabled, prevented or even obstructed the possibility of making certain types of connections.

Part B focuses more specifically on experiences in Montevideo, Paysandú and Queguayar, representing different 'geographies of opportunities' and possibilities of making the types of connections that were deemed valuable. In Montevideo, 'being included' was equated with 'being connected' which was defined mostly in technical terms. Being connected was also about being online. Interestingly, this originated from a widespread belief on the 'inevitability' and 'pervasiveness' of technology, which was a clear way for parents to enact the programme's message on the universality of technical needs and as it was pointed out above, to act out normative notions of function (the internet allowed children 'to work'). The counter-part of this was a form of resistance expressed by some parents through a dichotomy between technology and the terrain of social values. Put differently, the moral imperative to be connected was responded to, precisely, in moral terms: the 'information age' so venerated by some parents represented an era of moral decay for others. Just as childhood needed to be 'protected' as a vulnerable time of play and creativity, so should values be preserved from the pervasiveness of technology to prevent them from being reduced to just instrumental for certain types of work. This contrasted sharply with CEIBAL's framing, which associated 'learning' and *doxa* with the right ways of being Uruguayan.

Another clear way in which those values were resisted upon was through some children's opposition to school 'authority:' the symbolic violence exercised through the

formal education system was resisted materially through children's relationship to the laptop, both in its use and in the physical care and maintenance of the artefact. Examples included breaking the laptop on purpose but also more subtle ways of showing resistance, such as listening to the *cumbia* music out loud whilst in the school (that is, by displaying the 'wrong' type of subjectivity) or by writing with permanent marker on it everything that it had broken. Paradoxically, this resistance was also a way of enacting CEIBAL's projected user. As mentioned before, to be beneficiaries, they had to enact their condition out – to be 'the marginal' that needs to be 'included'. On quite an obvious level, not having the laptop as a result of such violence prevented children from participating in many different types of classroom activities, thus reproducing even further their membership to an excluded group. Put differently, resistance expressed through a growing 'oppositional' culture effectively reproduced them as part of the 'excluded' class.

In Paysandú, laptops successfully embodied promises of 'social inclusion' and 'equality of opportunities' irrespective of how well they 'connected up' with pre-existing socio-technical systems in place. What is interesting is that despite not finding the laptop's utilitarian value individually it was still perceived as valuable collectively. Parents and children's positive valuation of the XO laptop as a tool were independent of whether or not they could individually find functions for the laptop in their everyday activities. In that context, its attractiveness lied precisely in the very fact that it was seen as 'vicarious consumption', as remote as possible from 'productive' work and as a good that children in Montevideo, and the rest of the world, had access to. Teachers' hesitation over how to use them and how to 'take care' of them showed that laptops didn't seem 'to fit in' with their teaching practices – they needed to make an effort to integrate them into the classroom, to include them in their monthly planning. However, because of the distance between these devices and their everyday lives, this willingness to enact a certain sense of opportunity was performed as rather disconnected practices: a tick in the box in the inspector's evaluation form. Not by coincidence a child in Paysandú's school no. 42 felt the need to show his work on the laptop and proudly asked his teacher in front of me: '*Have I taken advantage of my opportunities today?*'

The possibility of enacting these core values, of negotiating 'inclusion' through 'connectedness', was far more limited in Queguayar. The small village, without enough *mediators* to make connections (infrastructure, transport links, communication flows, skills) was characterised by a very palpable sense of 'remoteness' and 'disconnection'. This geographic and social isolation was perceived as related to perceptions over entitlements to access: laptops were meant to be for 'another type of kids', for 'children in the city'.

Interestingly, during the initial stages of laptop distribution, policymakers had to make difficult decisions about where to install internet connectivity. Although all schools were to have internet connection, it was decided that during the first few years, until more elaborated solutions (for example, satellite connection) could be implemented, internet servers would be installed in towns with five thousand people or more. This meant that CEIBAL redrew the map of the countryside – revealingly called in Uruguay 'the outside', – around technological extensions, both in a literal and physical sense. Where internet connectivity was actually provided, the experience of having an antenna was felt as profoundly transformative. Despite not necessarily translating this change into something identifiable or concrete, particularly for adults, the mere presence of the mediator (the antenna) was considered sufficient evidence of change. With shiny laptops in their homes, wires in their roads and an antenna in their schools, rural Uruguay had entered the information age.

Chapter six is the conclusion to the thesis. It examines how actor network theory and material culture studies, CEIBAL and Uruguay, can be brought together, empirically and conceptually, within one analytical narrative. It order to do so, it explores diverse and complementary ways of conceptualising the relationship between 'fudged' meanings and 'moulded' objects, with the aim of eliminating presumed dichotomies of materiality and meaning, of the technical and the social, of objects and subjects, and ultimately, of national programmes and technical projects. I conclude that, despite the fact that 'technical' and 'social' elements of the programme were conceptualised as ontologically distinct and consequently purified in CEIBAL's organisational structure, the national programme of social inclusion and the technical project of delivering laptops were almost indisputably presented as one and the same. Based on the work of Riles (2001) and Strathern (1991), I argue that there is nothing 'outside' of the overarching national values and the socio-technical assemblages that comprise CEIBAL from which to describe them. It is not that assemblages 'reflect' social values or that values or associations create the programme. Rather, the point is that it is all within the same form that literally speaks about itself. Intentionality and meaning emerge from mediations in heterogeneous assemblages of laptops, social values, skills, wires and policy documents. What is interesting is that this prompted 'social inclusion' to be increasingly objectified in the laptop rather than in relations of people with each other or with their laptops. This, in turn, had strong implications both for the devices and for social values, which have been 'translated' into technical terms (particularly that of 'connectivity'). CEIBAL's 'wires' are now allowing Uruguayan children to enact the country's 'social fabric' and its cohesiveness.

Chapter II: Methodology

Although I can hopefully express –at least to some extent –what I learned during the course of my research, I found something enormously valuable and humbling in the *'paths that led me to it'.* This chapter concerns the research methodology; it is an attempt to describe them. I can only wish it conveys how much *'those roads'*, indeed, were worth walking. More specifically, the chapter proposes the ethnographic approach as a prime strategy for researching the material and conceptual orders of CEIBAL and discusses key aspects of the six-month fieldwork undertaken from June 2010 to December 2010. It is divided into four different sections. The first section argues that ethnographic enquiry works as an empirical extension of the theoretical assumptions discussed before. The second part describes key elements of the field and the informants involved, as well as the various sites and spaces in which it was carried out. This is followed by a broad description of the work carried out to collect and analyse data. The fourth and last section discusses aspects of research reflexivity and ethics.

Grasping CEIBAL

This thesis resulted from a long-term exploratory engagement with different localities in Uruguay. The benefit of employing such an approach cannot be overstated in this case: it was the only way of dealing with national-scale values while capturing how Uruguayan children, teachers, parents and officials located XO laptops within the sites of their everyday use. As is discussed below, it allowed me to consider the CEIBAL programme in a way that is consistent with what Uruguayans themselves evaluate. This means that many

issues and definitions were left empirically open for subjects to define and discuss, especially notions like 'inclusion/exclusion', 'modernity' or 'development' that were widely used by all actors involved, albeit in different ways. For instance, the concept of 'inclusion' was used as an empty signifier in conversations with informants with the aim of bringing light to the social and material resources through which they contested whatever notions of 'exclusion' were present in the field, and then of asking which of these could be related to the ways in which technology was used. Not doing so would have presented the danger of presumption and homogenisation, of imposing previously defined categories that might not be relevant to those using them. Thus, I arrived at what notions such as 'inclusion' or 'development' mean in this context as the outcome of the research project, not as a theoretical or conceptual presupposition.

The main implication of taking this route was that fieldwork involved a great deal of commitment to opening up an uncertain space of dialogue and encounter: ethnography became a space to listen. Les Back (2007) has argued, in that regard, that this type of listening involves artfulness precisely 'because it isn't self-evident but a form of openness to others that needs to be crafted, a listening for the background and the half muted' (Back, 2007: 8). In a certain way, adopting this attitude facilitated and renewed my capacity for astonishment, which was crucial as I was practicing – as a Uruguayan myself – what some people have called 'insider anthropology' (Cerroni-Long, 2009). Although this term perhaps unnecessarily makes the commonplace ethnographically exotic, it points to the ethnographer's need to realise that the order of things 'is not a product of nature, but rather of history' (Back, 2007:10). 'Artful' listening also provides enough flexibility to deal with multiple levels of analysis and to trace most connections between spaces, objects, practices and narratives. By focusing on the localised and contextual nature of social meaning, it attributes great importance to the relations and conditions in which meaning is produced. In turn, only by opening up a space of listening and encounter, it was possible to examine the connections between different practices, policies and their meanings, and to determine how practices and policy defined each other in these relationships.

Therefore, the ethnographic approach connects with bottom-up approaches to development policy described earlier on the theoretical level. As Slater (2013) has pointed out, the commitment should be to the specificities of the social worlds we engage with rather than to abstracting from them in the name of generalisation. In that respect, this study attempts to bring together – rather than separate – the realms of theory, substance and method. In fact, as Law and others (2011: 5) have pointed out, even methods are 'fully imbued with theoretical renderings of the social world'. Methods, according to this

rationale, are social because they are constituted by the social world of which they are part but also because they also help construct that social world (Law *et al*, 2011). The point goes beyond simple constructionism. Methods are active ways of making up people, of organising their social and material worlds; they 'don't just represent a reality out there, but that they are also performative of the social' (Law *et al*, 2011: 8). As it is discussed in greater detail below, using the ethnographic perspective allowed me to bring particular realities into being yet it also forced me to shut down others (what John Law called 'collateral realities'). Empirical material has embedded social theory, which then reproduces a complex ecology of representations, realities, arrangements: methods, theory and the social are co-constituting and cannot be easily disentangled.

Conducting an ethnographically informed study

The research is based on multiple prior trips to several municipalities and rural regions in 2007[8] and in 2009 and a single uninterrupted six-month visit to Uruguay in 2010. I chose to conduct fieldwork for this study from June to December because the school year runs from March to December and observation of working classrooms was considered important for the analysis, particularly as schools were not only one of my fieldwork spaces but also an entrance to others (homes, community centres, events such as teacher training workshops and conferences). I spent most of the time involved, on a daily basis, in the lives of those somehow connected to the programme. Although specific characteristics of the subjects are discussed below, it is worth mentioning that they were mostly children and their families, teachers and principals, policymakers and government officials at all levels. Other significant groups considered were volunteers, university professors and students, community leaders and businesspeople working in creative or IT-related industries. Although they are not direct 'beneficiaries' of the programme, it was important to include them as they are very much implicated in the construction of CEIBAL's framing. The choice of specific subjects was, in part, quite arbitrary: going along with ANT's premise of 'following the actors' (Latour 2005: 12) connections were mainly established as a result of other connections previously explored. These connections and the disconnections – the difference between those that I was or was not talking to – were quite informative in themselves, both of certain groups' characteristics and of the field more generally. The

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[8] My first encounter with the field was in August 2007 when I conducted interviews to inform my masters' dissertation in social policy and development on the same topic.

concentration on carefully chosen localities where actors were followed up and down the 'hierarchy' of the programme allowed me to really understand these subjects' actions and accounts in their everyday contexts and to constantly reformulate the research problem in response to them.

Bounding a purposely 'unbounded' field and negotiating access

The slightly unconventional nature of the ethnography, which attempted to examine both national-scale values and organisations as well as local instantiations, meant that the field was not easily bounded. Instead, it was understood as a combination of various spaces and physical locations, so access had to be constantly negotiated by different, yet interconnected, routes. Although this process was, to an extent, a thoroughly practical matter, achieving it also depended upon overcoming certain obstacles (which generated important knowledge about the field as well). In particular, my original contact with CEIBAL was through my father in law who has been working for the programme since its inception and had introduced me to some of its officials when it was first created. Access to the programme as a whole could have easily been granted through that route, yet it presented important ethical problems so it was avoided as much as possible. I did not want to condition people's responses to interview questions because of this affiliation or to have them assume that I held a particular perspective on the topic. Despite enormous efforts to distance myself from these personal affiliations, however, they still had an effect on my relationship with some informants who in certain cases felt obliged to accept the interview precisely because of them. This resulted in having to choose the education system, where nobody knew about this connection, as the main gatekeeper into my 'field'. Interestingly, it also made me raise questions over policymakers' motives for accepting to participate in my study, including my father in law's. Although I never intended to truly engage with 'vocabularies of motives' (Wright Mills, 1940), it was important for me to understand not only why they were willing to participate in the study but also the type and quality of the information that they provided me with. One way in which I attempted to 'control for' these effects was by insisting on having several interviews with those informants.

One clear motive for the widespread willingness to speak with me was the fact that CEIBAL was something that all policymakers were convinced was good, took seriously and found of interest. They were proud of it. This resulted in part from the successful stabilisation of an overarching narrative that positioned the programme as a moral project, which is presented in this thesis as a central research finding. Beyond this initial factor, their

openness and disposition also emerged from somehow contradictory considerations: while they were eager to share the programme's 'accomplishments' they also wanted to use the opportunity reflect on certain issues in confidence, to request advice and, at times, even to share some concerns. A similar phenomenon was presented by Gilding (2010) in her study of the wealthy and powerful who used the interview experience to look both 'outward' and 'inward'. 'Looking outward' by presenting CEIBAL's accomplishments was reflected in repeating well-practiced narratives generally used for conference speeches or for interviews with the media. Sometimes I even recognised entire expressions and sentences used by these officials in public events which I had analysed as background research for the interviews. 'Looking inward', in contrast, was reflected in their efforts to disclose intrinsically private concerns, to distance themselves from their well-practiced public persona. A case in point was President Tabaré Vázquez, whose interview combined a strong 'pose of legitimacy for a wider public' (Gilding, 2010: 772) by treating parts of it like a media performance, with disclosing uniquely personal 'small worlds' in others. He was eager to discuss CEIBAL's 'revolutionary' capacity just as much as he wanted to tell me about his childhood experiences in the working-class neighbourhood of 'La Teja'. There was something inherently revealing about his need to connect, narratively, an idealised past and his journey of social mobility with the country's prospects for the future – 'when I was a child, anyone could become a doctor or be elected the President'.

This tension in the interviews was translated into negotiations over what was to be considered public and what was private, which was to be treated as confidential. What lied at the core of it was an iterative process of trust building: the more informants shared (regardless of their age, political or organisational affiliation, geographic location, etc.), the less I felt that I could 'expose' their views. It is precisely for this reason that while respondents in this study are identified, sensitive information is always presented anonymously. My affiliation to a prestigious Northern university and the fact that it will only be presented to a specialised audience that can interpret it intellectually, rather than use it politically, was considered crucial as it prevented information from being 'misinterpreted' or 'taken out of its proper context'. In that respect, and as it is discussed extensively below, I made the point of establishing reciprocal research relationships and purposely emphasised informants' right to contest what it is said about them and to feed back into research findings. In fact, I returned to Uruguay over a year after finishing the fieldwork stage and had multiple conversations with key informants in order to validate findings and to adjust them accordingly.

The issue of privacy was experienced quite differently among children, so it was important to understand where boundaries lied, what was considered acceptable and what was not. Accessing their chat conversations and emails, for example, was not perceived to be problematic neither by them nor by their parents. This is probably based on the assumption that children's private lives can be legitimately open to scrutiny in a way that those of adults cannot. However, working with children also implied a much more significant effort to guaranteeing *informed* consent. I requested approval not only from the education system, but also from parents or guardians and from children themselves, and did so in several occasions and in various different ways. I prepared information sheets in an appropriate form and language and distributed them, making sure that particularly parents had read and understood it before signing it. Where this turn out to be impractical, for example when children forgot to take their forms home, I followed it up by discussing the issue verbally with their parents. Overall, the process took time and effort, much more than I had originally anticipated.

It is important to point out, however, that although the information sheet and/or my conversations were comprehensive not everything about the project was made explicit. There were various reasons for this, the main one being that at the point of negotiating access I genuinely did not know what would be involved or what the consequences might have been. Equally important, revealing some information could have affected people's behaviour in ways that perhaps invalidated conclusions. This being said, I provided informants with my telephone number and email in case they had queries or problems they wanted to raise during the course of the study. Although in principle people consented to being researched in an unconstrained way, there is still the question of what constitutes free consent when someone is persuaded to be interviewed or when the entire classroom was chosen to be observed.

Managing gatekeepers

The formal, and perhaps more natural, gatekeeper to CEIBAL was the National Agency for Public Education (ANEP), which is the body responsible for the management of schools in the entire jurisdiction of the country and for regulating activities carried out with children, including research. ANEP therefore marks boundaries and establishes when and how those could be penetrated, and by whom. The first person I contacted was CEIBAL's former pedagogical coordinator within ANEP, Shirley Siri, whom I had met when writing my master's dissertation three years prior. She told me about working the system within ANEP

in order to get the all-important official permission to conduct research within schools. Unsurprisingly, it involved mostly waiting: waiting to see the person who knew which form to fill in, waiting for the multiple technical teams to revise my proposal and pass it on to a different team, waiting for someone to notify me of when decisions were made, waiting for them to notify inspectors of those decisions. They were not purposely inefficient or unhelpful individuals. They had just mastered the 'art' of bureaucracy and made no apologies for it. Gaining official permission, however, was certainly worth the hassle; it opened a research space within the education system and 'legitimised' my research project. In fact, many informants – particularly parents – claimed that ANEP's approval was sufficient evidence that 'I was to be trusted' into schools and into their homes. This might be explained, at least in rural areas, by the fact that schools have historically played a key role in community life as a place for congregation.

Choosing to enter the field through the education system presented some important issues of gate keeping. For instance, teachers and principals attempted (at times) to exercise control over my study by influencing my perceptions and expectations of certain students and families. So autonomy and distance had to be constantly negotiated. Perhaps the clearest way in which the education system influenced the direction of my research project was by assigning specific schools for me to visit. The nature of these sites was of course crucial in shaping the development of my project. In fact, the three schools assigned were single-handedly chosen by CEIBAL's pedagogical coordinator because they were 'suitable' to my research aims and were clearly meant to showcase the programme. The only criteria specifying suitability that I had used in my proposal presented to ANEP was that I wanted to visit three schools (one urban, one in a district capital and one in a rural area) of similar number of students where the XO was used widely – assuming that there would differences of use within the school that could illustrate non-usage – and that children attending them would be from a 'working-class' background. I did not specify what this meant but it was clear that, despite natural differences considering geographical locations, children would have to come from similar sociocultural and economic backgrounds. Notions of what constitutes socioeconomic context or even what is considered 'rural' were thus problematised and left empirically open. What I did manage to have some control over was the presence of other variables that might have influenced the analysis, such as proximity to national borders, which might present issues such as bi-culturalism, or radical differences in economic activities predominating in the area, which might have changed perceptions and prospects of upward social mobility. Thus, the choice

of principle settings was partly conceptual, partly determined by my gatekeeper's interests and partly pragmatic.

When we finally narrowed down the selection of schools, the pedagogical coordinator and I had a conversation about some practical considerations, especially the scale of the travel costs involved and the presence of personnel granting easy access. More specifically, the school in Paysandú city was chosen because I have family living there; the rural school was the most easily accessible one with public transport from Paysandú city; and the school in Montevideo was selected because it was located 'downtown' with good transport links to the rest of the city. There was another school in Montevideo that fit the profile and was considered a benchmark on laptop use but CEIBAL's coordinator within ANEP dismissed it because she thought 'it would be unfair to make you travel all the way there every day'. Moreover, when going over the list the coordinator's secretary claimed that it was important to assign me schools 'where the principals are nice and happy'. Even when she phoned the inspectors in charge of CEIBAL within Montevideo and in Paysandú to obtain their approval she mentioned that it was important to find principals that 'would be sympathetic to the programme or else it could be a nightmare'.

The role of the inspectors was therefore the closest to a classic gatekeeper in pure ethnographic terms. It was ultimately their permission that had to be obtained, and their approval was the most important to secure, as they have the power to open up or block off access to the actual schools. Whereas the inspector in charge of eastern Montevideo approved my research and agreed to be interviewed, she was less involved in making such introductions. In fact, I had to phone the school five times and visit it twice before the Principal agreed to meet me. Paysandú's inspector, in contrast, asked to meet me before she signed off the authorisation document so I had to travel the four hundred kilometres that separate the province from Montevideo to see her. On my first day in Paysandú, she personally accompanied me to both the urban (district capital's) and the rural schools selected and insisted on introducing me to every classroom in the schools. Thrusting aside the label of 'sociologist from England working on CEIBAL' that she introduced me with was harder than I anticipated, especially because teachers and students had not been exposed to social research before and I was suspected of being an investigative journalist of sorts or sometimes even of being a CEIBAL technician. These labels slowly dissipated as my presence was normalised and it became clear that I genuinely did not know how to use (let alone fix) an XO computer.

In both cases, inspectors chose schools that were considered the best ones within their jurisdictions, and within schools, Principals suggested me to speak to their best

teachers and visit their classrooms first. The Principal from school no. 8 in Montevideo explained to me that there is a direct relationship between the overall 'environment' in the school and the level of engagement with CEIBAL:

> It is not just about those that use the XO the most […] it is related to different things that we have been building over the years: my team of teachers is a good team. They work hard and you can tell. There are differences, of course, but when you enter my school you see that everyone is working. It's because we have a sense of responsibility towards the school, a commitment, […] which you can see quite clearly.

If principals and teachers 'are committed', it was argued, they would welcome all initiatives aimed at improving the quality of education. And it was precisely such commitment that was perceived as the reason behind great performance, not the quality of the programme or the device being used. So my first encounter with daily activities in the classroom was through fifth grade teachers, both in Montevideo and in Paysandú. Although the choice of classrooms was made by principals, I embraced it because it was coincidently the same grade in both schools, making comparisons easier.

From that starting point, however, there were notable differences in my experiences in both schools. Some of these differences, as it is discussed below, can be attributed to broader inequalities, lifestyles in rural areas, and so forth. In Montevideo, most of my time was spent within the classroom and only rarely I was allowed or invited into another one. After the teacher introduced me to her students' parents, and I became involved with the community through them, the returns to spending time in the classroom quickly diminished. In Paysandú, on the other hand, most teachers were keen to open their classrooms to me. At first I found that surprising yet I quickly realised that although CEIBAL had been extensively debated, teachers had not had the chance to have their own voices heard. A particular case in point was one of the fifth grade teachers who was known for being 'unfriendly', yet she was eager to show me her work and admit its shortcomings, sometimes in the hope that I could somehow help her in return. For instance, she asked me to give her some ideas on activities that could be carried out in the XO or to show her websites where she could explore them. This, of course, posted some challenges as I tried to avoid conditioning her actions – and others' – yet wanted to establish a reciprocal relationship with them. As I discuss later in this chapter, I was able to negotiate certain roles within the schools and the more involved I became the more open those informants were to me in response.

Gaining trust was part of a broader adaptation process primarily influenced by consistency. In the case of Montevideo's school, teachers and students were accustomed to receiving researchers – an educator from Argentina and a social scientist from a private

university in Montevideo had visited them the year before – but they were surprised that I kept coming back, day after day, from eight in the morning until noon. Their first display of trust was after visiting the school for three weeks when I was allowed to use the staff's toilet. I had not given this a second thought until the Principal entrusted me the keys. I had become trust worthy. At that point, I started feeling the rapport being established with teachers during recess, a sense of *commaderie* that adults have when surrounded by children. Field notes from those weeks are full of references to those conversations. Perhaps the most illustrative one was regarding the use of a white coat. Because I 'was becoming part of the school', the Principal suggested I used a white coat, which is the uniform that all teachers and students need to wear within schools, as it would 'give you some legitimacy'. I politely refused to do so, explaining that this could cause confusion amongst parents and children over my role within the school – I was not a teacher and I did not intend to become one either. These constant negotiations, however, familiarised me with the school's complex dynamics. This was crucial, both in Montevideo and in Paysandú, because it allowed me to understand official and unofficial discourses and to contrast them with practice, looking at how both discourse and practice co-evolved during my time in Uruguay. As subsequent chapters show, there were also different levels of discourses: the official one, the one repeated to distinguished visitors, the one expressed only in confidence and the one that was effectively enacted.

Access to communities, loosely defined as families and neighbours of participating children, occurred through meeting parents during school-related activities. During early stages of fieldwork, teachers would introduce me to parents before and after class and would suggest events to attend in order to meet parents again. For example, during the month of July 2010 when fieldwork had just started, school no. 8 in Montevideo organised an auction of donated goods to raise funds and it was a great opportunity for the Principal to formally introduce me to all attending parents. Conducting observation in their homes was a very difficult task because, as it happens in most urban settings, notions of privacy and intimacy are more clearly delineated. In order to overcome this initial resistance, I tried simply asking for the opportunity to spend time with them informally but generally obtained arrangements for formal interviews instead. This transition from schools to communities was easier in Paysandú because most students live within short distance from the school and there is a convivial atmosphere in the neighbourhood. The school's administrative assistant, Ivana Décimoz, who also lives close to school, introduced me to her neighbours – who send their children to that school as well–and I was effortlessly invited into their homes 'for some *mate*'.

Having relatives in Paysandú was tremendously helpful as a 'way in': common acquaintances established rapport and closed down the distance between me as 'the researcher from England' and my informants, which lessened the sense of threat that I might have posed to respondents unfamiliar with the workings of social research. Children were also exceptional guides into their communities, showing me around and introducing me to their friends and relatives. In Queguayar, the rural school, this was particularly crucial as the village adjacent to the school is populated by approximately a hundred people and access to such a closed community would not have been easy otherwise. After my first few visits to the school, children invited me to 'hang out' with them in a football pitch where they usually play and it was only then that they showed me into their homes.

Defining spaces

Although access to the field was mainly negotiated through the education system, the research was not limited to government offices and schools. It also included public spaces, family homes, community centres, and other CEIBAL-related events as it is illustrated in figure 2.1. The first space is the laptop as reflected in what it has materially and conceptually become after encounters with Uruguayan children. The second were, indeed, governmental offices: it involved researching the different types of narratives and connections among officials and between policies. Scheduling interviews proved to be the only way to rationalise entry to these spaces so I often tried to formalise my encounters even though I was not necessarily seeking a formal interview. Within this same type of space, I spent some time visiting the OLPC Foundation's offices in Boston, where I mostly sought interviews and observed daily activities. This included having lunch with OLPC officials and the Governor-elect of a Mexican province who was considering implementing the programme. A remarkable marketing machine, completed with evocative pictures of barefoot children carrying the precious bright green cargo cult, was deployed in full mode. The third type of spaces examined were offices or institutions where street-level bureaucrats enact different narratives, such as schools, MEC centres and so forth. I also examined teacher training workshops, repair shops in Montevideo and in Paysandú, CEIBAL's call centre, and visited special events such as the National Science Fair, where many presented laptop-based projects, and CEIBAL's annual conference at LATU. The forth type of spaces examined were public areas (streets, social clubs and squares) and children's

households as it was discussed above. It was during those instances that some of the most interesting conversations took place.

Figure 2.1 Various and different spaces of research.
Clockwise: children outside of school in Queguayar; CEIBAL's offices within LATU's complex in Montevideo; OLPC's offices in Boston; offices where Paysandú's MEC Centre is located; a one bedroom house in Montevideo's outskirts where four children share a laptop; one of Paysandú's streets in the school's surroundings; the set where CEIBAL's TV show is recorded; fifth grade classroom in school number eight.
Source: Author's photographs, 2010

Finally, the last type of space where fieldwork took place was the school itself. As mentioned before, the selection criterion was loosely defined as similar socioeconomic backgrounds and size but different levels of urbanisation.[9] Since CEIBAL was specifically aimed at working-class children, who did not have access to computers at home, selecting schools from contexts with different levels of urbanisation was intended to provide an additional analytical dimension, based on two assumptions. First, there are different structures of opportunity across regions of the country and among different departments (provinces). According to the national Human Opportunity Index (World Bank, 2010), there are 'significant inequalities of universal access to basic opportunities (sanitation, basic schooling, transport, etc.) among different departments'. Though basic schooling is provided throughout the country, the study shows that children in Tacuarembó (north-eastern Uruguay) have the highest percentage of completion of primary education with 89 per cent whereas San Jose (in the south) is the lowest with 62 per cent. Access to sanitation and infrastructure differences are more pronounced, with north-eastern provinces being

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[9] This involves having had different times of exposure to the plan as laptops were delivered by departments in different stages, starting with Florida and finishing in Montevideo.

the most deprived, and Montevideo providing universal access. The second assumption, related to the first, is that different levels of access to opportunities both generated and resulted from sociocultural 'isolation'. By this I mean a vicious cycle of deprivation in which poverty and geographical location, combined with differences in access to basic services, generate a sense of exclusion which also undermines the possibility of transforming access into what are perceived as meaningful opportunities. Interestingly, Uruguay is a highly centralised country -more than half of its population live in its capital, where 60 per cent of the country's GDP is generated (INE, 2011) – so there was a general perception among informants from other provinces that CEIBAL would be aimed at children in cities, as it has historically happened with much of the country's social policies. An eleven-year old from Queguayar explained to me that 'we did not think CEIBAL was for us, we thought it was for city children, down there in Montevideo'. In turn, I attempted to complement the analysis of how CEIBAL was constructed by looking at the interplay between class and geographical and/or sociocultural 'exclusion'. This is one of the main research findings presented in chapter five.

Figure 2.2. A school in Chapicuy classified as 'urban' right next to a high school classified as 'rural'
Source: Author's photograph, 2010

There was a practical challenge when selecting the schools, however: ANEP's criteria for defining socioeconomic or urbanisation backgrounds were grossly arbitrary. As figure 2.2 clearly illustrates, Chapicuy's Primary school no. 54 is classified as 'urban' (please see blue sign on the left hand side) whereas the high school next door is classified as 'rural'. The same children go first to the one school and then move onto the other institution. This was even more acute when it came to defining the school's socioeconomic 'contexts' which

are mainly defined as 'very unfavourable', 'unfavourable' and 'favourable'.[10] The point that needs to be made here is that these classifications matter because, since the 1990s, ANEP has promoted a series of focused measures in educational policy which target the most disadvantaged students: it created what has been called 'full-time schools' (run from eight in the morning to four thirty in the afternoon and provide three meals a day) and has classified certain urban schools as 'schools of critical sociocultural contexts'. Conceptually, this assumes that geographical, cultural, historical and family circumstances influence the school environment and the conditions under which schooling takes place and defines the 'critical sociocultural contexts' as problematic and as responsible for 'cultural deprivation' (ANEP/MECAEP, 2004).[11] These classifications are important, then, not only because of what they represent but also because they influence and are enacted in the day to day activities of the school, supporting the notion that certain environments are not 'conducive' to traditional schooling and reinforcing pre-existing processes of marginalisation.

In that respect, despite the fact that schools in this study were selected because of their 'similar characteristics', the three institutions where officially classified differently by ANEP: whereas school no. 8 in Montevideo is classified as 'urban favourable', school no. 42 in Paysandú is classified as 'urban unfavourable' and school no. 78 in Queguayar is classified as 'rural unfavourable'. This 'context' categorisation had a very clear impact on my ability to study CEIBAL, even at a methodological level, as it also allowed me understand the ways in which organisations enact perceptions of difference and to capture their implications, particularly in terms of reproducing them not only among those affected, but also for society at large. Because these classifications are a gross violence to the complexity of the contexts in which schooling takes place, I now turn to the experience of Uruguayan children and their parents in these schools in order to sketch their social locations. Although of course it lacks contextual nuance and it oversimplifies experiences of class and marginalisation, it still provides a better sense of how CEIBAL connected with the lives of Uruguayans from very different paths of life.

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[10] Historically, the criteria used within ANEP was a combination of four different indicators: percentage of children within the school whose head of household were unemployed or worked informally; percentage of mothers that have not completed primary education; percentage of children requiring free school meals; percentage of children living in overcrowded homes (ANEP/MECAEP, 2004:4).
[11] At the time of writing, ANEP's education monitor estimates that more than half of the students whose schools were classified as having an 'unfavourable' context assist common urban schools (56.6%), a third assist 'critical socio-cultural context' schools (33%) and only 10% assist 'full time schools.' Not surprisingly, these schools perform systematically worse in all educational tests (ANEP/MECAEP, 2004:1), perpetuating cycles of urban deprivation and inequality.

School 8, City of Montevideo, Montevideo

When asked to categorise the school and its neighbourhood, most parents in Montevideo defined it as 'poor', 'working class', or 'low income' and because it is located downtown, very close to the city's main commercial avenue, they all emphasised the neighbourhood's good transport links. There were, however, marked and important differences among students living in the school's surroundings. Whereas some families were clearly of middle-class background, with parents employed in the area's commercial establishments or working in technical professions, other families did not even had their basic needs met. In this second group there was an unsurprising prevalence of single parent female-headed households. This responds in part to broader transformations of the city's landscape in recent decades, as middle-class residents started to move away from the city centre and caused many inner city communities to fall into urban decay. In fact, although the majority were stay at home mothers, there were a significant number of them working in the sex industry as well. This explains, at least partially, why there are so many government offices and private charity organisations delivering services in the area.

Perhaps the best characterisation of this inequality and its effects in the neighbourhood was provided by the school Principal, who explained to me that there are two possible shifts for children to attend this particular school: mornings and afternoons. The school day in common schools is four hours so the same building is used from eight to twelve and from one to five in the afternoon. Those attending the morning shift, according to the Principal, are mostly from middle-class backgrounds because 'if you have an adult in your home that wakes the children up to take them to school, you're automatically better off'. Most children attending school in the mornings generally had extra-curricular activities in the afternoon, such as English lessons, music classes, and so forth. The Principal explained that 'children attending school in the afternoon are the ones whose parents work at night or don't have a job to wake up for'.

Picture 2.3. School number 8 in Montevideo integrated into the urban landscape
Source: Author's photograph, 2010

School 42, Paysandú City, Paysandú

The school in Paysandú is also located in what is considered a 'working-class' neighbourhood yet presents quite different characteristics from the one in Montevideo. Paysandú city, capital of the Paysandú Department, is located 378 km away from Montevideo, on the banks of the Uruguay River, bordering Argentina. It is the fourth most populated city in the country with approximately 78,000 inhabitants. The first difference among schools is that while parents in Montevideo highlighted their neighbourhood's 'hussle and bussle' – and its resulting high levels of crime – those in Paysandú emphasised a sense of 'security' and 'calmness'. Secondly, the students' backgrounds were certainly more homogenous. Households were often structured around a nuclear family or an extended one, with members from different generations living together and sharing care giving responsibilities. Almost all of them had a family member permanently employed and the highest level of education completed was generally the first three years of high school (called 'basic cycle' in Uruguay). The main concern among parents, however, was lack of job opportunities in the city and many claimed to depend upon factories installed in the area: a brewery, a sugar refinement one and a producer of woollen fabrics. In that respect, their stories were ones of mobility: either family members had moved to Paysandú from the rest of the province or they had relatives that had migrated to Montevideo in the search for better livelihoods.

Figure 2.4. School number forty two's entrance during recess, Paysandú city
Source: Author's photograph, 2010

School 78, Queguayar, Paysandú

This story of migration was even more prominent among parents in the rural school in Queguayar. Queguayar is a small village of 108 inhabitants (INE, 2004) located about 50 km away from the city of Paysandú, southeast of the city of Quebracho. Like all rural schools, the school day runs from ten in the morning to three in the afternoon and has a multi-grade classroom with one teacher for all students. Because this particular school also accepted pre-school aged children, there was a pre-school teacher working in the same building as well. The school is located within walking distance from the village but there are no other government offices or services available; the closest hospital for instance is in the city of Quebracho. The village itself was built by the Ministry of Cattle, Livestock and Fishery's social programme Movement for the Eradication of Insalubrious Rural Housing (*Movimiento pro-Erradicación de la Vivienda Rural Insalubre*, MEVIR) which provides basic housing for rural workers. There is a small grocery store facing the route that runs next to the village. According to the mothers interviewed, all of them worked at home and their partners work as either agropecuarian workers ('peones') or as labourers in Quebracho. There was no unemployment in the village, yet most women complained that there were no opportunities. Not surprisingly, they also complained about lack of infrastructure and basic services, claiming that they had to travel to Paysandú once a month 'just to pay the bills'. Because the village and the school presented such specific characteristics, I spent much less time than I had anticipated visiting them. I realised after a month that if I stayed

longer, the focus of my study would have become entirely different: theirs is a very interesting – yet distinct – experience from the ones observed in urban areas.

For this reason, I decided to spend time visiting other schools in different areas of the country in order to assess whether or not my results were more or less applicable elsewhere. I visited two schools classified by ANEP as having a 'critical sociocultural context', one in the outskirts of Montevideo and one in the city of Minas, a district capital in the department of Lavalleja; and two high schools, one in Montevideo when XO laptops were first distributed and one in the city of Salto, the capital of the department of Salto, where laptops had already been in use for three months. In turn, accessing such a wide variety of spaces allowed me to grasp not only the complexity intrinsic to the interplay between poverty and urbanisation but also the multiple and varying ways in which Uruguayans made sense of CEIBAL.

Figure 2.5. The rural school number 78 in Queguayar, department of Paysandú
Source: Author's photograph, 2010

Collecting data

Since fieldwork aimed to understand a particular aspect of people's lives over an extended period of time, it necessarily involved using a wide variety of methods: I watched what happened, I listened to what was said and written, I asked questions in formal and informal settings, I collected documents and artefacts, I took pictures. Everything was considered material. This had two strong implications: firstly, I did not initially have a fixed or detailed

research design, so my research was open to what emerged in the field; and secondly, the categories used for interpreting what people said or did, were not built into the data collection process but were generated out of the process of data analysis. Within that general sense of messiness, there was a daily routine that I tried to maintain in order to systematise the experience. In Montevideo, about four hours in the morning were usually spent observing classrooms and working in the school and entire afternoons were spent interviewing different kinds of participants or observing meetings, events, and so on. Usually interviews lasted two or three hours, so it was not possible to schedule more than two per day. It was only after almost four months that families started to invite me for tea ('mates' in the local tradition) in the afternoon. In Paysandú, mornings were also spent in the school but afternoons and weekends were buzzing with observations in family homes and the public square. I also interviewed some informants more formally in local government offices, many of whom I consistently run into just by being 'in town'. This created a sense of familiarity that was extremely hard to achieve in Montevideo.

Overall, however, the result was overwhelmingly rich: I conducted more than 80 tape-recorded interviews, compiled more than 200 pages of detailed (and at times incredibly tedious) fieldnotes, as well as an assortment of additional documents and material such as official publications and work samples and more than 1000 photographs.

Table 2.1 Data collection techniques

Technique	Subjects	Estimated number or amount	Description
Observation	Children	Approximately 60 students were observed consistently: 25 students per class in Paysandú and Montevideo, 10 students in Queguayar	Observation in classrooms lasted approx. 2 hours each time; observation in homes or spaces varied
	Teachers	6 teachers were constantly observed in classrooms: 2 teachers in Montevideo, 3 in Paysandú and 1 in Queguayar	Observation in classroom usually lasted 2 hours each time.
	Policymakers	A core group of approximately 15 policymakers were regularly visited in their offices or met at different kinds of events (conferences, workshops)	Observation time varied dependent on the nature of the event or the length of the meeting attended
	Laptop	Laptops were observed constantly in all spaces under study. I had a	As key to the entire study, observation of

		laptop with which to work during fieldwork.	laptops was constant
Formal interviews	Children	21 students aged 11 were interviewed formally: 8 in Montevideo, 8 in Paysandú and 5 in Queguayar	The same group of students in all schools were interviewed formally twice.
	Parents	22 parents were formally interviewed: 8 mothers in Montevideo, 8 in Paysandú and 6 in Queguayar	15 of those were interviewed formally at least twice; the rest was interviewed once
	Teachers	18 teachers were interviewed: 6 in Montevideo, 6 in Paysandú, 1 in Queguayar, 3 in Minas, 2 in training workshops visited.	All teachers were formally interviewed twice, once at the beginning of fieldwork and once in the end
	Policymakers	12 policymakers were interviewed in governmental offices	Policymakers were formally interviewed at least once.
	Other relevant actors	10 other actors were interviewed: 3 officers connected to MEC Centres; 3 university professors participating in Flor de Ceibo; 2 members of RAP CEIBAL; 2 videogame designers	All actors were interviewed formally only once
Focus groups	Parents	2 focus groups: 9 mothers in Paysandú; 16 mothers in Montevideo.	The focus group in Montevideo lasted an hour and almost 2 in Paysandú
Document analysis	All actors	Documents analysed included official CEIBAL publications; the Presidential decree; internal memos within CEIBAL and ANEP; ANEP's training materials.	Documents were classified in the analysis by actor that produced it and by theme
Materiality analysis	All actors	1000+ digital pictures; games; work samples; teaching materials; children's drawings	Materials were so diverse that were classified by theme
Media	Press	Media articles, press releases	Google alerts on CEIBAL

The cornerstone of fieldwork was consistent observation in the different spaces stipulated above, albeit in different forms, from holding meetings between different organisations at the macro and micro levels to spending time in public spaces in rural localities. The differences in how observation was carried out respond, in that regard, to the diverse roles that I, as a researcher, could or could not negotiate with the actors involved. In order words, the amount of time spent observing and the degree of involvement I was allowed to have was determined by differences in explicit negotiations of access. In schools, for instance, complete access was granted by ANEP so participant observation was allowed and even encouraged. In school no. 8 in Montevideo, for instance, I became one more fifth grade student (to the extent this was possible) and made the point of consistently replicating what students did on their laptops during and after class and what the teacher asked them to do. Needless to say, I always reflected on my own process of learning and observation while doing it, especially as I got to experience some crucial events for the development of the programme. I spent entire mornings in the classroom learning about all sorts of subjects, from natural science to history, sometimes using the XO and sometimes without even touching it. This was crucial in order to 'normalise' my presence in the classroom but also to have a more complete picture of when and how laptops were used in that particular context, to understand in what moment laptops were opened and for what purpose and in relation to which type of activities. In other words, it allowed for a degree of immersion where experiences were contextualised within daily routines and systems of meaning.

The opposite of this experience was observation in some government offices, particularly at LATU. This was the case mainly because there was no role that I could have performed and passive observation made many situations uncomfortable. In the pedagogical coordination unit at ANEP, for instance, the physical space was not conducive to consistent observation as there was no desk or chair available and I had to stand in a hallway, obstructing people's movement around the office. This was aggravated, especially at the beginning, by the fact that I anxiously wrote everything down.

I quickly realised, as a result, that formal interviews were more suitable in government offices and consistently scheduled time with different types of officials from various agencies. Decisions about whom to interview, when, and where, were developed over time, and overall, the first set of interviews were more structured than subsequent ones. In that sense, and to the extent that it was possible, I attempted to interview most informants at least twice. A tendency among policymakers was to agree to less number of interviews but to speak in great length. I had several interviews that lasted around three

hours, with informants generously sharing documents, pictures or notes related to the topic at hand. I based those conversations loosely in a list of topics that I wanted to cover, which of course changed significantly depending on the interviewee and throughout the fieldwork stage: new questions started to emerge and others became irrelevant. Just as the initial interests and questions that motivated the research were refined, and became progressively more clearly focused over the course of fieldwork, so did interview questions. Formal interviews were also conducted with other types of actors, especially as a strategic introductory step. The problem that arose, however, was that the formality in itself transformed much of the nature of the conversation. In the case of principals and teachers, for instance, the 'formal' setting of an interview led some of them to adopt their 'formal discourse' on the subject matter. A clear example was the Principal at school 42 in Paysandú, who had two almost contradictory opinions on CEIBAL depending on how my questions were framed. During the first interview, which aimed to introduce myself and get to know her, she constantly repeated what the official accounts of CEIBAL were because that is what she thought I wanted to hear. Months after that interview, in fact, she confessed to 'have studied' for that interview. This was, in itself, an interesting phenomenon to analyse as interviews also brought light to the different narrative strategies employed to contest or support to official discourses and conflicting sets of interests.

In addition to this, casual conversations were a useful source of direct information about the setting and of perspectives, concerns, and discursive practices of the people who produced them. Such conversations were important because they answered many of the difficult questions I was struggling to ask in formal settings and also because they pointed to divergences between official and unofficial discourses, especially among teachers. Combined with regular observation in classrooms, they complemented the generation of a comprehensive picture on the relationship between framing and practice as I was able to contrast what they say formally with what they 'really think' as expressed off the record, and with what they actually do in the everyday lives. In that sense, and because there were many sites where these conversations took place, I attempted to visit them as regularly as possible, although they often emerged routinely in various circumstances. Some of the most informative conversations I have had were during bus rides to or from different events, for instance with Paysandú's MEC Centre coordinator on our way to Chapicuy, a town about two hours away from the departmental capital, where prizes were handed out to the photography contest's winners. Another incredibly rich source of accounts and information was of course the staffroom in schools where teachers got together for tea during recess. Most of these conversations were originated by the actors themselves,

especially in the early stages of fieldwork, as many informants wanted to make sure that 'I got it right'. Very often, their aim was to counteract what was assumed they thought or what was presumed to be my interpretation of their actions. This was particularly the case among teachers and parents who desperately wanted to make their views known.

Some of these discussions easily turned into group ones and I found myself moderating them as if they were discussion groups. I took opportunities in which, for instance, teachers were discussing CEIBAL after school and I asked them to focus it on a particular topic or set of issues. And because they seem to work well and be deceptively simple, I organised two formal discussion groups with parents, one in Montevideo and one in Paysandú. Both meetings were organised by sending a note to parents through their children explaining the activity and requesting their voluntary involvement. They were both held at eight in the morning, when children start classes, and were conducted in schools. I provided coffee and biscuits, as is customary in school meetings and in most social gatherings in Uruguay. Although I expected such strong association with the school to present some challenges in order to get parents to participate freely, I was surprised to see that, in contrast to my initial intuition, the school was perceived as 'a safe place' in which to discuss these issues. In both cases, the vast majority of participants were women: in Montevideo, eleven out of sixteen participants were mothers, and in Paysandú all nine of the attendees were either mothers or a grandmother in one case. Whereas in Paysandú all participants were integrated into the conversation, more pronounced sociocultural and economic differences among parents in Montevideo prevented some from participating. The classic focus group technique of enabling those that were more hesitant to speak proved successful in creating more 'natural' conversations (which included storytelling, joking, arguing, boasting, teasing and disagreement) so in both occasions 'sensitive' topics were explored without much need for intervention on my part. In fact, during the discussion among parents at school no. 8 the conversation digressed and quickly turned to partisan politics and when I brought the issue of CEIBAL back into the conversation, they responded that 'it was all interconnected'. In both cases, discussions were recorded and transcribed and participants had to fill in a short survey to obtain a few demographic indicators (age, occupation, marital status, etc.).

In addition to these techniques, much of the fieldwork consisted in analysing different types of documents: examining the national curricula, different kinds of software available in the laptop, teachers' and students' blogs, lesson plans, and so on. Almost all spaces studied, in fact, produced and/or circulated various kinds of written material: from government offices' production of official accounts of the programme's perceived impact to

OLPC's manual for basic maintenance of XOs and teachers' registry of activities carried out with laptops in the classroom. These documents provided invaluable information about both the practices or actors being studied and the wider contexts with which they interacted. Official materials produced by CEIBAL, especially documents such as the original Presidential decree and the first publication funded by UNESCO, were carefully unpacked, analysing the language used, the labelling of groups and the framing of certain issues in order to capture implicit assumptions as well.

Finally, and especially because I am interested in the XO's materiality, it was important to engage more directly with the technology as an object of enquiry in itself. The starting point was, of course, acquiring a laptop. This proved particularly important and revealing as it was only during its initial exploration that I realised what teachers might have experienced when they were first given these devices to work with without any previous training. It was different, difficult, exasperating. In addition to this, I also systematically asked children if I could take a look at their laptops to see internet histories, pictures taken with it or videos recorded, documents produced with different types of software, histories of chat conversations, and so on. Before doing so, I explained that the information was going to be used for research and kept in confidence; not a single one of them refused to show me at least some aspect of their work. While some were comfortable showing only pictures, for example, others felt the need to show me *everything* they had done. The 'journal' application in the XO's diary was particularly helpful in that regard as it records all activities carried out in the last fifteen days and the times of the day in which they were accessed. I asked students to 'walk me through' different applications or to show me how they obtain the resources – such as information or games that they want or need. These 'think-aloud tasks' were crucial as they revealed not only material features but also how children engaged with them. In order to capture children's understandings of CEIBAL and conceptualisations of the XOs, I also asked younger children (aged seven) to draw situations in which they used their XOs and older children (aged eleven) to write a letter to an imaginary friend telling him/her about their XO and what they do with it. The results can be seen from figure 2.6.

Figure 2.6. Children's drawings and letters illustrate their relationship with XO laptops
Source: Materials produced by participants as part of the author's fieldwork, 2010

The use of these techniques was also crucial for defining the role of children in my study. Although during early stages of fieldwork I attempted to simply adapt existing methods to be used on children, for instance by creating a specific questionnaire for interviews, I realised that the most interesting experiences actually resulted from applying these 'new' data collection techniques. Relying on parents and teachers' accounts of children's experiences was more convenient but certainly more problematic as well. In that sense, the use of these techniques such as 'think-aloud tasks' and drawings was an explicit attempt to position children as active participants and to provide them with a voice. This shift has been marked in the literature on childhood by the propositional shift from working 'on' to working 'with' children (Lobe *et al*, 2009: 34). This distinction is important not only from a practical point of view but also from a theoretical (and epistemological) perspective as well. Interestingly, those techniques that involved children as research participants were the same ones to those that took the object seriously, leading one to suggest that methods should be conceived as if all actors involved in research – irrespective of their age or material characteristics – have agency. To do this, methods should be combined in context-specific ways, and evaluated against all actors' competences and particular positionings in the social world so that they can capture a broader and deeper range of experiences than a single technique. With the same logic, all kinds of data generated should be treated with equal weight in the analysis.

Figure 2.7. The 'journal' application in the XO registers activities carried out and the time spent on each
Source: Author's photograph, 2010

It is important to conclude by pointing out that this typically ethnographic stance of considering everything material, and of attempting dynamic, dialogical methods, generated at times an uncomfortable sense of 'chaos' and the urgency of having to be 'prepared' at all times. I wanted to document closely these processes *as they were occurring,* instead of relying on subsequent registration, so I had to carry my camera, recorder and a notepad. Although working with audio and video eliminated the problem of inaccurate field notes, it created the temptation for covert research. It was also aggravated by the fact that after the initial normalisation period, in which I became a regular presence in the school, many of my informants seemed to forget that I was researching them. I had to remind them regularly what the purpose of my visit actually was. This tension required a balancing act between the need to make my research explicit and the need to limit disruptions when registering actors' practices.

Finally, this study had some practical limitations. The first one – characteristic of all ethnographic work – was the impossibility of grasping it all during fieldwork, of 'being everywhere at all times'. Because the field was remarkably open and rapport with informants was successfully established, there were quite high expectations of me as a participant in their worlds that could not always be fulfilled. I was generously invited to visit more families, observe other classrooms or attend events, many of which I had to regrettably refuse. Although I was acutely aware of how incomplete my account of the field was going to be, I constantly experienced, on a daily basis, the challenge of balancing out breadth and depth in my research, moving back and forth between participation and analysis. Secondly, whereas fieldwork was conducted throughout 2010, this thesis is being

written almost three years afterwards. CEIBAL as policy and the practices it promotes have evolved so quickly since then that what is described in here is now perhaps out of date. Their time – that of the people and the objects discussed and described here – certainly moved faster than my capacity to apprehend it. However, the empirical value of this research still lies in its possibility of producing new and richer interpretations of how social change is produced and performed in everyday life.

Analysing data

Although most of the analysis of data was conducted upon my return to London, there was no distinct stage of analysis as such in my research project. In a certain way, analysis began before starting the fieldwork phase with the formulation and clarification of the research question and continued throughout the writing process. This was in part facilitated by the fact that fieldwork continued even months after I had left the field: I remained in regular contact with my informants, constantly receiving press articles on the subject, continuing observation in online spaces, and so on. This extension of the field in space and time led to interesting questions about the concept of field site in general, especially as it made explicit the arbitrary nature of its boundary settings. In that respect, my study was no different from others: the body of material was arbitrarily closed due to pragmatic considerations; in this case, when a new school year started the following March. As is discussed in greater depth below, the difficulty in leaving the field resulted to a great extent from the quality of the research relationships established as it was almost impossible just to extricate myself from the setting. It was quite an emotionally demanding experience to do so, especially as I did not want to break off completely of all relationships with those I had come to know while working there, particularly families I had visited several times during the course of fieldwork and teachers I shared so much time with both inside and outside their classrooms. However, in order to transform those rich experiences into writing that could speak to wider audiences, I had to gain proper distance from my informants and from the material collected. Field notes were first slowly transformed into discrete and often loosely related incidents and happenings, and only then into more elaborated and refined insights and hunches.

As it is discussed before, the study was firmly grounded in empirical findings so it was important, from the start, to keep data and ideas constantly in dialogue. In order to do so, I inserted the large and diverse collection of documents (transcripts, pictures,

documents) into one comprehensive framework and treated all materials as part of the same data set. The use of Atlas.ti software was useful as it allowed me to think through those documents and to create a holistic picture of the field. The first step was to combine close reading of those documents with identifying themes or issues and formulating ideas. From the approximately four hundred codes that I created, about half were entirely descriptive and the other half were a combination of possible connections to be established and more analytic ones. This was followed by a second reading of the documents in which quotes were selected and some of the codes were fine-tuned. Although this process is presented in a linear fashion, in reality it was quite chaotic; the vast amount of data available opened an overwhelming amount of analytical possibilities so I moved back and forth from reading to selecting quotes and pictures and writing and then back again to coding. Initially, I used the software's memo application to elaborate upon those insights or to outline some themes to pursue as those discrete pieces of data or analytic points began to integrate. Some of the questions that helped me grasped these issues where directly related to the assumptions that informants were making and how they characterised or explained what was going on.

Although not necessarily an easy task, the identification of themes and connections resulted from recognising patterns. The selection of core themes or trends was particularly difficult – painful even, at times – as it implied leaving rich and potentially interesting connections behind. I prioritised topics on which there was a substantial amount of data collected and that seemed to be significant to my informants: for instance, many of them spent a lot of their time and energy 'supporting' CEIBAL, for instance by volunteering for the programme, so the programme's framing was given great importance in the analysis. This, of course, involved an active process of interpretation and sense-making: by noting some aspects or themes as 'significant' and discarding others, my perspective became intertwined with the phenomenon in question. To suggest that findings, or even data, are constructed does not automatically imply that they do not or cannot represent social phenomena. As Back (2007) points out, the task of sociological analysis is precisely 'to link individual biographies with larger social and historical forces and the public questions that are raised in their social, economic and political organisation. It is the search for remarkable things that are otherwise not remarked upon' (Back, 2007: 23).

Reflecting on the experience

Because of the nature of the methodology and some of the analytical considerations outlined before, there are significant issues of reflexivity to take into consideration. Many of them are intrinsic to the methodology in its classic form and are applicable to my study as well. Firstly, following the point raised just above, it is important to recognise that my account of social phenomena is inevitably fragmented as it was produced through selective observation and theoretical interpretation of what was seen. The process of selecting what was included or what was left behind inevitably presented or framed objects/subjects in particular ways, 'missing' other ways in which events might have been presented or framed. In direct relation to this, it is important to point out that results were bounded to specific, spatially localised institutions and people. Secondly, it is important to highlight issues of subjectivity and positionality as I have been born and raised in Uruguay. The benefits and shortcomings of conducting insider ethnography have discussed extensively elsewhere (for example, Cerroni-Long, 2009) and my study is by no means different in that respect. In particular, being a middle-class Uruguayan meant that I did not have to 'pretend' to be so, or to alter my appearance or my habits to emulate that of those being researched. This being said, however, I was not a native in my research sites: inner city Montevideo and rural Paysandú are certainly very different from the middle-class neighbourhood where I spent my childhood. In other words, I did not do ethnography of my own home although I was 'home' during parts of fieldwork, at least in a general sense.

My national identity was, at times, subject of confusion: I lived in the United Kingdom but spoke, and acted like, a Uruguayan. Although it dissipated with time, it was problematic for some informants, particularly those that are political militants and saw my research as potentially representing 'imperialist' aspirations, courtesy of a scholarship by the LSE. I was consistently asked, not without suspicion, why a British university would fund research to learn about Uruguay's experience. This also led to interesting questions on researching development more generally as it inevitably positioned me as a researcher – regardless of my nationality – within a 'development discourse' where 'the North's 'superiority' over the South is taken for granted' (Kapoor, 2004: 629). In fact, this issue presented some very concrete challenges for maintaining horizontal research relationships as, in some cases, promoted an unequal power relation that I did not want to comply with. A case in point was one of the principals that wanted to send me her son's curriculum vitae in the hope that I could find him the job in London that he so desperately wants. Research relationships, in that regard, had to be established and identities co-constructed various

times over the course of fieldwork. What was important during those experiences was to directly engage with my subjectivity and to conceive research necessarily as a matter of construction.

Perhaps not surprisingly, gender was a natural facilitator in the field as it opened up some possibilities that would not have been accessible to men: the education system and schools in particular, as well as the intimacy of the household, continue to be, to a great extent, spaces reserved for women. And in the case of male-dominated policy-making cycles, my gender (and age) was particularly enabling as it generally reinforced this perception of being 'just a harmless student', as I was referred to in a particularly difficult interview. The challenge that this positionality posed was precisely the need to 'defamiliarise the familiar' without necessarily rendering it exotic, which was difficult to achieve. For this particular reason, although I could empathise with my informants in many different ways – especially as education has been my vehicle for social mobility – I constantly (and very consciously) attempted to hold back, to create the space in which analysis could take place.

The third issue that needs to be considered is what has been called 'the observer effect:' the possibility of affecting and/or transforming the space and processes under study. At the very least, my analysis of the laptop's usage stimulated particular types of practices or changed the character of some situations being studied. For instance, during initial stages of my research teachers made an effort to use the XO when I came into their classrooms. This effect, as it usually happens with ethnographic work, decreased with time as both teachers and students became accustomed to my presence in their classroom and 'normalised' their behaviour. As mentioned above, it was extremely important to be consistent and continue working with the same group of children, teachers, parents and government officials, as it was precisely this regularity that allowed me to establish trust and to contextualise everyday practice. My presence in the classroom was very disruptive during initial stages, with children taking pictures of me observing them or sending me notes during class time. For instance, a student wrote me a note asking me whether or not the teacher will come back after she had gone to the restroom and another one wrote one with two names of websites where students downloaded their games from and quietly passed it around the classroom (he was concerned because I was considered a 'lousy' game player among students). In turn, although the observer effect tended to dissipate with time, my presence undeniably had an impact upon my informants and understanding it was crucial in order to see how it affected the direction that the study took.

Research relationships

Establishing research relationships was perhaps the most challenging, yet more rewarding, experience of doing field work. It involved the sometimes difficult task of building trust and of balancing out honesty with the need to preserve analytical distance. Research relationships, in that regard, had to be based on reciprocity and respect just like any other relationship. So for informants to be frank with me, I had to be frank with them. Deciding how much to disclose about the research, however, was quite challenging, especially in the early days of field negotiations when parents were concerned (understandably so) with the kind of person I was and with the nature of the research being conducted with their children. In those cases, it was crucial to just interact normally and find more 'ordinary' topics of conversation with them, with a view to establishing my identity as a 'regular, decent' person. This was particularly easy to do with teachers as most of them have very similar interests to mine and our conversations often ranged from Uruguayan rock music to world affairs. We did not have to reinvent ourselves for these conversations, so the people and communities I describe here are real ones – emphasising of course that reality, like truth, is never singular.
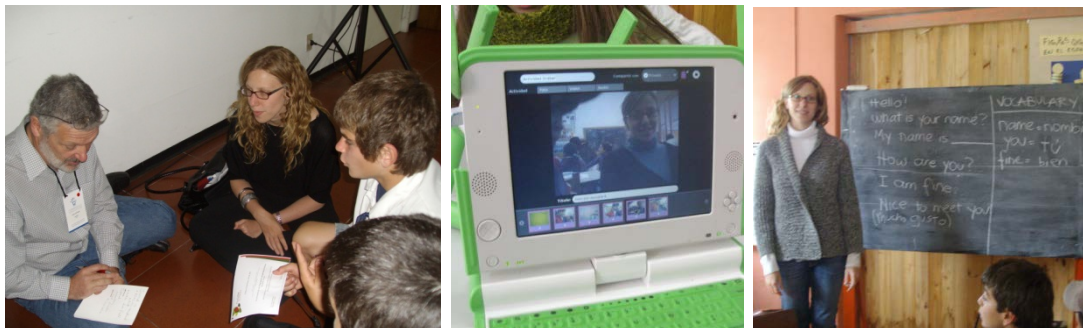
Figure 2.8. Research relationships were based on trust and reciprocity
Source: Author's photographs, 2010

The issue of reciprocity, however, was challenging from a pragmatic point of view. When I was asked to help out in official events, for example, I had to spend valuable time doing so instead of, for example, observing the preparations for such event. In other cases, these activities turn out to be enormously fruitful; for instance, I was asked to translate a conversation between Walter Bender, the creator of Sugar, the XO's operating system, and children in CEIBAL's annual conference in 2010 (figure 2.8). In schools, these tasks I was asked to perform ranged from serving lunch or selling snacks during recess in Paysandú, to helping out with a science project in Montevideo to teaching a few words of English to

students in Queguayar (figure 2.8.). Managing expectations was crucial as it could have been very costly to disappoint them. In fact, I made the decision to get involved to the extent that it was demanded of me to do so yet also made a point of treating those demands as data as well. However, particularly as time went by, it became clear to me that I wanted to help, to get involved, and that I appreciated these relationships beyond their research function. Perhaps the best possible illustration of how much I cherished these relationships was the fact that during my 'farewell' parties, both in Paysandú and in Montevideo, teachers and students gave me the most precious and unexpected gifts I could have possibly got: in Montevideo, the teacher I worked most closely with got me a copy of a book written by a Uruguayan teacher called 'What Future Are We Educating For?' signed by all students and parents; and in Paysandú, a group of mothers gave me a shirt with the name of the school also signed by children and their teachers. I still treasure these relationships and feel profoundly humbled by the experience.
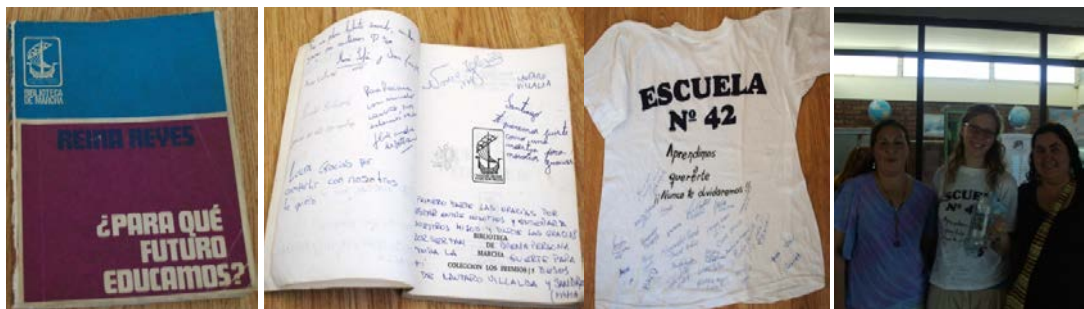
Figure 2.9. Gifts I received when I left the field included a book entitled 'What Future Do We Educate For?'
Source: Author's photographs, 2010

Chapter III: Political compositions

This chapter analyses CEIBAL's political acts of composition: the processes by which the technical project of delivering laptops, and the technology itself, started to embody Uruguay's political and moral project of inclusion in order to perform it. It argues that the programme actively emerged from assemblages of 'fudged' meanings and 'moulded' objects where different aspects of 'being Uruguayan' were debated and negotiated as technology mediated and enacted national values. The first section describes how Uruguayans 'imagined' their nation in relation to a combination of overarching values – such as that of 'social inclusion' – that are nailed to specific moments in the country's history and instantiated at many different levels of practice, particularly the performance of such 'identity'. The second section looks at the mobilisation of these values for the construction of an 'elective affinity' (Miller and Slater, 2000) between CEIBAL and Uruguay. This is then followed by a more materialised analysis of the stabilisation of CEIBAL's framing through the circulation of images, texts and scripts. It concludes that the project 'works' because it managed to enrol a wide variety of actors, creating internal coherence and concealing different sets of interests throughout the network.

'No one is better than anyone else'

According to a travellers' tale, a foreigner arrived in Uruguay some time during the immigration wave of the second half of the nineteenth century. Fresh from the boat that had just anchored at Montevideo's bay, he asked a villager close by why he should stay in that country. The local responded without hesitation 'because here, no one is better than anyone else' ['Aqui naides es mas que naides']. The phrase, as is commonly used in Uruguay and as it is told as part of this well-known story, actually uses colloquial language and substitutes the 'no one' ['nadie', in Spanish] for a more idiomatic 'naides' which emphasises the illiteracy of the character in the story. In recent times, this anecdote and the phrase have returned to Uruguay's popular 'imaginary' with President Mujica, who the publication

The Economist defines as 'a roly-poly former guerrilla who grows flowers on a small farm and donates 87 per cent of his state salary to charitable causes' (*The Economist*, 24/09/2009). In 2008, when Mujica was still running for the Broad Front's internal elections, a journalist asked him what he thought about the possibility of eventually becoming President of Uruguay, to which he responded unhesitatingly: 'that in the end, it's true that in this country no one is better than anyone else'. And so it was.

The importance attributed to concepts like 'equality' and 'social inclusion' cannot be overstated in a country that has made egalitarian tales part of its 'national identity'. The very notion of what 'being Uruguayan' is, is generally defined, often very proudly so, as a profoundly inclusive society that has been pursued and constructed historically. This, of course, is not to claim that there is such thing as a monolithic, let alone a natural, national character or 'identity', but rather that people appeal to elements such as 'egalitarianism' and 'inclusiveness' to explain what 'being Uruguayan' means to them. As discussed below, it is a style in which a particular way of seeing themselves is imagined and actively performed. Arocena and Caetano (2011), prominent Uruguayan social scientists claimed that:

> In Uruguay, there is no possible social development plan without the invocation to a 'nobody is better than anyone else' ['naides mas que naides' in the original] or without a model country in the horizon in which 'the poor are less poor and the rich are less rich. (Arocena and Caetano, 2011: 11)

These narratives of a country where 'the poor are less poor and the rich are less rich' construct a 'model' for the country's social development, a direction for social change. They have also allowed Uruguayans, like many other groups, to construct a tale of exceptionalism, to 'imagine' their mythical origins as specific people linked to foundational stories of equality and cohesiveness. In other words, by establishing their sense of lineage through these myths, Uruguayans were able to create an image of themselves. For example, the historian Gerardo Caetano (1992), claimed that,

> For Uruguayans, because of multiple and varied reasons that emerge from historical processes – the relative weakness of the State's material bases, its geographical location as a small country between 'giants', its models of political association in the collective elaboration of its foundational tales, the low density of endogenous impulse in its civil society, etc. The central problem of national self-identification has not been so much related to 'being' but rather to 'imagining. (Caetano, 1992: 79)

What is particularly interesting is that, despite these types of claims, the idea of 'imagining' national self-representation is most certainly not uniquely Uruguayan. In fact, as literature on national projects and identity has extensively discussed (Anderson, 1991; Gellner, 1983; Gellner and Smith, 1996; Hastings, 1997; Hobsbawm, 1990), it is possible to

trace this kind of 'imagining' of national projects to, for example, romantic nationalism, which Uruguay shares with pretty much everyone else and particularly with the rest of Latin America. In other words, Uruguayans are not exceptional in 'imagining' themselves as exceptional. Although the perspective from which they are conceptualised here might be distinctively different, there is enormous intellectual lineage on the issue of national projects, identities and imaginaries. It is therefore important to place this study, based on actor-networks, material culture and material-semiotic assemblages, in relation to these questions.

A starting point to 'the national question' is often the very concept of 'nation', which has been explored both in relation to the modern nation state and to the formulation of 'collective identity'. Claims about the drive for statehood can be found in Gellner's classic work, which argues that 'nationalism is primarily a political principle [that] holds that the political and national unit should be congruent' (Gellner, 1983: 1). With certain ferocity, he makes the point that 'nationalism is not the awakening of nations to self-consciousness: it invents nations where they do not exist' (Gellner, 1983: 1). In other words, that 'nations do not make states and nationalisms but the other way round […]' (Hobsbawm, 1990). The drawback, however, is that Gellner's (1983) formulation implies a relationship between 'invention' and 'fabrication' with 'falseness', that can lead one to believe that 'true' communities (to be juxtaposed to nations) would indeed exist. In contrast, Anderson (1991) has famously coined the idea that 'the nation' is an 'imagined political community', and that the question is not whether there are 'real' or 'true' communities but instead, the ways in which they are thought about, 'imagined'. In his words:

> it is imagined because the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion. In fact, all communities larger than primordial villages of face-to-face contact (and perhaps even these) are imagined. Communities are to be distinguished, not by their falsity/genuineness, but by the style in which they are imagined. (Anderson, 1991: 6)

In other words, Anderson makes 'imaginaries' the central concern for statehood rather than a presumed political drive.

As suggested above, Uruguayans 'imagine' their nation in relation to a combination of overarching values – such as that of 'social inclusion' – that are nailed to particular moments in the country's history and instantiated at many different levels of practice, particularly the performance of such 'identity'. Stuart Hall (1996) has described these overarching values as 'floating signifiers' in the sense that the there is nothing solid or permanent to the meaning of such terms: they 'shift and slide'. They are fairly ambiguous

and malleable concepts: everyone 'knows what they are' yet they are also often fragmentary and internally contradictory. People use these terms in everyday life, usually in connection with other ones, to figure out and make sense of what happens in their political and social worlds. And because they are so open, to an extent, everyone can 'find a home in them', even from conflicting groups or interests. For example, what the concept of 'equality' means, as contemporary history of Latin American politics has clearly shown, is never static and never the same. For this particular reason, they can be seen to form the basis of what Gramsci (1933) has called 'common sense:' 'composed of the historical traces, incomplete borrowings, diluted concepts and prejudices, inherited wisdoms and formulations incorporated from a variety of 'great systems' of political thought which have sedimented into it' (Gramsci, 1933 cited by Donald and Hall, 1986: xii). They are perceived as naturalised, atemporal, and 'organic' as they are being absorbed into, and have influence over, common practice. The promise of 'egalitarianism' and 'social inclusion' has become a central part of Uruguayan 'common sense'. And it is precisely their vagueness and ambiguity that enables them to become so.

Despite allowing one to make sense of the way in which Uruguayans 'imagine' themselves, and of potentially having a certain theoretical convergence, the use of Stuart Hall's concept of 'floating signifiers' (1996) and of Gramsci's 'common sense' can be problematic. In the first case, because it drives the argument towards semiotics; in the latter, because it evokes a sense of 'materialism' that is entirely different from the one proposed in this study. Taking the route of semiotics would treat the process of signification as the result of certain structures (such as language) that can be used to explain others, with the underlying assumption of a conceptual split between meaning and materiality: that between the signifier and the signified. With this as the dominant frame of reference, devices, such as the XO laptop, would feature as 'intermediaries', carrying meanings for the construction of individual or collective identities – that is, the sign. It would therefore completely eliminate the possibility of allowing devices to enable or shape practice (which they certainly do, as this thesis extensively discusses). The material aspect of this relationship is also interpreted differently by Gramscian traditions, which due to their Marxist roots draw upon it to explain its role as determinist of social relations. For these reasons, despite being useful conceptual tools to describe the phenomenon in question, they are not fully explored analytically here.

Instead, the discussion is based on the concept of objectification as developed by Miller (1991) out of Simmel, which is more useful in making sense of how laptops take certain aesthetic and value forms, ultimately embodying these ambiguous, open, atemporal

and naturalised social values. This is explored in detail from a theoretical standpoint in the thesis' concluding chapter. What is worth pointing out is that objectification is a useful concept because it allows one to understand the process of assembling these significations, of 'imagining' Uruguay's identity in Caetano's words, with both material and symbolic elements. As it is shown empirically below, myths are objectified as a result of long processes and real action in terrains of economics, politics, and law but also in assembling textbooks, historical images and 'symbolic imaginaries'. The social values perceived as foundations of Uruguay's 'national identity' actually emerge from those socio-material relations, and it is through these processes and relations that they get mobilised and stabilised, and later reflected or transformed into, 'common sense'.

As it was explained in the introductory chapter, the reform of the education system in 1875 is a clear example of how Uruguayan subjectivities were actively and explicitly put together in material-discursive assemblages as part of a broader national programme. The salient question was about the attributes that were to be taken as representative enough to be taught in schools, how a sense of being Uruguayan was to be converted in practice. Uruguayan history as an educational curriculum or as an academic discipline taught in schools had to assembled and concretised in textbooks: the nation's roots had to be discovered and reproduced on paper. Among the traditions promoted in art, letters, music and folklore with which children of immigrants became familiar, was the ruralism of Uruguay's *gauchos*, the brutal history of its *caudillos* and their eternal battle against Montevideo's European-minded and cultured *doctores.* As pointed out by Álvaro Gascue, general coordinator of the Flor de Ceibo Programme, in his interview:

> the Uruguayan school is a symbol of integration in the sense that Uruguay was a country of immigrants. If one walked around the streets it was difficult to hear Spanish being spoken. You would hear languages of the world: Gallegos, Basque, Albanian or whatever. Despite this diversity, the children of these immigrants, which were more numerous than Montevideo's inhabitants, actually finished school... transformed into Uruguayans.

The advent of compulsory, tuition-free schooling that resulted from Varela's[12] education reform in 1877 provided the space in which modern Uruguayan subjectivities were reproduced. The education system became the hallmark of democratic Uruguay and supposedly provided those born into poverty with the opportunity to achieve social mobility and full participation in political and economic institutions: or 'being' and 'feeling part of' the then newly created society.

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[12] Jose Pedro Varela established the 1877 Law of Common Education that transformed the Uruguayan education system into free, secular and compulsory for all. He is regarded and venerated as 'the father' of the public education system so his picture is often to be found in every school in the country.

What is particularly interesting is that in Uruguay these values are generally referred to as 'mindsets' or 'sensitivities'. For example, a renowned Uruguayan historian, Jose Pedro Barran, wrote extensively about the relationship between values and 'common practice' or everyday life in the two-volume 'History of Uruguayan sensitivity' (1989) in which he describes 'a more intimate kind of History [...] intended to explain a reality in terms that could be its own'. These values, mindsets, sensitivities or 'common sense' have sustained what Juan Rial has called 'myths' which were seen as the basis for 'the imaginary of Uruguayans during the period of the happy Uruguay' (Rial, 1993: 68):

> [...] first, averageness as a prerequisite for security and the attainment of a happy Uruguay; the uniqueness which enabled us to feel strongly Uruguayan; consensus and the rule of law, of respect for the rules of the game, which ultimately laid the foundation for Uruguay's democratic regime; and a country of cultured citizens, appropriately culturosos with a minimum standard far above average.

Imaginaries were therefore built on 'averageness', and 'uniqueness', but also on broad 'consensuses', and on widespread education. These 'myths' consolidated 'social values' and led Uruguayans to think about their country as fully inclusive, as 'cushioned' (Real de Azua, 1985), 'of short distances' or 'hyper-integrated' (for example De Armas, 2005). They encouraged the kind of social reforms that were embodied in the paternalistic Batllista[13] welfare state, which favoured the creation of a middle class and the reproduction of its 'subjectivities' while offering formal security and tangible forms of assistance.

Perhaps the clearest indication of how profound and deeply-rooted those 'myths' are is by looking at when 'reality' diverged markedly from them, when the general reaction was to find ways to 'recover' them. There are two main examples in that respect: firstly, after the dictatorship during late 1980s and early 1990s; and secondly, after the economic and financial crisis of 2001. In the first case, for instance, Uruguayans who had suffered imprisonment and torture during the dictatorship met at the University of Marlyand in 1992 to discuss how to (re)signify their 'national identity'. An Argentine author present during the conference wrote, 'I was struck by the fact that so many proven activists of so many political persuasions felt it necessary to safeguard Uruguay's foundational myths' (Sosnowski, 1993: 3). More specifically, how 'taken for granted' the existence of national social values actually was:

> The presenters referred repeatedly to a Uruguayan core of values, whose existence was taken for granted; that common heritage, they argued (with few exceptions), that might allow for 'variants' of this or that form of

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[13] As mentioned in the introduction, President Jose Batlle y Ordonez's government at the beginning of the twentieth century (1903-1907 and 1911-1915) implemented progressive reforms in education, healthcare, labour legislation and women's rights.

government, but not – at least not yet – for the kind of radical transformation that would require abandoning what Uruguayan mythmaking held dear. (Sosnowski 1993: 3)

The existence of 'Uruguayan core of values' was 'taken for granted', as it was part of the 'mythmaking held dear'. Interestingly, Sosnowski (1993) explained that soul-searching brought discomfort among these Uruguayans, even long after their ideals had been contrasted against a reality of exile, violence and torture:

> such stale expressions as 'the Switzerland of America' (to refer to Uruguay) and its correlate, the 'Athens of the River Plate' (to refer to Montevideo) the globalizing 'there is no place like Uruguay' ['Como el Uruguay no hay'] and the foundational (and subsequently distorted) 'model country' sought after by Jose Batlle y Ordonez and his followers were heard repeatedly in the presentations and discussions.(Sosnowski, 1993: 3)

Invoking 'the Switzerland of America' and popular phrases like 'there is no place like Uruguay' provided comfort against these historical contradictions.

This was also the case in the second example, after the economic and financial crisis left the country with the highest levels of poverty in its history. The backdrop of CEIBAL, and of much of Frente Amplio's social policies, was not simply to embody inclusion, but also to combat the very topicalised erosion of inclusion during and after the crisis: CEIBAL was put forward – precisely – as a solution to those problems which deemed to threaten this essential Uruguayan-ness. In the words of Laura Motta, a director at the Teachers' Council:

> We embarked on this journey because the government had a firm commitment to change a social predicament inherited from the economic crisis: social and economic inequalities had increased significantly. The technological gap is part of those inequalities, because it also increased as a result. The fact that the technological development advances so quickly means that what used to divide up a bit before, now separates even more. [...] It was a clear objective of inclusion and integration.

Reducing inequalities generated by the economic crisis, particularly but not only of access to technology, was a 'clear objective of inclusion and integration'. The very fact that, three decades after the dictatorship, two of which were characterised by rampant neoliberalism and the dismantling of the welfare state, Uruguayans still have a 'firm commitment to change a social predicament' and take for granted that 'there's no place like Uruguay' is yet another measure of how much those 'myths' have survived history and continue to inform Uruguay's national project.

Constructing an 'intelligent revolution'

This section focuses on how 'consensus' was artfully constructed as an assemblage of material and discursive elements appealing to a 'natural affinity' (Miller and Slater, 2000) between Uruguay and CEIBAL project. When the OLPC programme was first discussed in Uruguay, it was clear to the authorities that it needed a 'local' name, and the one chosen as an acronym makes reference to the country's national tree: the keipoko flower (*ceibal*, in Spanish). As former President Tabaré Vázquez explained in his interview:[14]

> We thought that ceibal, which has great symbolic value for Uruguayans because that tree and its flowers, and the collision of ceibal trees, run along our rivers in the countryside, was very appropriate. I must confess that the name required some juggling as we wanted CEIBAL to be an acronym for something, to stand for something, and here it is: Educational Connectivity and Basic Informatics for Online Learning.

Beyond this rather explicit way for the government to make the programme 'its own', – and to show what they actually prioritised with the election of the name – Uruguayans took to CEIBAL in way that connected to core dimensions, and contradictions, of their history and 'values'. While the world is still in awe over the quickness and effectiveness of CEIBAL's implementation, most people in Uruguay described it as resulting from a 'natural fit' between the programme and the country. In a similar fashion to the phenomenon described by Miller and Slater (2000) in relation to the Internet in Trinidad, people in Uruguay are mainly concerned about small issues within the programme (teachers' opposition, for example) that were preventing things from changing as fast as they 'naturally' could. Although this level of 'common sense' connection between values and objects discussed below is accomplished in various ways in different contexts, the 'naturalisation' and taken for granted affinity is actually central to material culture.

Government officials especially, but people more generally, cannot speak of CEIBAL without also discussing what it means to be Uruguayan and what the new or next Uruguay looks or will look like. CEIBAL has truly become the material culture of the country's development narrative. Gascue, Flor de Ceibo's coordinator, for example, eloquently argued for such affinity by explaining that, 'Uruguayan society has two or three values that, curiously, CEIBAL catalyses'. He explained in his interview that, in fact, the programme's framing touches upon:

> [...] the belief that we are an educated nation and our public education system is outstanding. [...]The school is also very much associated with equality because of the white coats and blue ribbons [the uniform], equal for

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[14] Available in full as an Appendix.

all. [...] So on one hand, this notion that the school is an egalitarian space, the poor neighbour and the rich one sharing the classroom and generating that cushioned society we are proud of.

CEIBAL fitted in with a central preoccupation of returning to the egalitarian, innovative and educated society that Uruguay has historically been. It provided a natural platform for enacting those 'national values' of egalitarianism and inclusiveness, the value of education for the reproduction of subjectivities, and so on. Graciela Rabajoli, the education specialist responsible for CEIBAL's online portal and member of the its education commission, explained in her interview that CEIBAL is something 'typically Uruguayan':

I think CEIBAL cannot be replicated elsewhere. When I go abroad, everyone asks me: how do we copy it? And CEIBAL is CEIBAL. They can do everything, many things, but not this. There is a sense of solidarity among the Uruguayan people that is so strong that makes CEIBAL what it is, so accepted.

The foundational 'there is no place like Uruguay' is now translated into 'CEIBAL is CEIBAL'. 'Being Uruguayan' and having that 'sense of solidarity' is seen as integral not only to understanding CEIBAL, but also of actually implementing it. This leaves traces and secures over time a certain kind of resonance with the sense of uniqueness.

By appealing to 'national social values', CEIBAL transformed vague 'development' policy into a moral imperative and an alternative *ethic* to that of the neoliberal decades that had preceded Vázquez's election. However, precisely because it is connected to broader narratives of 'development' and social change, this framing had to combine the resonant themes of equality, education, and paternalistic state, with the aggressive themes of economic development and innovation. A 'modern' Uruguay had to both solve the problems originated by neoliberalism – which endangered this essential Uruguayan-ness – but also to respond to the pervasiveness of normative Northern-based representations on the presumed direction of social change, promoting the country's inclusion in the 'global economy'. Interestingly, technology proved to be the conceptual space in which this presumed contradiction was resolved: the concept of 'connection', as is discussed in subsequent chapters, allowed CEIBAL to embody both notions of 'social inclusion' and of 'modernity' at once.

Perhaps the best illustration of how this panned out in practice was the way in which President Vázquez originally introduced the programme in 2006: 'CEIBAL is an intelligent revolution', he explained (El Espectador, 11/05/2007). At the time, the programme was presented in reference to the original sense of the word 'revolution', as part of a struggle for 'profound and irreversible' political change, for a radically different way of doing things. In former President Vázquez's words, as expressed in his interview:

> […] CEIBAL is a revolution insofar as it is generating profound and irreversible changes that are bringing about, if not to the best of the world, at least to a better world [play in words in Spanish] because it offers more possibilities of equality before the law and above all, before life, which is the most important thing.

Yet the achievement of such equality 'before the law and before life' also required 'intelligence'. This 'intelligence', was meant to mark the difference between the old and the new left in the country: Frente Amplio's first government had to be positioned as the champion of social justice but also as more 'intelligent' than it was when it was first created in 1971. This mechanism of differentiation was crucial in the political campaign and during the entire administration as the main political figures of the party were former Tupamaro leaders that needed to 'tone it in down' to appeal to the electorate of the twenty-first century. However, it was also meant to be 'intelligent' because it was to be mediated by modern technology and implemented through the Uruguayan Technological Laboratory (LATU), champion of a new managerial approach to public policy in the country. It was, after all, a 'cyber-revolution' in the making, as one of the most popular Uruguayan newspapers called it, echoing the nature of Vázquez's speech in April 2006.

The 'new Uruguay'

Framing CEIBAL in this particular way implied that Uruguayans had to re-make themselves through this programme: new modern subjectivities had to be objectified in and reproduced through it. And as it is discussed extensively in chapter five, the play on 'values' reinforced the link between the objectives of the programme and normative assumptions about 'right' ways of being Uruguayan, of being the citizen of modern Uruguay. The point is that this had to be instantiated at many different levels of practice and through a multitude of manifestations and arrangements, including ways of appropriating materiality through which to internalise and externalise the normative (Miller, 2005). An example of these processes, which successfully created this particular type of modern Uruguayan subjectivity, was the presumed connection – perceived as commonsensical – between CEIBAL, the election of the Broad Front and Uruguay's performance at the 2010 World Cup. Although now mediated by technology, and wrapped in promises of modernity, 'social inclusion' and 'equal opportunities' were once again in the foreground of ideological repertoires.

The world football championship won in 1950 – known as 'maracanazo' – came to represent the 'happy Uruguay' at the height of its glory, characterised by security, equality

and prosperity. 'Football practiced, lived, theorised and discussed, is one of the ways in which a society speaks about itself, introduces itself, is revealed and discovered' explains Uruguayan writer Milita Alfaro (1992: 127), 'and the national football team [...] is a unique occasion to *live* the country in a visible, concrete, unanimously representative way that is translated into people's appropriation of national symbols, generally distant and relegated to official functions'. So in 2010, when Uruguay finished fourth at the World Cup after a heroic deed, the relationship between football and 'core national values' came right back to the fore. Newspaper articles and editorials, carnival songs and street banners, were all of the opinion that there was a 'new Uruguay', once again characterised by prosperity after five years of sustained economic growth, political stability, popular support to the Broad Front's socialist agenda, and now a football victory. An editorial from the newspaper 'La Red 21' signed by Jorge Pasculli (27/06/2010) read, 'in addition to giving us enormous joy, [this victory] is doing a profound good to our society and to each of us individually [...] Uruguay has shown the world (and itself), once again, its worth, its courage, its dignity [...]'. This 'new Uruguay' is characterised by 'its courage, its dignity' which in this piece are directly related to events from recent history, including CEIBAL, which create, once again, certain 'mysticism':

> In 2004, the people entrusted its destiny to the left, which seemed far-off until not too long ago. [...] we impressed the world with our revolutionary Plan CEIBAL, a computer per child, and when the crisis hit most countries in the world, ours continued to grow. [...] There is now a new mysticism of fighting, of working, of making an effort. All of that is part of our patrimony. A patrimony that has been built with effort but with dignity and decorum. [...] these are the attitudes that we have seen in our national team, that have made us identify with them so strongly [...] these blokes are authentic, devoted, humble, good people, good team mates, that are still 'average Joes' in their hearts when they wear 'la celeste' [the national shirt, 'sky blue' in Spanish because of its colour] still compete successfully'.(La Red 21, 27/06/2010)

Figure 3.1. School 42 in Paysandú decorations read 'thank you guys' to the national football team
Source: Author's photographs, 2010

The electoral victory of the Broad Front, 'people entrust[ing] its destiny to the left', and 'the revolutionary Plan CEIBAL' have become part of this 'mysticism of fighting, of working, of making an effort', collectively. Both the results of the election and the CEIBAL programme instantiated these same values in a 'natural' way, so they reinforced each other and their interconnections. The football victory reflected this disposition, so 'we could identify with them so strongly'. The players' 'social values' such as solidarity and humility for the victory, where 'team spirit' was constantly reflected, were signs of this. Once again, the promise of 'egalitarianism' and 'social inclusion', as performed in the football pitch or in the ballot box, are a central part of this Uruguayan 'common sense'. They are reflecting as much as enacting, what the National Director of Culture defined as 'a new Uruguay characterised by self-esteem'. Figure 3.2 shows pictures of school no. 42 in Paysandú, which had proudly decorated its walls with posters of the Uruguayan team and banners that read 'Thank you guys!' [Gracias Muchachos] alongside a list of the 'values' the national team 'have reminded us the importance of', as explained by the Principal: 'tolerance, unity, dignity, loyalty, professionalism, creativity'. And so it reads, 'thanks for showing us that with values, devotion and solidarity, it's possible to go far'.

Figure 3.2. 'Team Uruguay' advert in *The Economist* promoting the country after the World Cup
Source: *The Economist*, 10/09/2010

So perhaps not surprisingly considering the historical role of the state for consolidating these narratives, the World Cup's endeavour was followed by an official advertisement in *The Economist* from the government's investment promotion agency, 'Uruguay XXI' entitled 'New Team Uruguay Can Also Win For You!'. These values were very explicitly inscribed into the advertisement – the message sent abroad was unequivocal:

> [...] How could a country as small as Uruguay field such a successful team against all these sport giants? It is the very fact that we are a small country that gives us an added advantage – we think of our country as a Team. Our competitive tradition drives us to know where our talent is, to make training a core value, and to implement the tactics to enhance our country's ability to win. So it was no surprise that in June, Latin Business Chronicle's survey of 20 Latin American countries concluded that Uruguay leads in technology and broadband penetration. How did we achieve this status? By making computer literacy a government mandate and giving all of our country's primary state school students and their teachers free laptop computers! [...] Team Uruguay offers to bring the same winning spirit and principles that drive our success to enhancing yours. (*The Economist*, 10/09/2010)

The themes of 'inclusiveness' and 'solidarity' were instantiated as team work, which reinforced all other values: the society of short distances 'thinks like a team'. Interestingly, technology was seen as 'fitting in' naturally with these narratives, as being one more domain in which it is possible to 'realise' Uruguayan identity. Technology, and CEIBAL in particular, were means through which Uruguayans could enact this version of themselves. As Miller and Slater (2000: 10) have pointed out in relation to the Internet in Trinidad, people objectify a wide range of expectations in objects and 'engage with material culture through versions of themselves that are both articulated and transformed through that encounter'. By providing access to this technology – emphasising the universality of the

programme – Uruguayans are able to act as the egalitarian and educated people that they 'really are', that they 'have always been'. Roberto Balaguer, an education specialist from Uruguay explained, that 'CEIBAL gives us back an image of ourselves as powerful country, capable, educated and innovative that knew how to be at the beginning of the twentieth century'. This sense of returning to the country's roots, to what made it great:

> […] repositioned us in the worlds' map, it placed us at the forefront of innovation. We are overtaken with pride. CEIBAL is not just an equality or educational plan, it is a provider of identity for a country like Uruguay that was getting used to being not as educated as it thought itself to be, as it wanted itself to be.

CEIBAL is allowing Uruguayans to 'give them back' a certain 'image of themselves' as the 'happy Uruguay' that they once knew how to be.

This framing has been so successful that even at the OLPC Foundation the project has been seen as something that Uruguay really 'owns': 'it is their own project', explained OLPC's hardware designer, John Watlington:

> Uruguay was ready for this programme. The fact that they did it with XOs is because they came along at the right time, but the feeling I get from working with them and talking to them, is that it would have happened with any low-cost laptop. [...] that attitude really makes a difference because they own it and it is their own project. I would credit Plan CEIBAL for whatever they managed to do with us, that's really my feeling.

What is particularly interesting about this quote is that it assumes that Uruguay would have implemented the programme with any device available, that it 'would have happened with any low cost laptop'. Although this might have been possible, the truth is that the project was not conceived until OLPC directly approached the newly elected government at the World Economic Forum in Davos in 2005.

As Fernando Filgueira, a well-known Uruguayan sociologist expressed in his speech to CEIBAL's annual conference 2010, 'CEIBAL has an impact in the Uruguayan imaginary and I think that this is essential. It is for us as Uruguayans and for the workings of the project. Uruguay is repositioned in the world because the world is watching us'. Once more, the image of regaining the country's positioning in the world is associated with recent history:

> Uruguay decides that within recent historical processes of social fragmentation, it will deploy technology as a mechanism for increasing connections. The public school revives with a stronger impetus; it is the public school as pioneer and innovator, as education of quality. Uruguay is seen as an innovating society that looks after its youth and feels younger. The promise of egalitarianism is renovated.

Technology is deployed as 'a mechanism for increasing connections', that will amend social fragmentation. This is discussed extensively in chapter five, as the laptop's ability to 'make

connections' is one of the ways in which people enact 'social inclusion'. In summary, floating signifiers such as 'social inclusion' and 'equality of opportunities' were constantly used to articulate connections between the programme and a particular moment in Uruguayan history, aiming to construct the impossible utopia of the past. There are, of course, many complexities to this process as these 'values' mediate the ways in which Uruguayans resist, adopt and make use of laptops. As discussed in detail in the rest of this thesis, Uruguayans engage with CEIBAL from different perspectives and identities (as teachers, as children, as parents, as political militants) and not solely as Uruguayans, yet as my informant explained, 'the promise of egalitarianism is renovated'.

'Fudging' programme objectives

Complementing the previous section, this one discusses how the CEIBAL programme was explicitly defined, from the start, by using different combinations of these floating signifiers, and the implications of this in practice. CEIBAL's original objective as outlined in the Presidential decree of 2007 read '[...] to promote social justice by promoting equal access to information and communication tools for all our people'. This ambiguity was re-enacted in numerous presentations about the programme throughout the world, as it was presented as having three main components - a technical, a social and an educational one – that were interrelated. A collection of floating signifiers, 'technical, social, and educational pillars', was artfully used to articulate promises for more open or even empty ones: 'social justice', 'equality' and 'equal opportunities'. The ways in which these relationships were expected to play out was never made explicit, either. For instance, at the Inter-American Development Bank's Conference in 2009 CEIBAL's Director, Miguel Brechner, explained:

> CEIBAL is based on three pillars. It is neither a laptop nor an educational programme. It is a programme that combines equality, learning and technology. And the combination of these three pillars will allow us to provide equal opportunities, develop new learning tools, educational tools, and at the same time establish a new relationship in society because it will be completely interconnected. (IDB, 15/09/2009)

As suggested above, the malleable nature of these floating enables allows them to mean different things to different groups, yet still resonate with a Gramscian type of 'common sense'. For any Uruguayan, 'equality', 'learning' and 'technology' resonate with its corresponding 'equal opportunities' and 'new learning tools', to the extent that they represent an 'obvious' way of making sense of this project. It almost requires no justification at all. As Stuart Hall points out (1986: 35) 'this 'obviousness' is itself a sign that the ideas *do* belong to a particular ideological configuration – they are 'obvious' only

because their historical and philosophical roots and conditions have somehow been forgotten or suppressed'. As Karina Acosta, the Director of the National Digital Literacy Programme pointed out in her interview:

> CEIBAL was also something emergent, something that came up, it sort of made sense and they just said 'let's do it'. In the 2005 political campaign nobody was thinking about this and two years later it was being applied. It was as if in that moment they just said 'this is it'. And so I think that generally speaking it was about jumping into it because it was just a good idea.

CEIBAL, the combination of these 'core values', just 'made sense': it was a good idea. This 'natural fit' described by Acosta, and constantly reiterated by people within and outside of CEIBAL, also points to the importance of the terms' vagueness and ambiguity that allows everyone to 'find a home' in them. It creates a shared discursive space to which different actors enrol without necessarily sharing what they mean by its most basic terms. The case of 'equal opportunities' is a particularly illustrative one as it is associated with 'values' such as 'egalitarianism' within the left and with a much broader 'meritocracy' within conservative groups. Clearly, 'meritocracy' and 'egalitarianism' would not share that space as comfortably.

This type of programme framing is generally characterised by what Slater and Ariztia (2007) have called 'fudging:' great vagueness and unacknowledged differences in how actors define and identify both floating signifiers, such as 'equality' or 'inclusion', and the mechanisms by which they would translate into 'social gain' to be claimed as the project's impact. As Slater and Ariztia point out (2007:99) 'the argument is not about dishonesty, manipulation or bad faith: it is about the framing of the forces one invokes, alternatively as objective structures […] or as the outcomes of one's own practices'. In this case, the framing was so powerful that it generated what it can loosely be defined as 'consensus': an overall acceptance that CEIBAL, by promoting 'social inclusion' and 'equal opportunities', is 'doing good'. To an extent, such 'consensus' could only be achieved through 'fudging', as it is the only way in which the same conceptual space can be inhabited by people with different, and sometimes even conflicting, sets of interests. How such 'consensus' was engineered, both materially and symbolically, is discussed in the following section. The point to highlight here is that, as Slater and Ariztia (2007) explain, fudging allowed people to interpret framings in different ways without having to acknowledge those differences. The discursive looseness of such inscriptions, their vagueness, was precisely what allowed for such wide enrolment and the appearance of 'agreement'.

The wideness of the latitude in which those signifiers were interpretively used was reflected in the variety of actors that used the same language to describe the programme.

From authorities at the Ministerial level to children in remote villages, 'digital inclusion', rapidly became a new 'buzzword' that my informants wanted me to 'be familiar with' and to acknowledge their own 'familiarity' with. For instance, an eloquent father from Paysandú's school 42 explained the relationship between 'digital inclusion' and social justice vehemently:

> I am very happy because promoting digital inclusion is one of the most important things that the government has done and I think the majority of people have become aware of what we can achieve in the future. I think was the right thing to do, we are an example to the rest of the world. This has to fill us with pride, I am proud of being Uruguayan and having a government that has done this and has thought of all Uruguayan children without playing favourites. To me, social justice must always go first, it is what any government should aim to do.

When asked, at a later interview, whether he had voted for the Broad Front at the elections, this same father responded unequivocally, 'no, and will never do'. What his case shows is precisely the point that the stabilisation of these values is perceived as so 'common sensical' that is not seen as ideological or even as political. 'Not playing favourites' is what 'any government should aim to do'. However, it also shows how 'fudged' the framing actually was: the same expression was used by political militants and activists to denote quite a different and much more radical agenda of social change. In other words, it allowed for different types of relationships to the national project that it is meant to ambiguously signify.

The fact that 'everyone has one', the universality of it, was an important material element of consolidating this 'fudging:' it reduced interpretative flexibility to the very concrete and tangible fact that every child has one, *literally*. Diego's mother from school 42 explained, 'I think CEIBAL brings about equal opportunities. [...] Because all children, regardless of where they are from, have the same opportunities to access the same information. The impact of social equality is the most important impact that CEIBAL is having'. This was echoed by Micaela's mother from school no. 8 in Montevideo, who does not have a personal computer at home, and explained at the focus group: 'I think it levelled things off: it levelled everyone's knowledge, having access to the XO. Children in rural schools, how could they even dream of having a personal computer! And now they all do'. Likewise, Gaston's and Martina's mother in the rural school no. 78 in Queguayar, explained to me that, 'I like that they all have the same one, they all have one. For those children, poor children, in Montevideo that sometimes live in the streets, that don't have parents to take care of them. This will be a great help, will help them learn'. Put differently, in the country of the myth of 'short distances' and 'averageness', Uruguayans of all

socioeconomic conditions, conceive the programme as important because it 'equalises' the playing field by favouring those less fortunate than them. This is unequivocally manifested in the tangible 'universality' of the programme: it is one laptop per child.

The country's aversion to inequality is translated into support for the programme irrespective of partisan politics. As Ana Laura Martínez, Director of CEIBAL's Social Policy explained in her interview:

> Uruguayans still have this aversion to inequality, which has decreased significantly but it is still present. I believe that people that support CEIBAL, which are the vast majority in the country, do so beyond political affiliations, it has to do with the persisting desire to generate equal opportunities.

CEIBAL's former pedagogical coordinator, Shirley Siri, explained that this support is then reflected in people's everyday responses to the programme. For example, Shirley explained that 'we are constantly receiving phone calls from ordinary people that have found laptops lost or forgotten in taxis, buses or public squares and they want to return them. That shows you people's commitment to the Plan'. This 'commitment' is reflected in the fact that it is unusual to report lost property in Uruguay and to do so without receiving a reward. In fact, a national survey conducted in 2009 by RADAR, a local social research company, showed that 84 per cent of public opinion 'approved of CEIBAL' (RADAR, 2010).

CEIBAL's 'fudging' served another purpose as well: it avoided the need to be accountable for specific policy effects while still stabilising 'signifiers' that construct CEIBAL's material and conceptual order. Put differently, 'fudging' over policy goals precluded the need to report on concrete measures of impact (other than number of laptops delivered or of schools with internet connectivity) because the programme was positioned as having 'broader' 'long-term' social inclusion goals. This, in turn, stabilised the programme's framing without committing to any particular definition of what 'social inclusion' actually meant. Ironically, this also allowed them to claim everything that emerged from it as 'intended impact' – a clear example of this was Miguel Brechner's claim during our interview that 'one of CEIBAL's most important effects was improving children's self-esteem'. In fact, one of the most influential government officials in charge of this programme declared in his interview when asked about the rationale behind CEIBAL:

> What message comes out of CEIBAL? There is really no clear message of what this is for. The laptops are for many different things. I don't think there should be a message about what the laptops should be for. It is part of a political manoeuvre: if you set really clear objectives from the onset, you will be held accountable to them. If, on the other hand, you are vague about what you try to accomplish, you can easily claim whatever impact you have as intended and classify the rest as 'externalities'.

'Fudging' therefore also allowed for the stabilisation of material arrangements while superimposing and recombining these 'values' and then claiming what emerged from such assemblages as 'intended impact'. And while 'fudging' opened a space for politics and legitimised arrangements as 'impact', it also, at the same time, closed down the space for criticism: since CEIBAL signified what was seen as best in local notions of Uruguayan nationhood, it proved extremely difficult for any actor – regardless their interests in its practical implementation–to challenge it. According to Andrés Núñez Leites, a sociologist and teacher, this is because it was framed in moral terms:

> Objects socially valued as positive reinforce each other and add up, generating a virtuous cycle: children, laptops, internet, public schools, equality. [...] the project is good, it intends to do the right thing. It is about providing a high technology object, potentially a learning tool, to children whose parents could have never afforded one. A foundation [OLPC] and the state occupying the role of providing father and loving mother, how can you criticise something like that?

The closeness of this space, the impossibility of contesting the idea that CEIBAL 'does good' was reiterated even by those that wanted to challenge different aspects of the programme's implementation. If CEIBAL allows Uruguayans to 'realise' themselves, both collectively and individually, then criticism over ways of carrying out different aspects of the programme, such as teachers training, seem like mere trivialities. Roberto Balaguer, an education specialist, explained that 'criticism has always being done in lower voice by authorities, parents and teachers […] we are all afraid of criticising CEIBAL'. And he claims that this related precisely to the fact that:

> It has brought us back the image of education, culture and innovation that we used to have, so nobody wants to really question it, regardless of whether or not we understand its objectives or its reach, or its multiple dimensions or its perspectives or its transformative capacity. […] criticising CEIBAL has become a sacrilege: it is like criticising our prodigal son (for some, it is an 'adoptive' son for others) that carries the seed of hope.

The religious imagery of 'sacrilege', compared to 'criticising a prodigious son' only allows Balaguer to suggest, very subtly, that the programme might have been 'an adopted son' for some: the most opposition that the programme has had was from the education system itself, which was not consulted when the programme was created and had a very limited role in its implementation. Even for the education system, which had to 'adopt this prodigious son', the discursive space is closed: it 'carries the seed of hope'.

This disjunction is constantly experienced by teachers in their everyday lives, both inside and outside the classroom: they might disagree pedagogically with the introduction of technology in their classrooms or feel unprepared to use it as a tool in their lessons, but there is a sense of irreversibility that is intimately connected to the way in which these

'values' mediate the implementation of the programme. During a workshop conducted at a high school in Florida, Mariel Cisneros, one of Flor de Ceibo's coordinators described CEIBAL's flaws as a programme as 'one of the perks of the teaching job' and used an interesting metaphor to incite teachers to accept it:

> As a teacher, you know that in some cases it just rains and it will rain from now until the day you retire, and unless you decide to do something else, you will have to open the umbrella. Knowing that it is raining and that you can't get out of this situation, you need to open the umbrella.

The sense of inevitability, the need to 'open the umbrella' because 'it is raining' (CEIBAL is already here), is also reinforced by the widespread mobilisation of civil society that 'supported' the programme, including the group that Cisneros belongs to (Flor de Ceibo). In fact, the whole purpose of that group is generally to visit schools and community centres to 'raise awareness' and 'increase community support'. This included a wide range of activities, from physically handing in laptops to informally teaching parents and teachers how to use them.

In that respect, CEIBAL owes much of its material and discursive stability to the daily practice of the thousands of volunteers who had the role of circulating texts, organising workshops and group discussions, teaching skills, and so on. These groups were vital in validating the framing that connected national 'core values' with concrete project actions, mobilising support and drawing actors and resources to quite remotely located places throughout the country. Monica Baez, CEIBAL's Director of Education, explained:

> I would say that they have been fundamental and defining for CEIBAL. Civil society's involvement in a plan like this actually means that CEIBAL is seen as a 'national project' [proyecto pais]. They resolved technical and operational issues, which were vital. But their most valuable contribution is this other stuff.

From that perspective, and as it is discussed more extensively below, these groups were crucial for the mobilisation of inscriptions that stabilised this political composition, that created the 'national project'. For this reason, development literature would call them 'brokers' or 'translators' as they produce and negotiate meanings in practice, managing 'the significance of development processes and interactions for the various actors involved' (Mosse and Lewis, 2006:9). The point is that these groups, actively building these associations are tying them discursively as a 'national project', closing down the possibility of dissent.

The 'Red de Voluntarios CEIBAL' (RAP CEIBAL) and 'Flor de Ceibo' from the university were particularly invested in this construction as many of their members had a political affinity with the government and wanted its projects to succeed. The political

opportunity of having the Broad Front in power with the 'spark awaken by the image of children with laptops', as it was described, led many political militants, particularly of the generation that had belonged to the party since its creation, to mobilise and support it. Álvaro Gascue, a professor who works for Flor de Ceibo from the Faculty of Media and Communications, explained:

> CEIBAL emerged as part of a political decision to which the university has had an affinity with throughout its history, especially from the twentieth century onwards. The university has distinguished itself from quite early for having a very leftist orientation, progressive, and this is an initiative from a leftist government, the first one ever elected in the country. This government presented itself as emphatically leftist. It was political empathy, at least in our case the old loyalties played out because these were leftist ideas from a leftist government. I think that we all decided quite quickly that it was important to support it.

Many of these volunteers, as well as others that became part of the government, actually belonged to what is known as Generation 83, which was a discussion forum constituted by people that had participated in the student union activities during the struggle for democracy in 1983-84. A case in point was Graciela Rabajoli, now in charge of CEIBAL's educational portal, who 'quit her day job' to join the government:

> The issue is that I am a militant, you see. I have been a frenteamplista [from the Broad Front] since the year 1971 […] I put up with the entire period of dictatorship and when the Broad Front won the election in 2004 we needed to make decisions. All of us. So at the time I was working for a private institution organising their distance learning courses, and I got a call from Garibaldi [Director of Education at MEC] and I had to make a decision. He said he needed me to direct CEIBAL's educational commission. Bring it on! I decided to join the government and criticise from within. Because what we are doing is the art of what is possible, not what one would have always liked or wanted. As an old frenteamplista I still have my utopias.

Rabajoli's 'art of doing what is possible' is a reminder that notions like 'social inclusion' and 'equality' were not only part of this general 'common sense' but they are also, in an old fashion way, ideological. As Hall and Jacques (1983) point out, it is difficult to maintain a clear distinction between ideology and common sense, which is always ultimately political. The question that Rabajoli is implicitly posing is the extent to which these ideas – these utopias – can be effectively organised and maintained when they are applied in practice, when ideology is circulated. This is dealt with in the next section.

The materiality of political compositions

This section of the chapter discusses how CEIBAL's framing was stabilised in practice through assemblages of material and discursive elements. In a certain way, it is a material culture argument about how values and forms were objectified in the laptop and in the programme more broadly. I am not claiming that historical social values, such as equality and social inclusion, are dependent on material relations. Instead, the point is that ideas and values emerge from *things* – it is through objects that they get mobilised and stabilised, and later reflected or transformed into, 'common sense'. 'Social inclusion' is the clearest example of this as it is based on presupposed boundaries that simultaneously 'include' and/or 'exclude' others. Put differently, 'social inclusion' as a social value emerges from material relations of power in the sense that boundaries (between those 'included' and those 'excluded') also function as barriers of access to *things-in-themselves*: products to consume, desks to occupy, and so on. 'Being excluded' is also, very tangibly, about not having access to certain *things*. This helps explain, as discussed in subsequent chapters, why laptops are used to contest or negotiate different notions of inclusion or exclusion present in the field.

The general point is that CEIBAL actively emerges from networks of circulation in which 'fudged' meanings and 'moulded' objects became attached to each other. Notwithstanding the ambiguity of the language used to define the programme (or precisely because of it), and despite fragmentation and dissent among institutional actors, they were constantly engaged in sustaining coherence through 'political acts of composition' (Latour, 1996). Inscriptions in small entities (laptops, policy texts, software) were therefore followed as they were mobilised and became larger, 'macro' ones (a national project, a technical project, a 'development' strategy). Put differently, instead of conceptualising CEIBAL as a totalised force or as a social fact – a 'packaged' development project 'imposed' on a social context – we follow Latour's (1987) premise of 'deflating' the programme to the multiple interactions and assemblages that make it up. This involves examining the way in which heterogeneous assemblages of people, ideas, interests, laptops, software were tied together through their multiple translations. By tracing 'floating signifiers' through their multiple translations as they circulated within and through these socio-technical assemblages, one arrives at a more materialised account of Gramscian notions of 'consensus' and 'common sense'. In Latour's words, 'to take the fabrication of various scales as our main center of interest is to place the practical means of achieving power on a firm foundation' (Latour, 1987: 27).

This strategy of assembling different kinds of symbolic and material resources, and of controlling the multitude of practices from which they emerge, was actually pursued quite explicitly as much by CEIBAL's authorities as by civil society groups, which circulated inscriptions to stabilise the programme and generate 'consensus'. Tabaré Vázquez, President of Uruguay at the time of CEIBAL's creation, explained in our interview the relationship that is needed between some of these resources and underlying social values to generate enrolment and agreement, what he called 'consensus'. In other words, how to form legislation, speeches, performances in relation to those kinds of values:

> Drawing good quality legislation with the best technicians is not enough. Or creating good projects with good technicians is not enough. It is imperative to reach consensuses. First, political consensus. But even if you reach complete political consensus as we did with this plan, it is not enough. You need to draw good legislation, of whatever topic, have broad political consensus to support the project and, finally, broad social consensus to support it all. Because if you have a good project but do not reach political and social consensuses, it fails. If you reach political but not social consensus, the legislation and its projects end up dead in someone's drawer. And if you reach social consensus but not political ones, the project continues because people demand it. So if you reach them all, it's the best possible case and that's what happened with CEIBAL.

The very concept of 'consensus' as used by Vázquez is itself quite a 'fudged' and ambiguous term. The point that he is making, however, is that there are important material, political and social relations (made up of legislation, people, projects) that need to be stabilised to make up CEIBAL. As Entwistle and Slater (2013:9) pointed out, although in a different context, 'we can analytically expand [these relations] into the networks from which they emerge. Because of their network-like, dispersed character, their objectivity is best described as a moving assemblage or event'. Vázquez acknowledged the importance of 'holding together' different elements of this 'moving assemblage:' the documents or texts, the institutional actors and their multiple interests, with what he calls 'social consensuses' that we will characterise as 'smaller' assemblages of people, devices and skills. The overall point Vázquez is making is that it is crucial to stabilise a network of actors – objects, interests, texts – to facilitate 'enrolment' in the project. He explains that in CEIBAL, a convergence was achieved: 'if you reach them all, it's the best case'. As Latour (1996: 78) pointed out, this is because 'the success of policy ideas or project designs is not inherent (not given from the outset) but arises from the ability to continue recruiting support'.

If one continues to use Vázquez's quote it is possible deconstruct and 'deflate' the multitude of elements and actions that characterises CEIBAL's stabilisation. The first one of these elements is what Vázquez described as 'good quality legislation', or 'good projects', which are in fact ways of referring to the multitude of documents that circulate in project

cycles. In the case of CEIBAL, there were several ways in which phrases, texts, videos and images were circulated among actors in its institutional landscape and among the general public. Civil society groups were, as mentioned above, one of the ways in which these circulated. A clear example was the first official publication by CEIBAL in 2008, which was revealingly sponsored by UNESCO and distributed for free in schools throughout the country. The book, called 'CEIBAL in the society of the 21st Century: References for parents and educators' [*CEIBAL en la sociedad del siglo XXI: referencias para padres y educadores*] was a compilation of opinion pieces from different actors involved with the plan, from the MEC to the Uruguayan Technological Laboratory. Writing a piece for this compilation was equated with being 'included' – although to different extents – into the project's self-conception. As figure 3.4 shows, this publication was quickly followed by a second one in 2009 and by the production of manuals, the organisation of seminars and conferences, and the deployment of an aggressive campaign in national media (television, radio, social media networks). In one of the earliest television spots, for example, the message communicated by the presenter, speaking over the image of two children holding a laptop whilst riding a horse, symbolising the country's rural lifestyle, was indisputable:

> Uruguay was the first country in America to return, through Plan CEIBAL, to one of its best traditions: respond to social difficulties, to social exclusion and disintegration, with more education. And did it through a Plan that looked to generate equality in access to opportunities for all its students [...] Plan CEIBAL is, above all, a social inclusion plan.

Once again, as explained in detail in the previous section, the project was consistently framed as having an elective affinity with Uruguay's 'core national values' of 'social inclusion' and 'equal opportunities'. The message of the television advert was unequivocal: Uruguay 'return[s], through Plan CEIBAL, to one of its best traditions'. Pictures of children in public education's iconic uniform, representations of the countryside, were all presented and superimposed in those publications and videos, to consolidate this framing and to build internal coherence. As it becomes clear in the rest of the chapter, CEIBAL's authorities found that the emphasis on dissemination of 'results' was more rewarding than working through the contradictions of implementation (although, of course, they had to do both).

Figure 3.3. CEIBAL's official publications alluding to national 'values' widely distributed
Source: UNESCO, 2007; UNESCO, 2009

The use of these different media to construct CEIBAL's framing and self-conception reflects an understanding of the programme as materialised in and across multiple locations: schools and laptops are just one manifestation; people's television sets are clearly meant to be another. As mentioned above, it can be claimed that consent is constructed precisely through the mobilisation of these different inscriptions, or what Latour (1987) has called 'immutable mobiles'. The way in which the programme is made visible materially by the authorities that created that particular television advertisement, for example, reflects how it is understood conceptually and how it wants to be perceived by the general public. Whatever notions of 'social inclusion' or 'digital opportunities' were inscribed into the video, were then instantiated as it was circulated across the territory and a certain meaning was stabilised. And as Latour (1987) explains, inscriptions are interesting to the extent that they can be mobilised: 'without the displacement the inscription is worthless; without the inscription the displacement is wasted' (Latour, 1987: 16).

To continue with the argument made in the previous section, it is worth pointing out that 'the cascading of simplified inscriptions' (Latour, 1987) as these texts and pictures were mobilised – which recombined and reshuffled constantly these 'floating signifiers' – both consolidated the 'fudging' over its framing and closed down the space for contestation. How can smiling children holding laptops while riding horses *not* be 'socially included'? These inscriptions in different layers of the cascade became 'objections' that blocked the possibility of dissent. In Latour's words, 'the cascade of ever simplified inscriptions allow harder facts to be produced at greater cost' (Latour, 1987:16). As it is discussed in chapter six, however, the concept of inscription is not sufficient to explain the fact that laptops – and the programme as a whole – *embody* these values, which allows people to actually *perform* them. The clearest example is how laptops objectify 'modernity:' although it is impossible to inscribe modernity into particular materials or devices, people

in Uruguay know, narratively, that laptops are 'modern' and should be placed within rational means-end calculations to achieve a particular type of future.

The second type of consensus mentioned by former President Vázquez in his fruitful quote was 'political consensus'. This is a particularly interesting and important aspect of CEIBAL's stabilisation, as the programme had to ensure support from a wide range of actors across the institutional landscape. What Vázquez implies in his quote 'it is necessary to have broad political consensus to support the project', is that the more interests are tied up to this particular framing, the more stable it becomes. As hinted above, the strategy of 'fudging' CEIBAL's objectives was an important enabler as it allowed different groups (teachers, engineers, parents) to 'enrol' while still pursuing their own interest. Framing CEIBAL as having an 'elective affinity' with Uruguay's 'core national values' was a useful strategy to maintain a coherent representation of the programme and, therefore, a successful way of mediating differences and sustaining relationships.

A general critique made about this point is that those phrases, pictures, texts and videos can be interpreted differently. Exactly as they are. The point that Latour (1987) makes, which is crucial for understanding the stabilisation of CEIBAL, is that *precisely* because they can be interpreted differently that so much energy is devoted to stabilising meaning with superimposing arrangements of more texts, images, and signifiers of all kinds. A clear example of this are pictures of children in shanty towns holding laptops, which are in fact used widely in CEIBAL's imagery (figure 3.5). Within CEIBAL's broader political act of composition (Latour, 2000), where images and texts are superimposed with the language of 'core national values', the picture depicts 'equality of opportunity' and stabilises the programme's overall framing as it superimposed with other many arguments about Uruguay's history of equality. The prominent pile of garbage and children's bare feet are systematically rendered invisible. Again, Latour eloquently explains:

> Although in principle any interpretation can be opposed to any text and image, in practice this is far from being the case; the cost of dissenting increases with each new collection, each new labelling, each new redrawing. This is especially true if the phenomena we are asked to believe are invisible to the naked eye. (Latour 1987: 17)

As discussed extensively below, what is 'asked to believe' are 'values' that are not only 'invisible to the naked eye', as Latour explains, but also, more importantly, very open and malleable concepts.

Figure 3.4. Pictures mobilised to stabilise CEIBAL's framing
Source: Carla Prieto's photograph, authorised for reproduction, 2010

The second aspect that is important to point out in relation to achieving 'political consensus', as described by President Vázquez, is that it acts as a 'black box' that conceals the relationship between the programme as 'an intervention' and its effects. As we mentioned in the previous section, 'fudging' CEIBAL's objectives allowed its authorities to be able to claim everything as 'impact': in the informant's words, 'if you are vague about what you try to accomplish, you can easily claim whatever impact you have as intended and classify the rest as "externalities"'. As David Mosse (2005: 230) explained in relation to a very different type of project in Bangladesh, 'ideas that make for 'good policy' – policy that legitimises and mobilises political and practical support – are not those that provide good guides to action' (Mosse, 2005: 230). In other words, securing 'consensus' was easier to achieve with 'fudged' terms that are vague enough to provide a wide conceptual space for different actors to be enrolled in. These terms, however, are much more difficult to convert into actionable instructions (precisely because of their vagueness). A case in point, popular among international development circles, is 'empowerment:' while it can secure adherence, it is difficult to 'operationalise'. By concealing this narrative and its social-historical context (that of the reconstruction Uruguay's 'core national values'), CEIBAL sustained the notion that its 'success' was good policy well executed. Laura Motta, now part of the Teachers Training Council, put it powerfully during the interview: 'policies are not sustained only because of the government's impulse but also because of the social networks that sustain them'.

The third and final aspect of President Vázquez's quote was the need to create 'social consensus'. As inscriptions were circulated and conflicting interests were concealed, meanings were arrived at through practices and attachments: children and teachers acquiring skills by using the laptop; volunteers and parents sharing and discussing their experiences and enacting the programme's framing; OLPC employees reworking the laptop's software; CEIBAL officials drafting impact evaluation reports and other policy texts; pictures circulating online. In other words, a heterogeneous assemblage of symbolic and material elements were continuously worked upon and performed across multiple locations. The point is that not only its meaning was mobilised, but also that it was entangled with specific materialities and practices and with the qualities that emerged from them. As Strathern (1996) explains for a different context, these 'do not simply produce a sign that floats free of them but rather an entity that is a condensation of that network' (Strathern, 1996 cited in Entwistle and Slater, 2013).

Just like a computer screen is the 'appresentational' device in Korr-Cetina and Bruegger's analysis of financial markets, and the fashion model's portfolio becomes a 'happening object' in Entwistle and Slater's (2013) analysis of modelling and brands, the XO laptop materialises CEIBAL in a way that is not limited to its representation: it actually allows users to 'make sense' of the 'spatio-temporally dispersed events' into a 'moving assemblage', (Entwistle and Slater, 2013) interacting with it and moulding it in the process. The very fact that the laptop is a tangible and characterised by 'infinite possibilities' as an ill-defined machine, has helped reinforce the perception of its ability to bring about CEIBAL's objectives, whatever those were understood to be. Maria Jose, a volunteer from RAP CEIBAL in Paysandú, explained that it materialises expectations. In her words:

> XO laptops are an object with a clear objective of integration and inclusion; that might be the most significant impact that is has had. And for this I think that the ceibalita [the XO], as an object, acts as something tangible, and therefore makes people believe that a transformation is possible. I always say that it works like a baby walker: it makes them feel safer. This is the same: the object is concrete and reaches everyone, so it is possible for us all to be included in this plan and make this transformation happen.

The fact that the laptop is something 'concrete' facilitates the enactment of these assemblages: after all laptops were handed in, that everyone had access to them, it was possible to 'perform' CEIBAL's 'social inclusion'.

The organisation of the programme

This brief section concludes the chapter by describing how CEIBAL's fudged objectives were materialised in the organisation of the programme, and consequently, influenced the way it was defined when implemented in practice. It argues that it is possible to look at the material culture of the organisation and distinguish the set of values that it embodies and the relationship between them and overarching consensual values. As discussed above, the programme's objectives were defined in very ambiguous and vague terms, which facilitated its wide latitude. However, it also created a practical challenge at the time of implementation as those fudged goals needed to be concretised in action: children and parents had to use the XO laptop to achieve social inclusion.

Initially, when the project was first created, the ambiguity of the programme's goals was translated into an equally vague and complex geography of delegation. It was agreed that the project was going to be coordinated by two inter-institutional groups, the political commission and the short-lived education commission, within which members of all organisational actors involved were represented: the Central Directive Council (CODICEN), Primary Education Council (CEP), MEC, Uruguayan Technological Laboratory (LATU), National Telecommunications Agency (ANTEL), Agency for the Development of Electronic Management of Government and of the Information Society (AGESIC), and the National Agency for Research and Innovation (ANII). According to CEIBAL's website:

> the political commission is in charge of defining, as it name indicates, policies that regulate the entire CEIBAL programme. It works in coordination with the education commission, which assesses CEIBAL in educational issues, develops a pedagogical proposal and promotes lines of action accordingly, in addition to implementing professional development courses for teachers and providing them with technical support. (URL: ceibal.org.uy, last accessed 06/10/2013)

The education commission, on the other hand, was composed mainly by officials from different concerted organisations or groups within the education system, and was in charge, as pointed out, of providing the programme with an educational component.

Assuming that the political commission would provide policy directives, the Presidential decree stipulated that LATU was to be responsible for the technical implementation of the plan, including managing operations and logistics. This was presented as a strategic and innovative measure to 'separate politics from management', as explained by Miguel Brechner, CEIBAL's Director. By establishing this presumed distinction, the 'technical' component of the programme was not only presented as apolitical, but also as non-ambiguous and value-free – that is, the opposite of 'fudging'. It was almost a

Habermasian elimination of the distinction between the practical and the technical. Put differently, by reducing 'practical' questions, such as operations and logistics, to 'technical' problems for experts, the Presidential decree reduced the need for public democratic discussion of values, thereby depoliticising the programme. Declaring CEIBAL as technical was in fact a successful way of closing down the space for criticism and of positioning it as 'above politics'. This, in turn, reinforced its status as unchallengeable and reflected quite clearly underlying judgements about right and wrong ways of modernising Uruguay. It also strengthened the general perception that technology not only signified modernity and social change, but that it is also an instrumental tool to achieve it. In other words, it increasingly defined Uruguay's 'future' in technical terms.

Since it was exclusively charged with the entire management, development, regulation, and promotion of CEIBAL, including the handling of educational content, LATU quickly became associated with the development of educational technology in the country as a whole. So after the initial stabilisation of CEIBAL's organisational landscape, it became clear that LATU was to become *the* 'obligatory point of passage' (Callon, 1987:196) for all things CEIBAL related. LATU officials certainly did not believe that they had the complete solution to the problem of 'social exclusion' but they believed (and still do) that they have found methods that would, if properly executed, lead to its appropriate 'technical solution'. Therefore, the ability to coordinate among heterogeneous actors, especially guaranteed by the capacity to do so technically (which others could not do), provided them with centralised control. This was reinforced by the fact that technical expertise provided LATU also with the sole right to speak to OLPC about laptop deployment and therefore became the single locus of entrance into the programme for those from abroad. This built a bureaucratic barrier between 'inside' and 'outside' with a set of exchanges between the two defined by LATU, which defined the direction of the programme by its operational needs. The objectives of CEIBAL as an organisation became CEIBAL's objectives as a project: it became solely a laptop deployment and connectivity-provision one.

The best illustration of how profound this process was is the fact that CEIBAL was not simply reshaped as it took in these developments: it became a new organisational actor, formally, in its own right. The team that worked on CEIBAL within LATU became a separate public organisation responding directly to Presidency, the CITS. It was no longer defined – and named as – a 'technology-based' organisation but one in charge of 'digital inclusion'. Revealingly, at the time of writing the organisation had once again changed its name, and it is now called 'CEIBAL Centre for Children's and Youth's Education'. The emphasis lies in improving the quality of education, having finalised the delivery of laptops.

This has strong implications, particularly considering that children's education has historically been responsibility of the education system.

On that basis, CITS was able to enforce a particular division of labour among organisations involved in the programme: using these 'floating signifiers' that defined its objectives to classify certain aspects, actions and actors within the programme, into 'technical', 'social' or 'educational', it effectively inscribed values on them and sorted the project out. This created three ontologically distinct zones purified in CEIBAL's organisational structure as illustrated in figure 3.6. The image is particularly revealing as it reflects a very specific cartography of power within CITS that informs the shape that the project now has and clearly demarcates the negotiation space available to different actors both within and outside CITS by revealing the way in which its different components were pounded against each other. In a certain way, this cartography of power (and geography of delegation) traces the opportunities and constraints provided by the organisational structure to different actors. And it is clearly around 'the technical' that 'the social' and 'the educational' are being bent. Put differently, the project as a whole was more clearly demarcated as 'technical' not less because all non-technical activities were made residual.

Figure 3.5. CEIBAL's organisational structure reflects the three ontological zones: social, educational, technical
Source: CEIBAL's internal document, authorised for reproduction, 2010

To defend the system of difference, there was a process of reciprocal simplification within the institutional landscape: actors' framings were simplified from the standpoint of the other and their remits were reduced to single functions. CITS became a 'punctualised' actor in charge of deploying laptops and the education system was seen as responsible for making children use them. Although this account is, of course, schematic, some of the

complexities of CEIBAL and of the XO itself were also invisible to the actors themselves. As Stuart Hall (1996) points out,

> It is only when these differences have been organized within language, within discourse, within systems of meaning, that the differences can be said to acquire meaning and regulate conduct.[…] Not that nothing exists of differences, but that what matters are the systems we use to make sense, to make human societies intelligible (Hall, 1996).

The main one of these differences in organisational ethos was the issue of timing and 'effectiveness'. Overall, the choice of LATU as an implementing agency was justified in those terms: it could implement the programme faster and better. And the results of such 'efficient' management were of course visible in its quite impressive technical achievements. Education, characterised as slower and intrinsically more difficult to replicate than technology, was – in opposition – made the source of controversy.

The conflict, almost reduced to the dualism 'technical versus educational', was explained by one particular sentence repeated persistently throughout the institutional landscape: 'the problem is that there are engineers in the programme that have never stepped into a school, and many teachers that have not even opened their laptops'. A representative from the education system to the political commission put it in these terms:

> [...] there was a group of engineers saying that it didn't matter if we distributed laptops through pharmacies, the most important thing was to reduce the digital divide. So they were basically advocating for a CEIBAL without an educational component. The other group, coming from an educational background and perspective, claimed that all learning processes would now have to go through the laptop. I saw quite clearly that neither of them was right, neither could be right. They just couldn't.

The articulation of these relationships included identifying degrees of competence in solving different types of practical problems: CITS was undoubtedly 'more prepared' to deal with 'technical' questions than the education system. However, there were not only tensions over whether or not CEIBAL had to be implemented via schools or via pharmacies (which was of course not considered seriously, one would hope). It was also about whether or not technology by itself had the potential to bring about the desired change. The answer lies, to an extent, in the fact that CEIBAL is now the centre for the promotion of children's education.

On one hand, arguments raised draw on an array of experiences from upper-middle-class engineers or IT specialists that considered that knowledge of programming, seen as the most important skill promoted by CEIBAL's laptops, would almost 'automatically' translate into employment and growth opportunities of all kinds. Just as they, graduates of the university's School of Engineering or the best technical schools in the

country, had the lowest unemployment rates in the labour market, so would today's children in the future if they acquired those skills 'to succeed in the twenty-first century'. It is important to point out that engineers have a particularly high status within Uruguayan society, equivalent to the role of doctors or lawyers elsewhere, which is now increasingly being reinforced by the impressive growth of the software industry that has transformed them into 'global actors'. So they interpreted their 'success stories' through a shared development narrative: a country of programmers, it was claimed, would be a prosperous one. This is discussed extensively throughout the thesis also in Bourdesian terms, as access to technical skills and cultural capital are seen as accentuating advantage. In the words of Pablo Flores, an engineer who created CEIBAL JAM:

> I imagine a country where there could be many more people with skills in the field of technology, which can give them many more opportunities to provide services for the world. [...] It is an impressive opportunity for growth, the Switzerland of Latin America if you want to see it. But the world from now to 30 years onwards, it is impossible to predict.

As Flores' quote shows, questions over whether CEIBAL is more an 'educational', a 'technical' or a 'social' programme, were also ways of articulating theories about correct ways of being and constructing 'modern Uruguay'. So what is most frequently seen as a value-neutral programme changes as actors themselves make assumptions about correct or incorrect practices of doing CEIBAL. As it is discussed extensively throughout this thesis, the use and manipulation of these labels, of these three 'pillars', were performative moments of different ways of imagining the country's future. As discussed above, one of such ways was claims over the universality of technical needs: everyone needed to know how to programme a code. Articulating the importance of 'digital skills' is a way of constructing a vision of how today's children should become citizens of this twenty-first century Uruguay, of transforming a national technocratic project into a moral one.

Conclusions

This chapter discussed the role of 'core national values' in constructing what is perceived as a 'natural affinity' between Uruguay and CEIBAL. Overarching values, such as 'social inclusion', were signifiers and ideas integrally related to a national project of 'development', instantiated at many different levels of practice. Interestingly, these values can be conceptualised as 'floating signifiers' (Hall, 1987) because they are, to an extent, malleable and open enough for everyone to 'find a home in them'. People use them in

everyday life to make sense of what happens in their political and social worlds: the promise of 'egalitarianism' and 'social inclusion' has become a central part of Uruguayan 'common sense'. This is so much the case that this framing appears not to be ideological at all, but simply an obvious way of expressing 'what everybody knows'. Interestingly, these values were used within CEIBAL to articulate connections between the programme and a particular moment of Uruguayan history. While the world is still in awe over the quickness and effectiveness of CEIBAL's implementation, most people in Uruguay described it as resulting a 'natural fit' between the programme and the country. This is so much the case that even at the OLPC Foundation, where the idea was originally conceived, it is widely perceived that the project is something that Uruguay 'really owns'.

The use of these values to 'fudge' the programme's objectives had two main outcomes: firstly, it precluded the need to report on concrete measures of impact (other than number of laptops delivered or the number of schools with internet connectivity) because the programme was positioned as having 'broader' 'long-term' social inclusion goals; secondly, it also closed down the space for politics and criticism as it signified what is seen as best in different notions of Uruguayan 'identity'. This was the case even for those that showed signs of opposition, such as the education system, which was not consulted when the programme was created and had a very limited role in its implementation. Although they might disagree pedagogically with the introduction of technology in their classrooms or feel unprepared to use it as a tool in their lessons, there is a general sense of irreversibility among teachers that is intimately connected to the way in which these 'values' mediate the implementation of the programme. In that respect, it became the domain space in which both a 'national project' and a 'technical project' are performed as different aspects of being Uruguayan were actively negotiated. These negotiations even included the processes by which values were physically inscribed in the laptop, which is the subject of the next chapter.

Chapter IV: Material delegations

'CEIBAL is a political action, it is a decision to buy, with everything it implies, a certain number of computers for an estimated number of children, and to deliver them. Very concrete. All the ideas, representations, pedagogical plans and people's expectations are something else.

CEIBAL is something material'.

Shirley Siri, former Pedagogical Coordinator of CEIBAL within ANEP.

This chapter focuses on the XO laptop and analyses the different ways in which its materiality made itself known and meaningful. It looks at how practices were mediated not only by the device's scripting but also by the multiple ways in which it has been signified. This is important because accounts of what CEIBAL is meant to accomplish generally, and what laptops are for, concretely, were surprisingly fluid. The chapter is divided in two large sections. Part A first looks at what has been inscribed into the laptop's design, focusing on how competence was delegated in its scripting, and then discusses how CEIBAL reconfigured this. It argues that affordances were designed and constructed with specific notions of underdevelopment in mind (for example, low energy consumption). The very idea that children in developing countries *need* a – rugged, high-contrast, green – computer is a profoundly social and political statement as it is strongly based on assumptions about how people would, could or should live in their own societies. The XO is particularly interesting in that regard because of its negative prescription: it is meant to be a completely open-ended and multi-purpose machine. This ill-definition, when combined with CEIBAL's 'fudging' over the mechanisms required to accomplish its objectives, generated an extremely diverse and rich array of responses and local instantiations. Revealingly, this diversity was concealed rather than produced by policy because as the previous chapter describes, CEIBAL officials devoted much of their energies to maintain coherent representations of the programme.

Part B of the chapter follows various actors in contexts of use in order to capture how they make sense of material delegations, transforming the laptop in different ways so that practices and the device co-evolve. I do this by tracing different types of uses that assemblages of actors made possible, which places the abstract notion of 'function' in a concrete social context. A key finding is that teachers' initial resistance towards both the

laptop and the programme was followed by a process of increased value attribution as they discovered more pedagogic and didactic possibilities in the device, which was then translated into more frequency of use within the classroom. In contrast, children's appropriation of the device was facilitated by novelty and their levels of interest were sustained as the most popular use were videogames, which are constantly being released. The interplay between function, value and meaning of XOs is explored through the laptop's breakage. This is because what it means to be broken, to 'not work' properly, is just as technical as it is social, and it can only be understood in relation to normative notions of function and use in practice.

Conceptual framework: a chapter on 'the object'

The consolidation of the programme's technical profile as described in the previous chapter, and its consequential emphasis on delivering devices, effectively attributed great importance to the laptop: CEIBAL is and has been, to a larger or smaller extent, a laptop-based programme. This focus on delivering material pieces of technology – laptops and infrastructure – established an important distinction between the material and the conceptual orders of the programme: distribute laptops first and make sense of what it is meant to accomplish both in functional and symbolic terms, afterwards. As Shirley Siri, CEIBAL's former pedagogical coordinator pointed out, 'CEIBAL is something material'. This chapter attempts to take the technical device seriously and therefore bring the materiality of practice firmly into view. It does not mean, however, that the emphasis of this chapter is solely placed upon the artefact. The central focus is on processes of mediation and objectification, whereby subjects and other objects relate to the artefact in practice. This contrasts sharply with some other studies on the OLPC programme, and of CEIBAL in particular, which have focused on the context of laptop use and have neglected the importance of the material properties of the XO for the construction of such practices. As a result, as Silva and Westrup (2008:3) pointed out, 'IT objects are deemed to be stable, discrete and fixed: that is the IT is taken for granted and considered to be unproblematic'. In this chapter, on the contrary, we argue that the XO laptop is always dynamic and emerging, both reconfiguring its users (Woolgar, 1991) and being transformed as a result of its encounter with them.

The premise is that the materiality of the laptop structures both relations between people and possibilities of practice, opening certain social options and closing others. In a certain way, as it has been widely described in the literature as processes of 'inscription'

(see, for instance, Akrich, 1992, Akrich and Latour 1992, and Bijker and Law, 1992, Oudshoorn and Pinch, 2003), in which designers embed visions of future use in what they make, delegating particular types of behaviour and competences to both people and the device. Put more simply, objects are designed with a view of *how* they are to be used. A clear example of this is Latour's (1991) analysis of a hotel key fob, as its size (generally larger) implies 'don't take me away'. In his account, 'things (the key fob) make social relations (between client and hotel keeper) durable' (Shove *et al*, 2007: 7). Interestingly, this claim implies that when defining the characteristics of objects, designers inscribe their vision of both the user and the context of such use as well. As Akrich (1992: 208) explains, 'designers thus define actors with specific tastes, competences, motives and aspirations, political prejudices, and the rest, and they assume that morality, technology, science, and economy will evolve in particular ways'. The shape and form that objects take, their formal properties, are determined, to some extent, by these assumptions and practices. As Suchman (2005: 381) affirms, 'the singularity of an object, correspondingly, is an outcome of discursive practices that render it coherent and stable, rather than a property that inheres in it *sui generis*'.

In turn, this generates a 'script' that predetermines 'the settings that users are asked to imagine for a particular piece of technology and the pre-scriptions (notices, contracts, advice, etc.) that accompany it' (Akrich, 1992: 208). As Shove *et al* (2007) point out, it is therefore quite ironic that 'designers' efforts to understand the user have been framed in such a way that they obscure the crucial point that rather than simply meeting needs, artefacts are actively implicated in creating new practices and with them new patterns of demands and the point is that new demands, injunctions and forms of practice arise as social and technical systems co-evolve. This approach emphasises negotiations between designers and users and conceptualises both as active agents in the development of technology. Interpreting and responding to such inscriptions is not as easy, however. As it is discussed below, the complexity of devices not only emerges from their technical characteristics and formal properties but also from the 'mundane difficulties of interpretation characteristic of any unfamiliar artefact' (Suchman, 2007: 9). This is because 'making sense of a new artefact is an inherently problematic activity [...] however improved the machine interface or instruction set might be, this would never eliminate the need for active sense-making on the part of prospective users' (Suchman, 2007: 9). For this reason Akrich (1992: 209) pointed out that 'we have to go back and forth continually between the designer and the user; between the designer's projected users and the real users, between

the world inscribed in the object and the world described by its displacement' (Akrich, 1992: 209).

The XO laptop, like any other artefact, contains a sense of normative use and therefore naturalises new practices and produces a very specific 'geography of delegation between what is assumed by the technical object and the competences of other actants' (Akrich, 1992: 206). Put differently, the choices that designers make imply decisions about what should be delegated to a machine and what would be left for people to do. In this way 'the designer expresses the scenario of the device in question – the script out of which the future history of the object will develop' (Akrich, 1992: 207). As following chapters illustrate, it is precisely this 'geography of delegation' that is constantly questioned, and sometimes even resisted, in Uruguayan classrooms. To be sure, Uruguayan teachers could not always come forward to play the role (or lack thereof) envisaged by the XO's designers and children defined quite different roles of their own. Yet the point that needs to be made is that the script is a major element for interpreting the interaction between the laptop and its users: it is crucial both in my interpretation and in the interpretations made by teachers and students. It raises questions of what scripts actors actually recognise in the XO (that is, how they interpret it) or whether those scripts have an impact on practices regardless of those interpretations. As discussed in the context of laptops' breakages below, the condition of XO laptops was reflective of the extent to which they had been used in ways that conform to the norms they have inscribed in them. This is because the laptop is not a passive means of accomplishing certain practices but an active co-constitutive elements.

In addition to the materiality of practice, this chapter also explores the relationship between the laptop and associated forms of value in order to describe how the device interacts with more encompassing assemblages of meaning, expectation and understanding. The question of what constitutes 'value' is explored through articulations of need and technical affordances that reveal tacit and explicit understanding of the role of things in daily life. We look at the different ways in which meanings and expectations are constantly materialised in the laptop, which is of immediate relevance for processes of consumption and use. This neither means that the laptop meets pre-existing functional or semiotic requirements nor that it automatically configures needs and practices for those who use them. Instead, interpretations of value are mobile, contextual and certainly not intrinsic to the device itself. The point is not that different meanings are given to the laptop, but that its 'workability' or 'instrumentality' is embedded within a wider context of assumptions, beliefs, actions and so on; all of which are open to contestation but some of which remain more closed than others in practice. Values, therefore, are seen as residing in

the relation between people and the laptop, rather than in the laptop alone. More specifically, I argue that the laptop's value emerges from the assemblage of objects with people and also, crucially, from the relationship between sign and function ('sign-value'). Promises embedded in CEIBAL as 'the carrier of modernity' generate technical requirements that are materialised in users' expectations of what a laptop 'should be'. These, when located against the materiality of the XO laptop, not only attribute a specific type of value to laptop-related practices but also become a strong political claim.

Part A: Inscribing normative use

This part of the chapter looks at affordances inscribed by OLPC into the laptop's design, focusing on how competence was delegated, and then discusses how CEIBAL reconfigured them as the laptop entered the programme's discursive and material space. The first section examines the way in which both designers' individual experiences and notions of underdevelopment were inscribed into the XO. The second section looks at how CEIBAL adapted these principles to the Uruguayan context incorporating not only pragmatic considerations but also inscribing the notion of 'social inclusion' (as discussed in chapter three), so that it could perform it. The third and last section articulates relationships between these reconfigurations and emerging notions of utility and function attached to the device. It argues that disjunctions between the laptop's design and what has been signified into CEIBAL have led working-class families – which are the target of the project – to question the appropriateness of the XO for the production of the kinds of modernities promoted by the programme.

OLPC's inscriptions

As it is described in the introductory chapter, OLPC's mission was to create a laptop that could provide similar functionality to that of a mainstream computer while making it affordable and 'usable' within the context of a 'developing' country. This meant that designers had great technological challenges: it had to be rugged and consume as little energy as possible while providing for a free or very low-cost software solution that does not require much processing capacity (as this would increase its price). The vision behind it was strongly shaped by designers' views on the transformative power of technology and by their professional identities, particularly that of Nicholas Negroponte. For instance, OLPC's

hardware designer, John Watlington, conceptualised the XO laptop's potential in relation to his own experience of creating and 'building things' with technology, of turning what other people have built 'into a videogame':

> laptops are a wonderful tool for simulating, so for thought experiments, for building things without spending a lot of money and you can build on others, it is really an interesting experience to step in and just add that top layer of complexity to what other people have built up and turn it into a video game, an application.

In that respect, there was a common theme amongst programmers at OLPC as most of their stories followed a similar pattern: a young boy – white, middle-class and suburban – accessed a computer, taught himself programming skills, and grew up to be a scientist at MIT. John Watlington, for example, kept recollecting memories from his first encounter with a computer during our interview: 'I know what I would have done with a laptop like this if I had the opportunity as a child'. As Warschauer and Ames (2010:209) eloquently summarise it, 'these hackers are mythologizing their own childhoods based on the overly individual-focused worlds they live in, and now they are using these myths to promote an overly individualistic alternative to traditional education around the world' (Warschauer and Ames, 2010:10). Akrich (1992) calls this phenomenon the i-methodology by which innovators and designers substitute their experience for those of users.

Interestingly, this implied that there was a very clear delegation of competence to both children and to the device built into its design. Whilst laptops are taken as capable of 'building things' children are construed as able to build knowledge with the device's help. This is directly related, and emergent from, Seymour Papert's theory of constructionism developed in the 1960s at the MIT Media Lab. It conceptualised learning as highly dependent on children constructing their own knowledge and on individual laptop computers assisting with such construction. In Papert's words, children 'will teach themselves. They'll teach one another. They are many millions, tens of millions of people in the world who bought computers and learned how to use them without anybody teaching them. I have confidence in kids' ability to learn' (Papert, 2006 cited in Warschauer and Ames, 2010:35). Constructionism therefore emphasises what Papert (1980) calls 'problem-based learning' as the fundamental educational experience. A computer uniquely fosters this type of learning by allowing children to 'think about thinking'. Following Papert, Negroponte and his colleagues attribute great importance to laptops as the enablers of such knowledge construction, even to the point of claiming that sharing a device would be as inadvisable as asking children to share a single pencil.

The strongest implication of this is that, by using the laptop in particular ways, children are expected to teach themselves. This particular delegation of competence avoids much of the struggle for power between children and teachers within classrooms – it reduces negotiations because it directly suggests an agreement on what the different 'responsibilities' or 'competences' are. As the reader might recall from the introduction, this contrast sharply with Uruguay's explicit efforts to include teachers into CEIBAL's remit as it officially called the project 'one laptop per child *and teacher*' programme. Interestingly, Negroponte declared during a public appearance at the Television Show Colbert Report in November 2010 that 'this is a way to learn without building the schools and the teachers immediately. So when you have so little, this is the way to go immediately and leverage the children themselves'. The underlying assumptions are that efforts to implement systemic reform in the education system are too slow or expensive, so laptop implementation must proceed without them. In Negroponte's words: '[w]hen you go to these rural schools, the teacher can be very well meaning, but she might only have a sixth grade education. In some countries, which I'll leave unnamed, as many as one-third of the teachers never show up to school' (Negroponte, 2006 cited in Warschauer and Ames, 2010: 35). This is most certainly not the case in Uruguay, so it raises the question of the extent to which the laptop is meant to become 'the school', calling off the need for institutionalised education. In that respect, it is profoundly ironic that Negroponte and his colleagues have absorbed the radical critique of de-institutionalised humanistic education (of which Latin America has a strong tradition with the likes of Paulo Freire) and put it to work in a centralised, techno-deterministic, institutionalised project.

The point that needs to be made is that OLPC officials' notions and understandings of 'underdevelopment', including the workings of education systems in the South, are in great measure embodied in the laptop's design, particularly its hardware.[15] Because 'clients' would be nations from the global south, the device needs to be inexpensive and able to perform in what OLPC denominates 'extreme conditions' (OLPC, 2013). As the Chief Technology Officer, Edward McNierney explained, it required particular 'technical goals', that 'drove the vision initially':

> one of the things that you will see written on the white boards around here is that, from an engineering perspective we have four technical goals as we work on the laptop. The laptop needs to use less power, cost less, be more

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[15] At the time of writing the hardware was being manufactured by Quanta, which has been characterised by violations of labour rights in their supply chains and by uncontrolled pollution. The irony is unavoidable: exploitation of workers and the environment in one region is justified in order to produce devices whose putative purpose is 'development' for another group of people.

rugged and robust and have more performance. We try to explain to people that we do things in that order.

The laptop's power consumption, cost and robustness, these 'four technical goals', are based on almost colonial assumptions about the South's physical environment and its relationship to people's lifestyles and values. Robustness is required, for example, because laptops would be used in what OLPC considers 'extreme conditions', presumably 'rough' geographies or 'unpaved' urban landscapes. Interestingly, these 'extreme conditions' differ from normative notions of where a computer should be used: although OLPC's laptop is designed to be used in these environments, the ultimate expectation is to transform those very same conditions as part of the organisation's mission to promote 'development'.

More concretely, these notions of 'underdevelopment' are visibly inscribed in the hardware in at least three ways. Firstly, the laptop is rugged, being water and dirt resistant, which is a function of predictions about the stresses that engineers imagined it would have to bear once in the hands of children. The laptop's plastic walls are therefore 2 mm thick as opposed to the standard of 1.3 mm. Secondly, it has a high-contrast screen, which allows children to use the laptop outdoors. This feature is perceived to be particularly important within the OLPC community as it is meant to facilitate the goal of promoting informal learning. Considering Negroponte's declarations on the 'inappropriateness' of education systems in the South, the concept of 'informal education' could just well be used as an euphemism for Papert's individualised non-institutional learning.

Interestingly, low power is identified as the main technical priority: 'the largest reason that the XO can work is because of the low power requirements', explained Reuben Caron, the Director of Deployment Operations, who regularly supervises deployments in Africa and South America. He noted:

> The majority of places that we go to don't have a lot of electricity so they the low power requirements allow the XO to be used in these types of developing countries where power costs are very substantive and normal commodity laptop would be much more costly for a government to deploy. I always think that the priority of everything that we do is lower the power and electricity costs.

He concludes by explaining that, 'if you can't charge the laptop, nothing else matters. If you can't turn it on, the design doesn't really matter. And if you can't afford to buy it, it doesn't do anything at all'. Interestingly, and as the interview progressed, the Chief Operations Officer, Edward McNierney admitted that:

> in Uruguay that's not even important, maybe in the rural areas it might be? When I talk to CEIBAL about the cost of updating the laptop, in Montevideo the cost of power is so low in most of the situations that if I add 2 dollars to improve the power it just doesn't make any sense. The conundrum that this

put us in is that the countries that are really buying the laptops and deploying them are Latin American countries which tend to have better power infrastructures than countries that are not buying them but are in really sad shape.

In other words, although low-cost and low power are seen as the main priorities within OLPC's engineering team, it became clear to its members that those countries that can afford such programmes are precisely the ones where their notions of 'underdevelopment' – lack of access to electricity in this case – are, to a great extent, irrelevant. The guiding principle of low energy, for example, is not even a defining factor in countries were laptops are being bought.
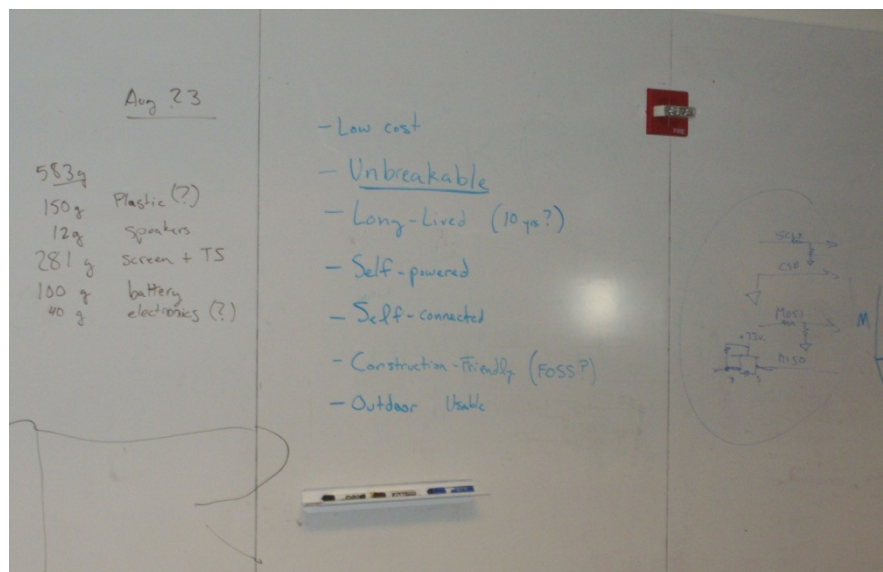
Figure 4.1. The whiteboard at OLPC's offices lists priorities for laptop design: 'low cost, unbreakable, long-lived'
Source: Author's photograph, 2010

Finally, and perhaps more indirectly, the XO's colour was chosen both to be attractive for children but also to make them so distinctive that it would deter theft as well. In other words, the laptop's colour is designed to be so strongly child-like that it could be easily associated with the programme and would prevent adults from taking them. OLPC's hardware designer, John Watlington, explained that, 'it was a definite attempt not to be black, or grey or beige or one of the traditional computer colours. It was an effort to make it a little more exciting, a little more child-like'. The choice of colour, the bright green, however, -which ended up being such a significant part of the laptop's appropriation process in Uruguay – in fact resulted from quite arbitrary considerations. In his words:

> the white because it hides a lot of defects in the plastic making process. And Nicholas [Negroponte] would tell you that it is green because the first country that we approached to do an OLPC deployment was Nigeria, and the Nigerian flag is white and green, and the President of Nigeria agreed to do a

small pilot project there and Nicholas said that in honour of the country we would make the colour of the laptop green and white. So that would be the anecdotal story of why it is white and green.

Interestingly, this anecdote also points to the same tacit themes of techno-modernity and nationalistic projects of development discussed throughout this study: it is about the relationship between development projects and the production of new, nationalistic and modern subjectivities. Although the laptop stayed white and green everywhere else, the way these colours were chosen – or just the way that story is told now – is a key example of tying the materiality of the object to the materiality of Nigeria: the colours of the flag. The choice of 'CEIBAL' as the name of the programme, which is symbolically the name of Uruguay's national flower, also follows these nationalistic themes.

While the XO's hardware design promotes specific types of practices, its prescriptions are certainly ambiguous: it needs to resemble a mainstream computer but it is not expected to be necessarily used as one. In fact, designers were not sure what the laptop was going to be used for in different contexts, and to this day, they still do not. As Edward McNierney, Chief Technology Officer at OLPC admitted, 'when I say the XO, I never worked on a project before that we kept thinking that we didn't know how it would be used'. In contrast to other projects, where 'marketing has been done, they decided what the customer wants, and they are cutting features and saying what it needs to be', Edward explained that with the XO 'we are trying to build as cheap a computer as possible but not cutting corners in any way that would make it break more often or make it less than a computer that you would like to own'. Stating that the XO needed to be something they 'would like to own' is effectively a reflection of the i-methodology discussed above.

Figure 4.2. OLPC's open and 'modern' workspace configuration is believe to lead to collaboration and innovation
Source: Author's photograph, 2010

In contrast to this ambiguity, the XO's Linux based operating system and its multiple applications have a much more prescriptive nature, although that prescription is precisely its openness and flexibility. It is important to mention here that in this chapter hardware and software are treated as analytically equivalent and continuous vis-à-vis materiality in order to reflect the extent to which OLPC engineers conceived hardware and software as part of the same kind of delegation. In particular, Sugar – a graphical user interface written in Python and based on the XO windowing system – makes the laptop an immediate application-development environment. According to the creator of Sugar, 'theoretically, anyone can develop applications in the Sugar user interface' but as it is discussed below, that is far from the reality in certain contexts of use. Interestingly, the user experience is quite different from that of current mainstream operating systems, especially because it contrasts sharply with the 'office' metaphor and favours concepts more familiar to children, such as friends, neighbourhood, and journal (Flores and Hourcade, 2009:52). As a member of CODICEN, the Central Directorate Council within ANEP, explained:

> I am a great defender of Sugar's metaphor because it resembles a playroom more than the ordered and structured office used by adults. In that sense, it is an element that provides great independence for children. It drives us, the teachers, mad because it is so different from what we are used to, but it is up to us to change our minds.

Although it is expressed as the tool for the 'construction' of learning processes, the very idea of using the playroom metaphor denotes that playing with technology is seen as the means to achieve a given end: the creation of 'explorative' and 'innovative' children 'provides great independence'. Play is perceived not only as an end in itself but also as instrumental in producing the 'right' kind of person in the future. The metaphor of the playroom therefore supports this constructionist idea that learning is driven by student exploration, so 'it is up to [teachers] to change [their] mind'. As one of the engineers explains:

> the laptop invites exploration, whether that's exploring things online or exploring software that is on the laptop, changing or modifying it, whether it is actually getting a screwdriver and exploring inside the laptop or looking, we try to make it inviting along the way and I think that it is an important part of our vision: bringing back some of the invitation to explore and investigate the things you have around you, in a world where increasingly, particularly certain products, are designed to be that you cannot open them, fix them or repair them, they are just designed for you to take and we want to do the opposite: please open this up, please explore it.

This invitation 'to explore' is therefore inscribed into the hardware and in the software, as reflected by its 'openness' and by the expectation that it could be adapted in use: 'actually

getting a screwdriver and exploring inside the laptop'. This is, of course, more characteristic of the software than of the hardware, mainly due to economic reasons (Silva and Westrup 2008). Hardware cannot be replaced so easily if it is broken, but operating systems can easily be rebooted.

A clear example of this prescription is the fact that in order to encourage children to investigate and 'take risks', there are no error messages within the operating system. The creator of Sugar, Walter Bender, explained why it is important not to penalise errors:

> if you want kids to take risks when they learn and try things, you have to make the penalty for making mistakes low. With high penalties for making mistakes they learn not to try anything that is risky. We make it so that it is really hard to break things and if you break things it is really easy to reflash and restart again.

Clearly influenced by his own experience as MIT scientist, he adds that this is also 'an opportunity to understand how things work, why they break, and change it and make it differently, we want to encourage it, but it takes time to sort of become a sophisticated user'. In fact, Bender went further and proudly expressed that Sugarlabs, the organisation that is now in charge of Sugar:

> is hoping that we will start to get more Sugar hackers out of Uruguay. So far the youngest contributor to Sugar, as far as I know, writing an activity, is 14-years old. There is a 14-year old that wrote a really useful activity, a plan text editor for Sugar, which is really nice. This was like a whole activity done by one person, it supports collaboration as well.

At this point, I must add that one of OLPC's most senior engineers and hardware designers was present during that conversation and enthusiastically congratulated Bender on what was seen as an 'achievement'. Producing a 'hacker' means generating children with the 'right' type of subjectivity and mindset: it is a desirable outcome of the programme. Here is perhaps where the paradox of the laptop's negative inscription comes more firmly into view: the projected user is expected to make use of the laptop's ill-definition in order to transform or 'hack' it. This kind of agency, which OLPC considers normative, contrasts quite sharply with educational norms and with the kind of economic and political subject imagined by Uruguayan authorities: a hacker's social agency is, by nature, the opposite from that of a pupil.

CEIBAL's reconfigurations

This section explores CEIBAL's adaptation of OLPC's inscriptions and focuses on how these have been reconfigured in practice, which is then followed in part B by looking closely at

how OLPC's inscription and CEIBAL's reconfigurations play out as laptops entered contexts of use. In addition to framing the project in particular ways, there are two main instances in which CEIBAL has explicitly reconfigured the OLPC's inscription: by selecting applications and by feeding back into the laptop's design. The first one was by defining the applications to include in the laptops 'by default' as they were first handed in to children. This particular aspect of the adaptation process is interesting because it contained an intrinsic contradiction. On one hand, CEIBAL decided to include a significant amount of applications that stimulated programming skills, therefore promoting OLPC's values as discussed above. On the other hand, children's use was regulated and exploration was encouraged only *to an extent*. A clear example of this is the use of a content filter for internet searches and the installation of an automated system that penalises both extensive 'transformations' and prolonged abstinences with immediate and abrupt consequences: the laptop gets blocked and needs to be 'adequately' reflashed. The fact that pendrives (memory sticks) needed to 'reflash' computers – or guidelines on how to execute the procedure, which is referred to in Uruguay as 'installing the blacklist' – are only given to teachers is also indicative of the extent to which these principles inscribed in the laptop's design are being reconfigured by the programme. Although this has been explained by CEIBAL officials as 'necessary' from a pragmatic point of view – to avoid having to constantly send laptops to repair service, for example – it hinges upon issues of control and restriction to normative uses.

Regarding programming applications, it is important to point out that these included ones both developed at OLPC and elsewhere, such as TurtleArt, Etoys, Scratch and Pippy. These applications in fact have a long history that expands beyond OLPC as they were in some measure all products of Papert's work. TurtleArt, for instance, is a newer and improved version of LOGO, which was presented by Papert in 1980 as the cornerstone for rethinking approaches to learning. More specifically, Papert argued that programming languages should have a 'low floor' (meaning that they need to be easy to use), a 'high ceiling' (to allow the creation of increasingly complex projects over time) and 'wide walls', so that they can support many different types of projects. According to Resnick, director of the Lifelong Kindergarten group at the MIT Media Lab and co-developer of Scratch, 'satisfying the triplet of low-floor/high-ceiling/wide-walls hasn't always been easy' (Resnick *et al*, 2009:63). Scratch is widely considered the most attractive of such applications as it 'appeals to people who hadn't previously imagined themselves as programmers. We wanted to make it easy for everyone, of all ages, backgrounds, and interests, to programme their own interactive stories, games, animations, and simulations and share their creations with one another' (Resnick *et al* 2009: 60). This not only reinforces some of the values

inscribed in the laptop – such as the importance of 'exploration', for example – but also promotes very specific types of subjectivities and skills, such as creativity and mathematical and computational reasoning, respectively. As Resnick explained in our interview:

> [they] learn important mathematical and computational concepts, as well as how to think creatively, reason systematically, and work collaboratively [...] our primary goal is not to prepare people for careers as professional programmers but to nurture a new generation of creative, systematic thinkers comfortable using programming to express their ideas.

By using programming applications students learn appropriately rational and calculative modes of thinking: they are being intellectually disciplined to perform as part of a 'globalised', technological workforce. In other words, skills such as 'think[ing] creatively, reason[ing] systematically and work[ing] collaboratively' respond to Northern views on the different ways in which the South should participate in what they understand as the 'global economy'. In fact, the very articulation of the need for children to learn these skills is an enactment of these constructions of 'the global information society'. As it is discussed below, this has strong implications when looking at the laptop in use, especially as it confronts a teacher-centred classroom originally designed for the reproduction of workers in the industrial age.

Figure 4.3. TurtleArt being modified, literally, during the course of the interview with Walter Bender at OLPC
Source: Author's photograph, 2010

The second way in which CEIBAL has reconfigured inscription explicitly is by feeding back into the hardware's design, transforming it as a result. This led to the deployment of at least three different versions of the XO in Uruguay, with more or less subtle differences between them in their built-in affordances. The first one of these reconfigurations was the

negotiation of a laptop just for Uruguay before the programme was implemented. An engineer at OLPC explained that:

> we have almost one hundred different versions of the laptop, different SQ units for the laptop. So there is one for Uruguay: Plan CEIBAL orders 100,000 of SQ-178 and that's Uruguay, you have a Spanish keyboard, the software is in Spanish, and there is a certain memory size with its own configurations, the power adaptor that is the one we used in Uruguay.

This means that pragmatic considerations, such as differences in power voltage and plugs or in languages spoken, already established a distinction between the XO at OLPC's office and the one made available in Uruguay even before the implementation of the programme. Beyond this initial configuration, however, its features also evolved as a result of their integration into fluid environments of consumption, practice and meaning. 'Uruguay has been very much a test bid', claims the Director of Logistics and Technology at CEIBAL Fiorella Haim, 'the product has not reached maturity yet'. Although a more detailed description of the XO's trajectory would fall outside of the scope of this chapter, it is important to mention that CEIBAL has actively constructed its own XO and has changed designers' understanding of Uruguay over time as a result.

A clear example of this reconfiguration in the hardware is the keyboard, which was asked by CEIBAL to be produced thicker and more similar to conventional ones, as opposed to be rubberized one that was originally included. In addition to avoiding needless breakage, this was also an attempt to make the XO a 'more real' computer, which is discussed more extensively in the next section. 'This design issue has been discussed a thousand times with OLPC and we are still not satisfied', explains CEIBAL's Director of Logistics, 'we have seen children that are extremely responsible and careful with their XO and still have broken keys. And if you look at the keyboard's membrane from the side you can see that if you put pressure on it in certain areas you can just easily break it'. While visiting OLPC's offices in November 2010, the keyboard continued to be a sensitive issue to the extent that in another interview, John Watlington, explained that, the 'Uruguayan keyboard', designed to be a more traditional one, still did not fulfil expectations:

> This is a keyboard designed specifically because Uruguay wanted a more traditional keyboard, I don't really know what they really wanted. This isn't safe for little kids. I have every hope to put a touchscreen keyboard in the laptop, I am working on it right now. It's a tough sell in that it drives the price up by about 20 dollars [but] we have strengthened the keyboard twice and it is still a continuous membrane so it makes the keys rip.

The point that I want to convey is that CEIBAL has both actively constructed and resisted aspects of the XO's hardware as well, to the extent that laptops deployed subsequently in high schools reflect much more clearly the set of compromises between OLPC, the

Uruguayan government and ideas that came from different local actors that were fed back into the design, both in terms of hardware and of software. Interestingly, OLPC did not seem to resist much to CEIBAL's customisation as key challenges mentioned by Uruguayan authorities were subsequently reflected or incorporated into the laptop's designed.

A real computer?

In addition to these very explicit reconfigurations, and precisely because of them, CEIBAL also transformed the perceived function of laptops as a result. This section starts to outline the relationship between function, instrumentality and meaning of XOs as part of these reconfigurations, which is then complemented with empirical material from contexts of use in part B. The notion of instrumentality used here follows largely Weberian and critical theory traditions so it points to a specific kind of 'usefulness': the placement of social entities in rationally construed means-ends relations. This is intrinsically related to material delegations between people and devices, as the object's ability to achieve a specific end is dependent upon competence attributed to it.[16] Laptops are seen as instrumental by OLPC and by CEIBAL in a different way, as able to achieve different things. Whereas OLPC constructed a projected *user* capable of 'thinking creatively, reasoning systematically and working collaboratively' as a result of the laptop's ability to produce that progressive human subject, CEIBAL constructed a projected *citizen* where skills acquired through the use of the laptop are seen as instrumental to enter the labour market of the 'global economy'. As Slater (2013) has pointed out, this is part of a paradoxical phenomenon he terms 'network ethics', in which technology in the South is generally defined more narrowly as 'an instrumental tool for the more efficient achievement of unaltered ends by unaltered agents under simply modernised conditions' (2013: 111). In other words, whereas OLPC is projecting the possibility of constructing new kinds of subjectivities, CEIBAL, at least in part, conceptualises technology as an enabler for more efficient ways of being what the country already is, that is, a secondary player in the 'global economy'. Slater's point (2013) is that there is a fundamental asymmetry 'in how subjectivity and change are imaged and attributed' across hemispheres:

> Whereas northerners can excitedly worry about the changing nature of self, work, community and politics, beneficiaries of ICT4Dev are to find work in call centres or data entry that utilize their competitive advantage to better

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[16] What becomes a 'means' is relative not only to the character of the problem but also to the competence attributed to the instrument in question and to the different ways in which means and ends are arranged.

place them within a conventional division of labour and trade, or to use ICTs [information and communication technologies] to meet 'basic needs'.

The key issue to bear in mind is that CEIBAL's 'fudging' over the programme's goals obscured the mechanisms expected to bring them about, to create this 'modern citizen'. 'Means', such as 'efficiency', have become substantive 'ends' as the programme aligns its technocratic framing with the modern social forms that it is said to bring about.

The question of how the laptop's utility and instrumentality were, and are still continuously constructed, is worth exploring in detail. The issue has been framed by CEIBAL officials as a dichotomy between 'playing' and 'learning:' playing is not perceived to be the appropriate means to achieve the 'serious' end of modernity. In other words, discussions over utility and the XO's function have been framed in CEIBAL's official discourse in terms of either its educational potential or its communicative and entertaining capabilities, or as a confrontation between the two. Although this not the space in which to discuss the validity and relevance of pedagogical traditions – whether or not it is possible learn by playing, – t is important to specify different positions taken on this topic as they are intrinsically related to CEIBAL's reconfigurations of the laptops' scripting, which has strong implications for understanding the device in use.

The relationship between learning and the laptop's instrumentality has been conceptualised in two main ways: in relation to a different pedagogical approach and as promoting new types of skills (referred to as 'digital skills'). Although at first sight they might seem to be related, that is in fact not the case. Changes in pedagogical traditions imply continuing to learn traditional subjects such as language and mathematics but focusing on the *process*, on the construction of such knowledge. Digital skills, on the other hand, could be acquired in formal or informal learning environments, with or without a specific pedagogical approach, the point is the *outcome*.

Focusing on pedagogical approaches leads directly to an inherent contradiction in CEIBAL's use of the XO: there is a disjunction between local pedagogical traditions and the constructivist principles embedded in the laptop's applications. As Núñez, a local teacher and trained sociologist, explained in his blog, 'it is revealing that there has not been a serious public debate on the pedagogical implications of using constructionist type of software within classrooms where French structuralists are worshiped' (Núñez, 2010). This has several effects, many of which were discussed in the previous chapter as part of the strategy of 'fudging' CEIBAL's objectives.

The first implication is that it legitimises the existence of multiple pedagogical traditions within the same educational system. Instead of unifying practices, the system is

encouraging each teacher to interpret both CEIBAL – and the laptop in particular – in their own way. Although this is, to a certain extent, unavoidable, it was certainly reinforced by ANEP's inability to appropriate the programme and provide specific directives on how teachers were expected to capitalise and improve upon existing practices and resources. The most prevalent interpretation of the laptop's utility among teachers was, in that respect, that the laptop is a *tool* for learning. This was constantly reflected in everyday narratives and actions. For instance, four out of the five teachers that I consistently observed during fieldwork did not let their students use their laptops during recess. The rationale behind that was succinctly put by a teacher from school no. 8 in Montevideo, 'they have their XOs here to work, and if they take it to recess and break it or run out of battery, then they won't be able to use it. They can play at home as much as they want, but in school, it needs to be used to work'. Working with the laptop means using it within teacher directed activities within the classroom; the rest is all considered 'play'.

Put differently, much emphasis has been put in framing the XO as a learning tool, which in most cases – particularly within schools – was defined in opposition to playing. An inspector from Montevideo stressed this point during our interview:

> What happens is that when they first receive the XO, [children] usually download games, pictures, music, videos, and fill it up. So it took some time to make them understand that the machine was for didactic use, and that the purpose was that one and not playing all the time. It is natural for a child to want to play all the time but if they have too many games there is not any space left in the memory, which is so small.

The laptop's purpose was 'didactic use' rather than 'playing all the time'. The quote is particularly interesting not only because of the underlying relationship between notions of function and subsequent use, but also because it introduces the laptop's affordances (or lack thereof, in this case) as having a role at play. As officials within ANEP quickly became only too aware, to be necessary and useful, laptops had to be situated in proper relation to other 'educational tools' (for example, books) and to the fabric of the school *but also* to the competence and capabilities of the device itself.

A second implication of this underlying tension is that it led both policymakers and teachers to identify as technical characteristics those that fit into their own frames of reference. CEIBAL is identifying as main features of the device only those applications that are in agreement with pre-existing pedagogical traditions in the education system, sometimes even ignoring constructionist programmes within the XO. Monica Baez, the Director of Education within CEIBAL, claimed that, 'if you look at the type of applications that [the XO] includes, it favours something that it is important for us and it is related to the direction that the education system is currently heading to, that has to do with conductivist

learning'. Interestingly, however, these applications favouring 'conductivist learning' are seen as fundamentally different from those promoting OLPC's constructionism. Attempts to render these other applications invisible – precisely the ones that OLPC was more enthusiastic about, such as Scratch – were challenged by children's use. In Baez's words:

> [...] there are two or three applications that are becoming rising stars, which are enriching practices quite a lot: Etoys and Scratch and more 'trivial' uses [...] so interesting uses emerge that have to do with those applications and with the development of programming skills. It is not something that we are especially promoting but there are children that have explored the laptop and have found Pippy and go online to look for Python language and learn autonomously, and I insist on this that it is not something that we are explicitly promoting but that it is putting us in a position where we need to think about a strategy to capitalise on it.

In other words, applications promoting types of skills that fall outside the realm of *doxa*, such as logical and programming ones, are 'not something that [they] are explicitly promoting' yet something 'needs to be done' because they are actually being used. Although not as often as MIT scientists would have liked or anticipated (as they mentioned in their interviews), Uruguayan children are producing short animations on Scratch and, with significant guidance and support, discovering how to draw intricate patterns by moving the turtle in TurtleArt. The point to be made here is that, in this view, CEIBAL is articulating the aims of MIT by acknowledging the need to explicitly engage with its scripting.

The third implication, which results from the other two, is that a significant number of teachers continue to use their pedagogical traditions and didactic tools and only used the laptop to replicate what they have always done. They continued carrying out the same practices, only that some of them were with a different tool – the laptop. In those cases, which were frequent during observation, the laptop was thought of in reference to pre-existing educational tools, particularly books and notebooks, so it was used as such. For example, teachers asked students to practice writing skills by typing compositions in the Word processor. The normalisation of 'new' technologies always implies certain 'reconfiguration' of practices and devices already in circulation; the question that arises is when and how certain practices can be considered 'original'. As Suchman points out, 'the practices through which objects can effectively be constituted not as copies of previous objects but as observably original' (2005:381). In the words of an inspector from eastern Montevideo:

> After a few months of implementation we realised that if the teacher does not know the instrument and does not know the possibilities it provides, she will continue to do the same, the same as she did with the notebook:

drawing, reading, writing [...] just the basic, as if it were a notebook with a screen.

Figure 4.4 illustrates a few examples from observation in schools 8 and 42, in which teachers replicated traditional teaching practices, many times 'as if it were a notebook with a screen'. In the first picture, the second grade teacher is reading a story, just as she has been doing for decades, only that she is now reading from her XOs while her students listen attentively. The second picture is a screenshot from fifth graders also in school no. 8 which have used an application similar to 'Paint' to draw a time line of events leading up to Uruguay's independence during a history class. Finally, the third picture shows a fifth grader in school 42 in Paysandú, listening and watching himself read. This practice was generally carried out with tape recorders before the XOs arrival.
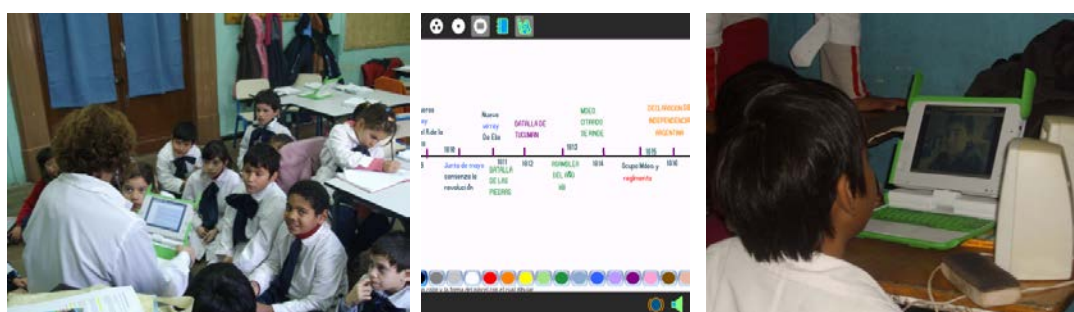

Figure 4.4. Laptops in use for more 'traditional' pedagogic techniques, such as reading stories
Source: Author's photographs and material produced during fieldwork, 2010

This is of course not to say that all teachers in Uruguay use the laptops in this particular way, but that a certain interpretation among teachers about the laptop's possibilities has led them to use the device to replicate much of what they have always done. This was echoed by Shirley Siri, CEIBAL's former pedagogical coordinator at ANEP, who also pointed to the role that training courses play in disciplining teachers to follow CEIBAL's prescriptions:

> many practices are not necessarily innovative because the teacher needs some time to adjust what she does and the first step of that process is to digitalise content: she does the same thing as before but now with the laptop. For us, that is not changing much because the pedagogical approach remains the same. But as the teacher receives training and shares her experience with others, it begins to change.

This process of change is discussed in the following section, as it becomes clear that types of uses are closely linked to perceptions of function, instrumentality and value. Ironically, the reason why teachers are able to use XOs this way is precisely because of MIT's delegation of openness – they are entirely as capable of conventional pedagogic use as of

exploratory use in problem-solving learning. Although of course the quote above interprets this conservatism as lack of knowledge or understanding of the possibilities of the device, it is important to recognise that this 'conservative' use is in fact one of these possibilities. This is clearly unintended but a valid consequence of the laptop's framing, especially as it is not incompatible with also using more 'innovative' features.

This is reflected in CEIBAL's official impact evaluation survey, which identified that the activity used the most by teachers both in 2009 and 2010 was the internet browser (called 'Navegar', which means to surf) closely followed by the Word processor ('Escribir'; to write), the painting application similar to Microsoft's Paint ('pintar'; to paint), and others. The only application originally conceived to promote logical and programming skills in the list was Etoys, which is widely used to create interactive books. What is revealing is the change in the amount of activities reported in the official survey, from five in 2009 to eight in 2010 (figure 4.5). Both teachers and children used these types of applications, and those more specifically designed to provide programming skills, in quite innovative ways as well, only that they did so less frequently. When this happened, it had strong implications for classroom dynamics especially as it redistributed competence, and thus reconfigured relationships of power between teachers and students. Yet 'something had to be done'.
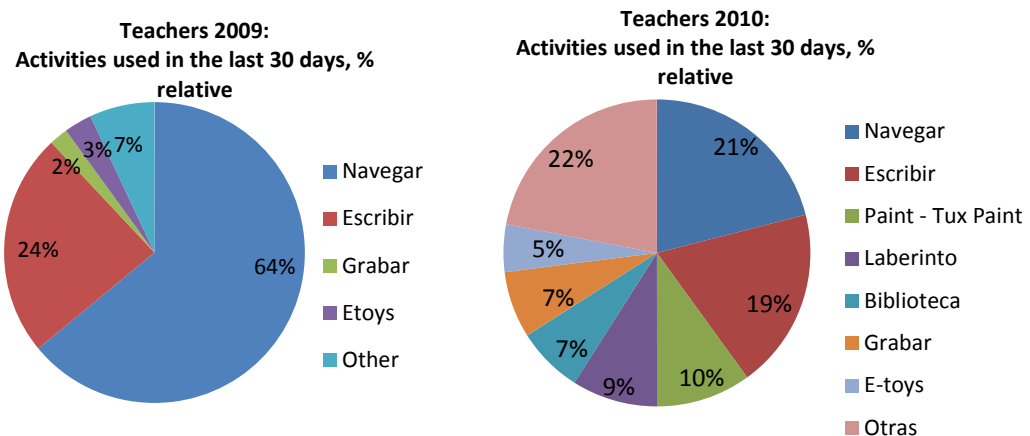
Figure 4.5. Results of CEIBAL's official educational impact survey 2010: XOs' activities most used by teachers
Source: Plan CEIBAL's Evaluation Unit, DSPE-ANEP, Surveys to teachers, 2009

The second view of what constitutes XO-based 'learning' claims that regardless of how laptops are being used (just by virtue of using them) children acquire what have been referred to as 'twenty-first century skills', which include but are not limited to, 'digital literacy' (see for example Norris, 2001; Warschauer, 2003 and 2006). Interestingly, these all-important skills also consist of: ways of thinking, such as creativity and problem solving; ways of working, such as teamwork and diverse communications channels; and ways of

'living' in the world such as 'global citizenship' and 'cultural awareness' (Warschauer, 2006: 9). These kinds of skills, the argument goes, are crucial for people's insertion in today's 'information society' and 'knowledge economy'. The main assumption behind it was clearly explained by former President Vázquez, who declared in our interview that 'today, knowing how to read and write some things is not enough to be considered literate; in the information and communication world, not knowing how to manage those technologies is like being illiterate. That's what it is in this world'. In what is perceived as being 'strategic', Vázquez pointed out that, 'Uruguay now has the possibility of having, also in this sense, the lowest rate of illiteracy rate in Latin America. And this provides us with an important basis for the future'.

As mentioned in the introduction, the emphasis on digital literacy has permeated several areas of government and generated many different types of policies, such as the Ministry of Education and Culture's National Digital Alphabetisation Plan. The latter consists on a series of workshops for adults dictated in MEC Centres throughout the country. Just as with CEIBAL, the skills acquired through this course are seen as vital to generate 'social inclusion'. As the director of the National Digital Alphabetisation Plan explained in her interview:

> our final objective is teach how to participate, create and promote an active citizenship; technology could be the tool, perhaps the pretext, to arrive at the rest. [...] Not to create experts in computer science but to help people find the internet and the computer helpful.

Acquiring these skills was therefore seen as fundamental for the consolidation of the country's technocratic and inclusive project – everyone had to be 'technically literate'.

As is clear by now, although the country has adopted CEIBAL and other policies to explicitly assist in the development of 'an information society', the XO – its main vehicle to achieve it – 'has been designed as a tool for constructionist learning and deliberately *not* designed with computer literacy in mind' (Silva and Westrup, 2008:14). This is reflected usability-wise, that is, in the fact that the most common digital tools (email, chat, etc.) are not the easily accessible by default. The first implication of this is that it deepens the disjunction between the laptop's prescription, the programme's expected outcomes and practice in everyday use. The second, and perhaps even more important effect, is that it reinforces the already complex relationship between meaning, value and technical functions. By suggesting such great importance to 'digital literacy', government officials are in fact objectifying a set of values broadly associated with modernisation – as told outside the North – such as rationality and instrumentality. The fact that the laptop has a different set of values inscribed in its design – particularly that of 'play' and exploration – led many

parents to believe that it was not the right tool to accomplish the very serious end of achieving 'modernity'.

It could be argued, for instance, that abstract notions of 'modernity' are materialised in the laptop's bright colours and clean lines. As Shove *et al* (2007:115) points out, 'these forms of cultural-material circuitry are important in setting the scene in which some but not other future promises are made, and in which some but not other future requirements emerge'. This implies a kind of inseparability between meaning and function: whereas meaning cannot be seen as something separate to be added on to the object, its function cannot be understood as independent of the practices of which it is a part. As Slater explains (1997b:137), 'the idea that any object is useful or has useful properties depends on the existence of a particular way of life in which there are particular things to be done and ways of doing them' (Slater 1997:137). Thus, in the specific case of XO laptops, for it to 'work', to be inclusive and to fulfil its calling to 'modernise' Uruguay, it needs to be conceived as functional in very context-specific ways.

More concretely, the laptop's toy-like aesthetics and play-based metaphors in its software have strongly promoted play among children. Although inscriptions of constructionism are born as oppositional to conventional education, therefore explaining MIT's prescription of a non-prescriptive machine, this opposition is part of a different power dynamic when foisted onto the South. The very notion of what constitutes 'play' in the Uruguayan context, therefore, differs from the one Papert and his colleagues at MIT had in mind when designing the XO. 'Play' in Uruguay is defined in opposition to learning and to instrumental practices to prepare them for the workplace. So this has led many informants – especially from working-class families – to explicitly refer to the laptop as 'a toy'. As the Principal at school no. 42 in Paysandú pointed out, 'I think that sometimes, as I've said before, they, children and their parents too, still see it as a toy that was given away in school, not as a learning tool'. Interestingly, this has generated a deep disjunction between discourses of modernity signified in CEIBAL and the XO's identified function as a 'toy'. The XO is not perceived to be the 'appropriate' instrument to bring about what it supposedly signifies – it is not a 'real' computer. It contests the laptop's very own nature as technology because it does not perform the particular purposes imagined as 'natural' or 'necessary'.

A clear example of this was the speech of one of Flor de Ceibo's teachers, who exclaimed, during their visit to a rural high school in Florida, 'you need to learn what is inside that little machine because, otherwise, it becomes a monster of seven heads and the receiver of all our disgraces. Do not expect much from the *cotorrita* (little parrot), please, it

is just a *cotorrita*. Not a Jaguar, just a Ford T'. Although the derogatory nickname is of course what first stands out, it is important to point out that the main irony is that this person was in fact executing CEIBAL's efforts 'to increase appropriation and people's meaningful uses of the XO', as she proudly claimed during the bus journey that took us there. Calling the laptop 'ceibalita', 'little parrot' or even 'the green creepy crawly', as it is often done in rural areas, is revealing of more profound processes of local appropriation: the XO laptop in Uruguay is different from all other laptops elsewhere. It reflects a sense that, as a 'toy', the 'creepy crawly' stands in opposition to what a 'real' computer should be, which has implications for processes of value attribution in contexts of use. For this reason, 'the' engineering student that accompanied Flor de Ceibo to that workshop felt the need to 'justify' the use of XO laptops by comparing them to personal computers that are the industry standard:

> the ceibalita [as XOs are also called] is a computer, it might be green but it is a common computer and has the parts and it won't eat us up or anything, it is sort of similar to what we used to call a Pentium II. It has different ways, that it's it.

Needless to say, his presence was seeing as fundamental for the execution of this type of workshop. As the 'technically literate' man – possibly pedagogically incompetent – he was seen as needed for the technocratic programme to 'work'. This was of course alluded to in the context of widespread references to teachers (a feminised profession) 'resisting changes', which reflects assumptions about gender and technological ineptitude. Flor de Ceibo's team 'at work' appear in figure 4.6.
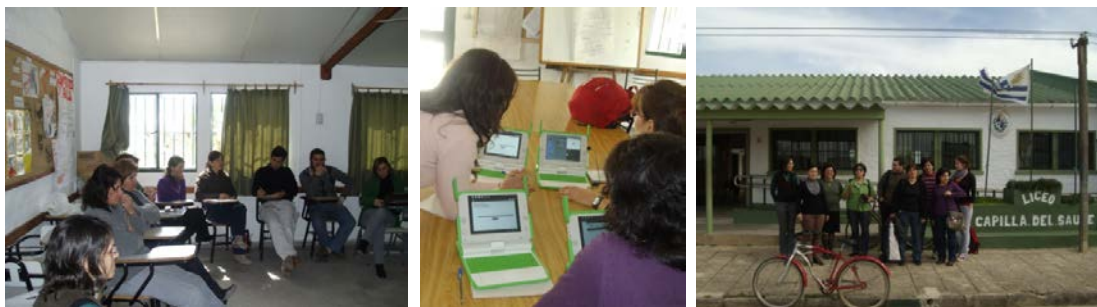
Figure 4.6. Flor de Ceibo's team at work during a visit to Capilla del Sauce's high school to train teachers
Source: Author's photographs, 2010

The point is that its aesthetics, the colour green, and its different operating system, led people to understand that its 'function' was not signified properly. This prompted children to go to great lengths to transform their XO laptops into what they saw resembles best 'a real computer'. The clearest example is the popular use of a Windows emulator,

called 'Wine' (generally pronounced 'ween-eh' among Uruguayan children) which simulates a Windows environment and allows children to play certain games that do not run in Sugar and to use applications such as the media player (figure 4.7 below). Microsoft Office, in that sense, was regarded as signifying a functioning computer both from a conceptual and a practical way: certain activities such as the manipulation of media could be performed better in that environment. It is worth noting that in order to download 'Wine', children had to perform complicated tasks and to read through instructions *in English* from OLPC's activities wiki. I specifically asked an eleven-year old from school no. 8 in Montevideo to walk me through the procedure and I counted approximately sixteen steps, which included the unnecessary repetition of trial and errors trying to interpret certain commands in English. A 'real' computer, in that respect, was conceptualised in relation to Microsoft, the industry standard in the North, and to the skills that could allow one to truly compete in the 'global economy' in equal terms with everyone else. The use of English in itself made the computer seem 'more real–like'. This opinion was widely shared by adults as well, for instance Paysandú's inspector declared that:

> the design is what we like the least, maybe because it is so different from what we are used to, what we normally use. I can see how well children use it but if they would have asked me, I would have put a different operating system.

In fact, when I asked children if there was something that they would like to change about their XO, several children – particularly older ones – responded that they would have liked to 'paint it black [...] yes, black would have been cooler'. The point, therefore, is that there is a more or less explicit demand to transform the XO into what is seen as a 'real computer'.

Figure 4.7. The Windows emulator installed in children's XOs to download games not compatible with Sugar
Source: Author's photograph, 2010

The articulation of this demand, of needing a 'real' computer in order to achieve CEIBAL's modernisation promises, is a profoundly political statement. It is political because it reflects a request for certain resources, it claims an entitlement. As Slater (1997b: 3) explains, 'I am saying that I 'need' this thing *in order to* live a certain kind of life, have certain kinds of relations with others (for example have *this* kind of family), be a certain kind of person, carry out certain actions or achieve certain aims'. In order words, Uruguayans were demanding what they perceived as the adequate material and symbolic resources to lead a certain kind of life, both individually and collectively. Working-class Uruguayans, to which the programme is directed, were stating that they do not need a technical device or artefact that is prescribed as belonging to developing nations, to the world's poor, because it is precisely this condition that the country is attempting to abandon. The XO was seen, in this context, as 'the laptop designed for the poor' as some of CEIBAL's strongest opponents have claimed. Perhaps the most radical illustration of this were declarations of the leader of the Secondary Education's Teaching Technical Assembly, who claimed that CEIBAL was 'an authoritarian plan' that gave out 'dummies of capitalism' to the nation's children (Caras y Caretas, 11/2011). This is, of course, closely bound up with normative assumptions about the relationship between 'technology' and 'modernity' and about how people would, could, or should use the former to bring about the latter. The point, however, is that this has led to an increase in the already long distance separating the projected *user* from the expected *citizen*. Although OLPC's mission attempts to separate function from meaning by claiming that it fulfils people's real development needs, it ignores the importance of its own underlying ideology to the point of not realising that, without it, it signifies nothing to the people meant to use them. What it is meant to be better than anything just becomes better than nothing.

Part B: Interpreting delegations

In this part of the chapter, we continue the discussion from the previous section by looking at how children, parents and teachers internalised and externalised the normative within broader processes of value attribution as XOs were integrated into Uruguayan classrooms and households. The laptop's multiple functions and meanings are therefore defined in context rather than in the abstract. I argue that despite significant differences between appropriation processes among teachers, parents and children, there was a common underlying tension in the negotiation between what constituted 'play' and what it was to

'learn'. In particular, teachers' interpretation processes were intrinsically linked to children's frequency and types of use, which were also reflected in what laptops actually *became* as a result. In all cases, tensions between 'the technical' and 'the social' emerged from different relationships between materiality, meaning, value attribution and practice. A clear example of this were breakages because what it meant to be 'broken' was just as technical as it is social, so it could only be understood in relation to normative notions of proper function and use. For this reason, I focus on its emergent nature and on the co-evolution of technologies, social relations, and broader socio-technical systems.

Interpreting inscription and enacting delegations

This section examines appropriation processes among teachers, children and parents. This is because, as is discussed above, it is only in the context of application and use that one can understand what the laptop was turned into as a result of its encounter with Uruguayan children. Although values inscribed in the XO conditioned, to a certain extent, its use, it was in practice that the laptop took shape. As Shove (2003) pointed out, this is the case because 'technologies configure and are domesticated not only by individual users, but more broadly, by and in relation to the practices of which they are part' (Shove, 2003: 70). This is reinforced by the fact that computers are, intrinsically, 'multi-purpose' devices and XO laptops are, in particular, defined by their openness. As the Director for Education at OLPC Foundation, Barbara Barry, pointed out, 'a computer is an interesting object in general to think about what it becomes. Because it already by the nature of what it is can be different things. So you take any camera, and it's a camera, it's a calculator, it's a word processor, so by its nature, it is personalisable as a tool'. Interestingly, and as this section explains, the vagueness resulting from the government's fudging and the openness that characterised the laptop's script when combined with the multiple possibilities of its affordances generated an extremely diverse and rich array of responses and practices.

Children

Children's normalisation processes started with an instance of enormous enthusiasm as laptops were delivered. A mother in Queguayar, for instance, explained that 'it was crazy at first! [Her daughter] couldn't even sleep from excitement. She was using it all the time, like crazy, so happy'. This was echoed by a mother from school no. 8 in Montevideo who

declared that in the beginning her daughter, 'took her XO everywhere, to her friends' houses and they made videos and took hundreds of pictures, 500 pictures and 300 videos, pictures of the wall, videos of me cooking, she recorded everything, took pictures of everything. It was all so new'. Enthusiasm was translated into frequency of use, particularly of programmes such as the camera which some children already knew how to use. Laptops were quickly filled with drawings, videos and pictures. As one teacher put it, describing how difficult it was to prevent children from taking their laptops to recess:

> the problem is that for today's children the laptop is just like another body part; they take it for granted, just put it in their backpacks in the morning with having to think about it twice: it is part of the normal routine of getting ready for school.

Interestingly, modern romantic constructions of childhood were usually identified as crucial elements in those initial processes of appropriation and discovery. From this perspective, children's curiosity and 'exploratory nature' allowed them to discover the laptop's possibilities in a way that adults would not have been able to do. For instance, Estela Lescano, the Principal at school 42 in Paysandú explained that 'children have that spontaneity and lack of fear', which contrasted with adults' initial resistance towards 'the new' and to what it is not known:

> We [the adults] are afraid of breaking it, of blocking it, of crush some programmes, that fear that adults have when confronted with something new. The child doesn't have those fears, the child is spontaneous, so she touches and while she touches, there are things that open up that we didn't have the foggiest idea that existed, so we didn't know how to respond. So children were, as they would, direct participants and the discoverers of everything that the XO has.

Children's explorations led them to discover 'everything that the XO has', that adults perhaps 'didn't have the foggiest idea that existed'. In addition to 'not know[ing] how to respond', it seems clear that behind this particular conception of childhood lies, to a great extent, a similar romantisation of children to that of Papert – they are capable of building and learning by themselves. So within this logic, children's enthusiasm could be channelled and reinforced through the laptop's multiple possibilities. As it is discussed in earlier sections of this chapter, this was facilitated by the operating system's scripting of openness and flexibility, particularly by its lack of error messages. So initial novelty was perceived to be both channelled through the discovery of new open-ended features but was also intensified by them.

These notions of 'childhood' were also intrinsically related to the construction of normative uses as they determined distinctions between what was considered 'playing' and what was considered 'learning'. In other words, as the sociology of childhood has long

argued (Jenks, 1996; James and Prout, 1997; Mayhell, 2002) what it means 'to play' is bound up with notions of what it meant to be a child, which in modern consumer culture are defined in opposition to 'work' or to instrumental practices to become better workers – that is, formal education. As it is discussed below, OLPC's construction of 'learning through play' contrasted sharply with local constructions of childhood as a vulnerable period, a protected time of play, exploration and individual development. From this perspective, the computer was framed as educational and therefore as something specifically not designed for playing. A clear example of this was expressed by Jose Miguel Garcia, an official from ANEP's central directive council (CODICEN), who declared that:

> you need to take into account many different things when you think about use, because users are children and there are many dynamics among children that are sometimes 'too dangerous' to do with a computer: riding a bike, playing ball, hiding and seeking.

Put otherwise, activities traditionally associated with children's play, such as the game of hide and seek, are assumed to be natural activities for children. These notions reinforced distinctions between normative ideas of what it is to play and what it is to learn, so it was claimed that a computer had no place within those activities. Children wold do them anyway, it was argued, so the question is whether or not the computer 'would follow' them. This explains why instead of perceiving play differently as a result of OLPC's inscription of 'learning through play' the playroom metaphor in the operating system and the toy-like aesthetics were perceived as not signifying a computers' function properly.

When asking about what children do with their laptops, the vast majority of informants – policymakers, teachers, parents, and children themselves – responded that most of them play. Everything that did not correspond to narrowly defined notions of 'work', or as practices perceived as instrumental in achieving either certain types of skills or acquiring specific types of knowledge, was considered 'play'. This meant that widely differing practices such as taking pictures and recording videos of their everyday lives, listening to popular music, playing online videogames, searching for information on their favourite television shows and chatting on social media sites, were all broadly included into the category of 'play'. Shirley Siri, CEIBAL's former pedagogical coordinator explained that this was related to children's 'predisposition' to 'play':

> undoubtedly, when a child receives her XO, the first she does it playing. Because it is what she knows how to do. That is why we have included so many didactic games, because we know that it is what children are going to do. And you can't tell them not to play because it is what is natural.

This 'naturalness' attributed to playing is also defined in opposition to an almost 'unnatural' practice of learning, which is precisely the root of divergence between Uruguayans'

and OLPC's notions of play. Within CEIBAL's official discourse, it seems clear that children are seen to either play or learn when using the laptop and learning needs to be specifically encouraged by adults. According to the CEIBAL's Director of Social Policy, Ana Laura Martínez:

> children use their laptops to play, obviously. Because they are children, there is no way around it. And because adults have not been able to diversify and broaden their perpective. The fact that they are children does not mean that they are just going to play, but everything else you need to encourage them to do. The child is not naturally going to be academic and on her own initiative search for boring information online. Maybe the class's nerd, but that is it.

Children are expected to play and adults – teachers in particular – are delegated the role of making sure that the laptop is also used for 'educational' purposes as well. Adults are perceived to be necessary to 'broaden' children's perspectives, which contrasts sharply with OLPC's insistence on not needing teachers to foster learning.

In addition to providing pedagogical guidance, teachers are themselves also expected to control children's laptop-based practices more generally, at all times. Paysandú's inspector, Nancy Núñez, explained that this is the case because:

> as soon as teachers look away, children change the activity and start playing immediately. But of course it is not just children's responsibility; it is also the teachers' responsibility because they need to plan activities in class that are even more attractive than games are, if that is even possible.

In turn, games were believed to be more 'attractive' to children than learning so if teachers did not 'control' children's practices, they would immediately switch to playing them. This implied changing everyday practices and rules, so as the Principal from school no. 8 in Montevideo declared, 'we had to establish boundaries, spaces where the machine could be used, because the child wanted to use it all day. And it was hard; we had to negotiate [...] now we are more in synch'. These narratives not only reinforced the dichotomy between 'play versus learn', but also strongly disciplined both students and teachers. All activities that were not induced by teachers or where not part of 'the stipulated space in which to use the XO' were not considered as appropriate for the school environment. This also partially explains why laptops were not entirely naturalised into the socio-technical systems of the classroom and their use was artificially enacted. Instead of having the laptop constantly available and organically used during class, teachers mostly announced to their students that they would now start using the XO. It was, in turn, a specific activity in its own rather than a tool to carry out another.

The single most prevalent practice considered 'playing' was online videogaming. Uruguayan children are becoming avid videogame players to the extent that when use was

unregulated, it was the majority of children's first choice of activity. During one of the early days of fieldwork in school no. 8's fifth grade, I counted that out of twenty two students using the XO in the class, eighteen were playing videogames. Among the four that were not, two were just about creating a Facebook account, one was downloading music on Wine (the Windows emulator) and the other one was drawing and painting on Paint. Among the ones playing videogames, three were playing Mario Bros and one was playing a game based on characters from Toy Story, Disney's film, all within Wine's environment. 16 and 32 bit games, like Doom and Super Mario, are hugely popular because they are the ones that run better on XO laptops, which with only one GB hard drive were not necessarily designed to be media machines. An astonishing fifteen students in the class were playing either one of two locally designed games: one called 'Vascolet' and the other one 'Special Division of Detectives' (discussed below), which took these technical characteristics in consideration. Interestingly, I repeated the exercise of surveying students almost six months afterwards and the results were surprisingly similar: from twenty one students using the laptop, thirteen were playing videogames, six of which played Special Division of Detectives, two were playing Toy Story's game and five were playing a gamed called 'Supertux' also referred to as 'the little Pinguin'. The main difference was that by then, the game called 'Vascolet' had gone 'out of fashion' and was quickly being replaced by the enormously popular 'the little Pinguin'. One of the students explained to me:

> what I like the most about the XO is playing, I prefer downloading games here and then playing at home. [...] My favourite is 'Vascolet', you have to get to Egypt and kill insects and stuff, I like it, it's easy and it's fun to pass on to more levels. You have six lives and can grab coins along the way. [...] The other ones that I like are Supertux and Tux Paint, you put up the frog and you can paint it, you click and it just appears there.

The structures of these games always have similar characteristics: there is a main character with a limited number of 'lives' that needs to sort obstacles without losing them with increasing difficulty as it passes different 'levels'. When observing children playing these videogames, it was surprising to see how embodied their practices were: certain movements required for the characters in the screen were continued with body movements and expressions as children's level of enthusiasm increased. They got 'into it' – some moving the entire laptop to the right or left when the characters need to go in particular directions, or titling their heads when the characters were sideways.
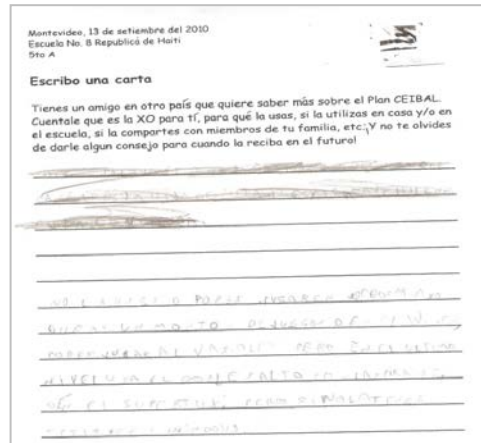
Figure 4.8. A letter from a fifth grader in Paysandú that provides tips on how to play the videogame 'Vascolet'
Source: Produced by informant as part of author's fieldwork, 2010

Another unexpected characteristic of those practices was their collaborative nature. As it can be seen from pictures below there were many different ways in which this collaboration happened. First, in all three communities visited during fieldwork at least one group of children constantly played together on one laptop, taking turns and having different members of the group play in different sections of the game. They explained to me that they had different types of expertise and generally the recognised most avid player is consulted or asked to play 'the most difficult' parts. The second way in which they collaborated was by sharing 'tips' or information about the game or about websites from which to download them. This was candidly reflected in letters I asked children to write 'for an imaginary friend in England' describing their XO. In many of these letters children shared what they considered their most valuable knowledge: tips for playing games or finding them online. For instance, a letter from a fifth grader in Paysandú (figure 4.8) reads: 'you can also play games in the XO that has many games or you can play Vascolet but in the last level double jump the sharks or the Supertux you need to see in windows'. In that same school in Paysandú a group of children spent recess almost daily playing videogames against a wall (figure 4.9) so that they could see and comment on each other's progress. Another example of this is illustrated in the second picture as one of the girls – who was originally sitting at a different table – came to this one to explain her friend a trick that is necessary to continue onto the next level of the detectives' game. Because the game is 'educational', certain information is required to interpret clues provided in order to find a criminal across the country. While observing children play in the most diverse settings (households, buses, squares, classrooms) I got frequently asked for the name of a river or the year in which the constitution was signed.

Figure 4.9. Children playing different videogames online during recess and in the Windows emulator
Source: Author's photographs, 2010

This constant collaboration and sharing of information was translated into games spreading tremendously quickly across the country. The best two examples of how fast these games were popularised among children are the first two developed locally for XO laptops, which were mentioned above. The game 'Vascolet's Time Machine' was the first one entirely designed with Uruguayan children, and the XO's affordances, in mind. It was developed by a small local company and sponsored by Uruguay's biggest chocolate drink company, Vascolet, so it uses as its main character the iconic child from the drink's logo. The game had more than two hundred and fifty thousand downloads in over a year. The company continued to develop games for the XO sponsored by other private companies and at the time of the interview in October 2010, a new football game created for a diary production company had been downloaded more than a hundred thousand times in a month. The second most popular game at the time was the 'Special Detectives' Division', which resembles the classic videogame 'Carmen San Diego'. In the Uruguayan version, criminals travel throughout the country and clues to find them have an explicit educational content. Interestingly, the game was created by a start-up company 'incubated' by LATU, and according Fernando Picún, one of its directors interviewed in 2010:

> Ever since the game was launched three months ago, we have registered 984.908 accesses to downloading links [...] and the game maintains its second place in the ranking of the top five most downloaded games by Uruguayan children. This is the only game among them that has educational content.

The figure of almost a million downloads is even more remarkable when one is reminded that, to that date, less than four hundred thousand laptops had been deployed.

The quick and effective spread of games had two main implications. The first one was that novelty was maintained among children as new games were constantly being released. During all three focus groups with parents, the majority claimed that their children continue to use the laptop regularly and their level of enthusiasm remains remarkably high. When asked about the natural decrease of novelty, a fifth grader's mother

from school no. 8 in Montevideo explained that 'the novelty remains because there are new things coming up all the time, it advances in that respect'. In Paysandú, a second grader's mother responded vehemently (and with certain resignation), 'no, it hasn't decreased. [Her son] uses it every day, all the time, always'. This, of course, also reinforced the idea that laptops were 'for playing' and not so much for 'learning' as it was what parents saw their children using it for.

The second implication of videogames' popularity is that parents across the board claim that experiences of childhood, so tied up to notions of play, are being transformed as a result. Although these changes were perceived very differently in the various contexts studied (which is discussed in chapter five), it is worth mentioning that the prevalence of videogames was a source of concern for many teachers and parents. The Principal from school no. 8 in Montevideo lamented that her romanticised version of the school's recess no longer existed:

> Our recesses have changed. There are schools where taking the XO to recess is not allowed precisely because of this that I am telling you, to preserve other forms of play that are natural for children. Because now in this school you see them and they are playing, yes, but everyone is in their own machine, and they are not talking to each other anymore, which they used to do. There are those that see the bright side of that – at least now they fight much less, they don't hit each other anymore. But playing habits have changed, they have changed a lot.

Forms of play that do not involve a computer, which are described as 'natural for children', need to be 'preserved'. Changes to the nature of children's playing time are perceived as indicative of broader changes to experiences of childhood: 'everyone is in their own machine, not talking to each other anymore', yet 'don't hit each other anymore [either]'. Put differently, CEIBAL's introduction resulted in the reconfiguration of what it means to be a child and in the increasing prevalence of practices that are also closely related to children's transformation into citizens.

Perhaps the best way to convey the importance that videogames have acquired is by concluding this section with an illustrative anecdote. During my first day at the rural school in Queguayar, children asked me to look at my laptop. This was, in part, of course, because I was asking to see the content in theirs. When they realised that it had no games installed, they all quickly offered to do it for me. Within seconds, fingers were flying through the keyboard, selecting and de-selecting content available from Sugar's default configurations. Since the school had no internet connection, Gaston, one of the students kindly offered to go to Quebracho, a small town about 10 km away, to download 'the best games available'. Gaston told me that he made that journey by bus (public transport is free

of charge for school-age children) 'a few times a week, right after school' to go online. Once in Quebracho we sat outside the town's public school for about four hours until all 'real good games' were installed and my laptop became 'a proper' one. Figure 4.10 is a picture of Quebracho, the town, and of my 11-year-old informant sitting patiently in the public square, in front of the public school, with my XO in his lap. According to him, that is the best possible spot from which to get connectivity. Trips like his to the nearest town in order to go online are also quite common in several towns visited during fieldwork. For instance, in Porvernir (a town of about a thousand inhabitants) 'entrepreneurial' children charge their peers twenty Uruguayan pesos (approximately one US dollar) to take their laptop to Paysandú city, five km away, and download games for them.

Figure 4.10. An expedition to Quebracho with Gaston to go online and download games to my laptop
Source: Author's photographs, 2010

Parents

This section briefly discusses the different ways in which parents interpreted ill-defined laptops as they entered their households, emphasising constant negotiations over their function. The first aspect that needs to be considered is that normalisation processes among parents contrasted sharply to that of children's, despite the fact that value attribution processes were also dependent upon different resolutions of the dichotomy between play and learn. In the case of parents, initial encounters with the laptop were driven by ritualised deliveries carefully staged by CEIBAL officials. When laptops first arrived in Villa Cardal, where the pilot project took place, the school had hanged a street band in

front of its main entrance that read 'welcome future'. The banner was welcoming 'the future' into the town. CEIBAL, bound up with assumptions about the transformative power of technology, was 'the future', here to stay. Rosa, a teacher from school 42 in Paysandú recalled the anticipation that it generated among parents and the general environment of the school during those first few days:

> The school was 'invaded' by parents all the time, the playground outside of the school was full of parents and we had to stay after hours explaining stuff to them. Parents missed work to come and see everything and to sign little pieces of paper that came and went from Montevideo.

As it is discussed in the next chapter, those moments and pieces of paper and information were specific instances in which certain meanings around CEIBAL were materialised, which had significant impact for the generation of material identities (Shove, 2003:101). As Rosa explained, parents were eager to hear more about the programme and the laptop, and 'missed work to come and see everything', which built up expectations even more. The inspector from eastern Montevideo, Beatriz Perez, explained that this was intensified in schools where families had a very low-income background, 'in critical context schools, it was like a gift parents couldn't believe they'd received. Such a massive presence of parents, who never go to the school, to receive that gift!' The very fact that this gift was a computer that was provided for free materialised a very specific type of relationship between citizens and 'the government', which is discussed in chapter five.

This level of enthusiasm, however, was short-lived. As it is extensively discussed in part A of this chapter, the laptop's function was framed by CEIBAL officials in terms of a dichotomy between 'playing' and 'learning'. Playing, perceived as children's natural activity, was not the appropriate means of achieving the programme's 'serious' goal of improving learning outcomes. In fact, videogames' popularity was sometimes a source of concern among teachers and parents, who felt that the laptop was not used appropriately (that is, for 'learning') and that, crucially, a romanticised notion of childhood was being 'transformed' as a result of playing so much on the device. This confrontation between the laptop's entertainment and educational capabilities was also manifested in a deep disjunction between discourses of modernity signified in CEIBAL and the XO's identified function as a 'toy'.

One way in which this was solved was by identifying internet connectivity as the property that performed purposes imagined as 'natural' or 'necessary' in computers. In fact, internet connectivity was the only property that XOs undeniably shared with all other laptops, with 'real' computers. This was so much the case that internet connectivity was materialised as a technical requirement for the XO to be perceived as 'working': to be

helpful and useful, laptops needed to have internet connection. In other words, 'the internet' represented one clear way for parents to enact their perceptions of expected normative use: it allowed children to use the laptop to 'work' (that is, not to play). This was then translated into a particular criterion for judging whether or not CEIBAL accomplished its goals and the laptop performed its 'function:' laptops with connectivity allowed children to be 'connected', and therefore, 'included'. This is discussed in more depth in chapter five, as it became increasingly clear that 'connectivity' became a new metaphor for 'social inclusion'. In that respect, the laptop's instrumentality was defined by and in relation to the internet, so the laptop was not seen as useful in itself, but as a vehicle to go online.

In the focus group conducted with parents in Queguayar's rural school, Romina's mother explained that, 'if we had internet connection, they would be able to use it, they have to have internet to work with it, I am not sure if you can buy it, can you?' She went on to continue explaining that:

> at first, the kids were over the moon when they got the laptop, they didn't even let me touch it. And I had never touched a computer before, just imagine. And now it is put away because we don't have internet or anything so they can't look for information or anything and just got bored with it.

The value assigned to the laptop was directly related to the possibility of using it to go online, so after the initial enthusiasm, children lost interest because 'they don't have internet or anything'. Although Paula, Gaston's and Martina's mother, 'had never touched a computer before', knew well that internet is important for their children because they can 'look for information or anything'. And getting such information is precisely what she understood that CEIBAL was for, which was only possible through the internet. After all, when asked why she liked the programme, her response was unequivocal: 'because it gives children access to a huge library'.

Her point about the need for internet connection was echoed by mothers in the focus group conducted in school no. 42 in Paysandú city. Internet was all-important for making the computer 'work' yet it was only available in certain places, such as the school and the public square. Valentina's mother explained with pragmatism that, 'they need to come to the school because you need to have internet connection to do homework. That is the issue. The laptop is not useful at home if you can't access the internet'. This implied, as it was mentioned before, that children sometimes made long journeys in order to go online and to able to download content and games for themselves and for their parents, too. That is the case even in a populated city such as Montevideo, as it is illustrated in the

conversation between mothers during the focus group in school no. 8, where the emphasis was what on who was 'lucky enough' to get access to the internet from their homes:

> Mother 1: I have Wuai-fai [WiFi] in my building so my daughter uses it for everything, she loves [the XO], doesn't even turn on the bigger computer [a PC].

> Mother 2: Well, I am telling you what I think: if they don't go to school it is impossible. If you don't have internet at home, it is impossible to do it any other way.

> Mother 3: [vehemently] Of course that depends because some children can access it because they have internet but others don't, and if they don't use it here, they just can't use it at home, that's what I see.

> Mother 1: [defensive tone] Well, all I was saying is that I am lucky enough to live right next to a public high school so we can use their antenna. We are lucky, that's what I am saying.

> Mother 3: You are lucky that the antenna is open, where we are there are a lot of antennas, I think, but they have passwords so we can't 'catch' it. So when it is a nice day out we go to the square, when we have some time, and there we can 'catch' it. [...] the issue with the internet has made everything much more complicated because now they are, like, you know, anxious that they need to get internet, go online, that they have homework and need to find internet and go somewhere to access it.

Value resides in having the mediators in place (the antennas) but also in the possibility of accessing them, that is, to have them open for use, to be able 'to catch it'. The possibility of having access to the internet, when considering the role that it is perceived to have, is problematic because it increased (rather than decreased, as it was intended) perceptions of inequalities between children. Even more so, it widened the gap between those that could afford internet connection at home and those that did not. This inequality was further increased by the fact that many Uruguayans were already internet users and had an understanding of its role in daily life. According to a national survey called 'Profiles of Uruguayan Cybernauts' (RADAR, 2010), on average, 50 per cent of Uruguayans more or less frequently go online. Middle-class families, in particular, have PCs at home, regular access to computers at work or can perhaps afford regular visits to internet cafés. They tend to feel more comfortable with computers because they already have functions and meanings within their daily practices. This explains why when discussing middle-class children's understanding of computers, it is generally not perceived as necessary to discuss what they understand its function to be but rather what they do with it. They could already see the device 'at work' in CEIBAL's normative ways.

Although it is clear that there was a certain understanding of its role in daily life, I do not intend to claim that the XO's connectivity meets pre-existing semiotic or functional

requirements. The point is that it is precisely through articulations of need and technical affordances – more specifically, the need to have internet connectivity – that it is possible to determine what parents perceived as 'useful' and 'valuable'. Abstract notions of 'function' and 'utility' became very tangible: for XO laptops to 'work', to be inclusive and to fulfil their calling to 'modernise' Uruguay, they needed to have connectivity. Access to the internet became the end in itself rather than the means – that is, having internet connection signified connectedness, regardless of what children did online. As discussed in chapter five, one of the implications of this is that the concept of 'connection' was also resignified as a result: not only it presented a particular 'instrumental' purpose but also a much more symbolic one associated with the reconstruction of 'the nation'. This was one clear way in which 'the technical' encountered 'the social' as one particular feature of the XO confronted users and their expectations.

The presumable disjunction between 'having access to' and the actual content of what was consumed online was even more pronounced when considering that most parents interviewed claimed to use not the laptop for their informational or communicational needs. They preferred to use 'big computers' for that instead: XOs laptops are *only* for children's use. This is in part explained by its design, as the size of the keyboard and screen are not suitable for adult users, but also by the way in which the programme as a whole had been framed. When asked whether or not they use their children's respective laptops, mothers in school no. 8 in Montevideo responded that, 'I've never used it, I don't know how it is' and 'I have seen [my son] work on it, yes, but not me. I've never used it because it's his, not mine'. The coordinator of Paysandú's MEC Centre, Sofia Sanchez, in charge of the National Alphabetisation Plan, explained that although there was an overwhelming demand for courses on digital literacy among parents, 'when we organised workshops on how to use the XO, we got very few people enrolled. […] the issue is that the XO is not seeing like a computer, it is the child's and the school's, and has nothing to do with adults so why do they have to learn to use it?'. Adults understood 'the importance of learning computing' but did not consider the XO laptop to be a 'real computer' where those skills could be learned.

Finally, just as laptops with internet connection were different from ones that did not have it, spaces with internet connection were perceived to be different as well – a case in point were public squares with free wireless connectivity. Although this last point is beyond the scope of this chapter, it is worth noting that the rolling out of connectivity in fact turned certain places 'on' in the map, creating a sense of inclusion in this process of modernisation as symbolised by the presence of the antenna. The opposite happened in

places like Queguayar with no access to connectivity, which were previously 'just geographically isolated', as the teacher would say, and were now perceived to be excluded of this national project as well (at time of writing, the school was being promised to have satellite connectivity by the end of the school year). This posed interesting and challenging questions about the symbiotic relationship between space and practice when mediated by the internet's 'promise' of infinite possibilities. As it was clear in the previous section on children's appropriation processes, public squares with internet connectivity played a key role not only in changing the urban landscape but also in reconfiguring different constructions of childhood.
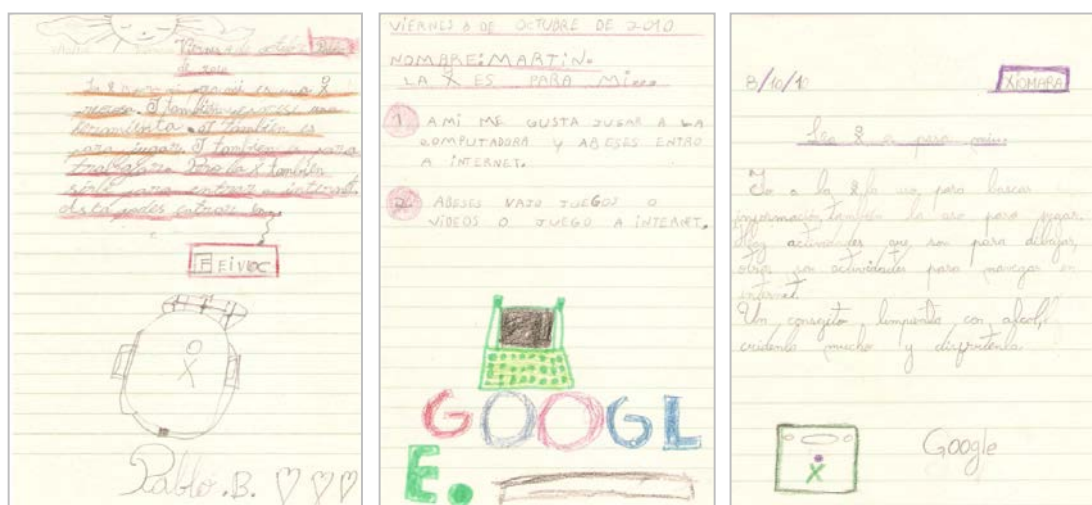
Figure 4.11. Children's letter to 'an imaginary friend in England' describing their laptops and sharing 'tips' on how to play videogames, where social media features prominently, particularly 'feivoc' (Facebook)
Source: Produced by informants as part of author's fieldwork, 2010

Teachers

As mentioned in part A, although the laptop's prescription was to be an open-ended machine, it still had a particular delegation or distribution of competence inscribed: children were capable of learning by themselves, teachers were no longer needed. When laptops entered classrooms, this delegation was felt as reconfiguring existing power relations: if laptops were to credibly claim the ability to help children construct their own knowledge, then teachers' roles needed to be substantially transformed. In that respect, teachers encountered some of the same challenges as parents did (child-like design, unclear directives on the programme's objectives), but their initial response to laptops was also influenced by a combination of what they perceived as lack or inappropriate training and the institutional obligation to use them. In most cases, value attribution was

dependent upon identified notions of utility as a didactic and pedagogical tool. Yet there were significant differences on how that tool was integrated with others in the classroom as teaching practices were assembled.

There were broadly two main ways in which these socio-technical assemblages took place. First, some teachers – especially in early stages of the implementation process – identified pedagogical and didactic functions in relation to pre-existing practices, as discussed above. Laptops, in those cases, allowed more 'effective' or 'different' ways of doing what teachers had always done. In some cases this was an explicit decision to maintain a pedagogic model which was believed to be better, and in others it was also a pragmatic consideration as they felt they were not properly trained to use it differently. The general sentiment among them was explained by Liliana, a third grade teacher from school 42 in Paysandú, who insisted that it was 'a great idea, in principle, but it wasn't well implemented in practice'. More specifically:

> Laptops arrived one day and we were shown how to turn it on and I feel like they left us alone afterwards. We had a couple of hours training and I thought there would be other training courses but that was the only one [...] so that is how I feel: we were left to learn it on our own.

Training was insufficient and teachers were 'left alone afterwards'. The courses themselves were not perceived as useful in order to understand how to use the device within different pedagogical models, either. Carla, a teacher from Minas who regularly maintains a blog on education technology, explained that it felt removed from the reality of teaching, but more importantly, of the actual practice of *learning*, as they 'didn't even let teachers touch the laptop' until the course was over:

> I got nothing out of these training courses. The course teachers didn't even let me touch the laptop until they finished their PowerPoint presentation and spent hours telling us to touch this button and not the other one because they didn't know what it could happen if we did, and so forth. We were being taught by teachers from last century but we are in a different century now.

As a result of being taught in such a disengaged way, 'by teachers from last century', teachers felt that they 'got nothing out of these training courses'. Although there were subsequent attempts to train teachers in different modalities, for instance by training in cascade or in situ, these initial reactions were often translated, as Roberto Balaguer explained, into 'a sense of anxiety that paralyzed them, that made them look for excuses or theories that justified not using the laptops'. Arguing that laptops were 'just a tool' was a de-technifynig tactic: it helped them articulate their views on what education should be about instead.

The second way of conceptualising the laptop's utility was in relation to the various ways in which they were officially framed as exemplified by its affordances and the applications it contains. In other words, laptops were defined in relation to OLPC's constructionism or to Uruguay's attempt to promote 'digital literacy'. Teachers had to discover the potential function of these affordances when assembled in their teaching practices and reconfigure both the content of their lessons and processes of teaching as well. Interestingly, the value assigned to laptops increased as teachers discovered more and different possibilities in them, which was then translated into more frequency of use within the classroom and resulted in more pressure on children and parents to care for their laptops and maintain them in appropriate form (repair them when broken, etc.). Iris Ponzo, the Principal from school 42 explained that 'classes that use the laptop the most are the ones that have them in better condition. Teachers that don't work much with them are the ones that have the biggest number of broken laptops among their students'. Put otherwise, teachers who use laptops the most are the ones that have the largest number of working laptops in their classrooms.

Nancy Núñez, the inspector from Paysandú was quick to admit that this cycle was at least explained by teachers' initial resistance to the programme, 'we are in part responsible for that because we resisted as teachers from the start'. I was one of the teachers that resisted, I was a Principal in a school close by when CEIBAL arrived, and I resisted because there was not a lot of preparation, I didn't know how to use it or how to take care of it'. Teachers' levels of appropriation (or lack thereof), in that respect, had strong implications both in terms of use but also in the materiality of the device as well: 'laptops are in bad shape now because we, the teachers, did not give them enough value'. This lack of value attribution, this initial resistance, was then transmitted to children, as explained by Nancy:

> I think that part of the reason why laptops are in bad shape now is because we, the teachers, did not give them enough value to the machines at the beginning. And by not giving them value, we didn't transmit to our students that it was important to have them, so now they don't see it as useful.

Children consequently did not perceive them as a 'useful tool' for learning. The inspector also explained that the same process occurred with parents: if teachers had assigned more value to the laptop as a tool, they would have transmitted to parents that it was important for them to make sure that their children took care of their laptops and to pay for repairs when they broke. This is reflected in figure 4.12 which is a mother's response to a questionnaire applied among parents of fifth graders in Montevideo. The text reads, 'children won't be able to take advantage of them until teachers learn how to use it (beyond just surfing the Web or read texts) [...] the most useful things in the XOs are not

the ones being used'. The inspector complements this by sharing that, 'only when teachers are trained and dominate the instrumental aspect of the machine, they are able to discover a better way of working and taking advantage of the machine. For now, though, the instrument still dominates us'. If laptop's utility is conceptualised in relation to official accounts, then these features need to be 'controlled' so that power relations between teachers and children could still be maintained.

Figure 4.12. A mother's opinion on teachers' use of XOs in class was expressed in the questionnaire. It reads 'I think it is a mistake to think that just because laptops were handed in to all children, they will have equal opportunities [...] children won't be able to take advantage of them until teachers learn how to use it (beyond just surfing the web or read texts) [...] the most useful thing in the XOs are not the ones being used.'
Source: Questionnaire administrated by author during fieldwork, 2010

It is important to point out, however, that as teachers increased frequency of use and discovered more possibilities within the device, they began to integrate it more organically with the classroom's conditions. Nancy Núñez, Paysandú's inspector, explained this process of naturalisation of laptop-based practices by claiming that, 'they were discouraged at first but they are starting to value it now a bit more than when it was imposed upon them, because it was felt as an imposition. Now it is sort of normal to have the XO, the expectation decreases and it just becomes part of our daily work'. As the laptops became a valid teaching and learning resource, their use became more ordinary to the point that they no longer required justification. It was this process of de- and re-valuation that drove what Shove (2003) has denominated the co-evolution of technology and practice. What is interesting is that as the significance of the device increased for the accomplishment of learning processes, the classroom's socio-technical system and social relations also changed. As Shove (2003:2) explains, 'the normally invisible role of material

objects and their significance for the accomplishment of daily routine is momentarily evident when technological innovations provoke or enable changes in how and by whom tasks are defined and accomplished, and in how people organise their time'. Laptops were slowly naturalised into the classroom, transforming teaching practices as well as the technology itself as a result. The latter is discussed in the next section.

Breakages

This last section focuses on laptops' breakages as they illustrate the interplay of the many different dimensions analysed throughout this chapter, particularly the relationship between materiality, meaning, value attribution and practice. Breakages are moments in which projected users, as imagined by the designers and scripted into the device, encounter not only real users and their practices but also the ways in which the device has been signified in the different contexts of use. They are moments when both technical and social elements are simultaneously brought into being, making assemblages of materiality visible. This is because what it means to be 'broken' is just as technical as it is social, so it can only be understood in relation to normative notions of proper function and use. Instances of breakage – when the laptop is perceived as 'not working' – are the result not only from literal technical usability issues but from the convergence of practice, subject and object. A teacher from a 'critical context' school explained that, 'sometimes they'll say that it's broken and I ask them to bring it and it still works, it's blocked because it just needs updating'. Perhaps the clearest illustration of this can be found in the image in figure 4.13., where the laptop does not have a keyboard yet it was in full use by its six-year old owner, Catalina, who just wrote the latters on top of the motherboard. This particular laptop was considered 'broken' at CEIBAL's repair shop yet it was 'working' in the classroom setting, which shows how divergent notions of 'workability' actually are in practice. In other similar cases, students just reinserted the keyboard's membrane using scotch tape. This is discussed in more depth below in relation to the laptops' warranty but it clearly shows how laptops that represented certain kinds of malfunctions for CEIBAL were not particularly challenging for children to actually use.

Other examples of the interplay between 'the social' and 'the technical' can be found in the relationship between class and the laptop's use, which is the subject of chapter five. The value attributed to the laptop, and the ways in which its functions were identified, were directly related to the extent to which families could find them a 'purpose'

in their everyday lives, which Bourdieu (1984) discusses as part of the concept of 'taste for necessity'. To put it bluntly, people value what they can find useful. The former director of Primary Education's Council, Edith Moraes, explained that laptops broke the most in contexts where children and parents could not find in laptops what they considered a 'useful function':

> those that value education the less, that have other types of urgencies and live in extreme conditions, they are not valuing the tool as a way of improving their personal trajectory. And that is when the laptops break, or are misused, in low sociocultural contexts.

The laptop – and formal learning more generally – were no longer 'a way of improving their personal trajectory' so they were not valued as such, regardless of how much middle-class policymakers attempt to frame the programme as such.

Figure 4.13. A 'working' laptop considered broken by CEIBAL's repair shop that was in use
Source: Author's photograph, 2010

However, the issue is also technical because heavy-use input devices (touchpad and keyboard) have to be inexpensive, so they are of poorer quality than the ones used in other laptops. In these contexts, the laptop's 'ruggedness' cannot bear the specificities of the environmental conditions in which it is then used. Examples of this abounded during fieldwork as the conditions that some children lived in were simply not conducive to the proper maintenance of the device as it is designed today. In a 'critical context' school in Minas, for instance, the fourth-grade teacher, Raquel, explained that:

> the family of seven members shares one room and they all of a sudden had five laptops, and they put them on top of the closet but the roof was leaking and the laptops got wet. The level of overcrowding is astonishing, if you have two or three children sleeping in the same mattress, what could you expect?

In Montevideo, as Luisa Ayerza, an inspector from the central area of Montevideo explained, 'houses in settlements [slums] are built on earthen floors and that's where children do their homework, so dust gets into it all the time, it's inevitable. And houses are humid and that damages the device [...] it's not that they don't value it, it's that they can't take care of it'. The most heart-breaking story was from a third grade student – nine-years old – from the school in Maracana who had lost his XO in a fire where his entire house was burnt down.

In accordance with what was discussed in the section above on teachers' appropriation processes, the value attributed to the laptop by teachers had great importance in the physical maintenance of the device as well. For instance, a teacher from a 'critical context' in Montevideo, has decided 'to ask them not to bring their laptop to school when it rains because the neighbourhood is very much exposed to the weather's inclemency, and when it rains they usually arrive at school soaking wet from head to toe'. That particular teacher had twenty eight out of thirty two laptops in her classroom in 'usable' conditions. The teacher from Minas mentioned above decided to make a small bag for each of her students to put their laptops in, which in her words, 'not just prevents the effects of leaks or flooding in their homes but also helps them realise how valuable they are'. Not surprisingly, nineteen of her twenty six students (73 per cent) had their laptops in working conditions. In other classrooms at the same school, the percentage of broken laptops was much higher with only three or four laptops working (12 per cent).

Another clear instance in which the interplay between 'the technical' and 'the social' was problematised explicitly was in the negotiation of the warranty's coverage. CEIBAL has defined a set of criteria of what is considered 'breakages for misuse' which is not covered by the programme and therefore, needs to be paid for. In order words, if the laptop shows signs of 'misuse', the user's parents need to pay for the repair. The criteria for establishing what is broken for 'misuse' (instead of due to 'technical faults') is interesting not only because of its arbitrariness, but also because they have important consequences for what are perceived as 'appropriate' or 'inappropriate' practices. In turn, they create a set of rules on normative use. Fiorella Haim, CEIBAL's director of Technology and Logistics declared decisively that it was important to have a 'practical criteria' with 'instructions as objective as possible', so that it could be applied equally in repair shops throughout the country:

> if the keyboard has more than 10 broken keys, parents need to pay for a new keyboard because it is considered to have been 'misused'. It is a practical criteria: we have more than twenty decentralised repair shops, more than ten 'CEIBAL movil' mobile repair shops (vans equipped to repair XOs that travel around the country) and a decentralised technical service, we need to

have a clear set of rules on this because there are too many different people involved. Instructions need to be as objective as possible. And perhaps ten broken keys do not mean that it was misused or if there is a key that was cut from the membrane, but we need to have some criteria and those that are considered 'misused' for us need to be evident. There are issues that are more social, of violence, that escape all of this.

In turn, the criteria and subsequent establishment of normative uses resulted, in great measure, from pragmatic considerations as laptops had to be repaired locally. What is interesting, however, is that the informant related 'misuse' with 'more social' considerations, classifying violence towards the device as such.

There were many instances in which laptops were, indeed, broken *on purpose*. Paola, the fifth grade teacher at school no. 8 in Montevideo explained that, 'what happens all the time is that the laptops are very slow and sometimes they freeze or something. And when that happens and children were in the middle of something, of doing some work, they get frustrated. We all do'. In a way, this is inextricably linked to issues discussed at the beginning of this chapter on MIT's priorities: the laptop was designed for a projected and generic 'third world' with the expectation of promoting sophisticated uses for which the machine is just too slow and clunky. Paola insists that 'there are children that in those cases just punch their laptops, which has to do with broader issues of sensitivity and frustration and the management of that frustration. If it's not doing what I want it to do, I'll punch it or break it. It's not the majority though'. The quote is revealing because the teacher connects the manifestation of violence with broader structures of symbolic violence in the child's life. Violence is the mechanism through which frustration is managed. In a certain way, and as it is discussed in greater depth in chapter five, these instances were also part of a broader sign of class resistance: it reproduced their membership to an excluded class. In this particular case, as the group which has now interrupted its access to technology, it increased inequalities even further, considering what is signified in CEIBAL as a programme.

Figure 4.14. Poster on display indicating what to do to get laptops fixed, including the call centre's number
Source: Author's photograph, 2010

Through that violence towards the XO – and therefore towards the education system, promises of modernity and so forth – these children were also reproducing a culturally specific and meaningful way of life, negotiating status and constructing a social identity as a result. This poses an interesting question about the flexibility of the relationship between practice, materiality and meaning which is explored in the following chapter. What is crucial to consider here is that this generates a great sense of frustration among teachers that do want to use the resource in class. As the inspector from Montevideo East explains, 'it becomes a problem because when teachers do want to use them, there might be only five working laptops in a class of twenty students, some might not have connectivity and others might be broken or something. So it is very discouraging for a teacher to plan a class'. Although there are some 'palliative strategies' being developed, such as using for example their sibling's laptops, this is in fact reinforcing pre-existing inequalities. Put differently, the prevalence of broken laptops among the poorest families in the country – who cannot afford the repairs – increased, rather than reduced, both differences and the social and cultural divides on which they are supported.

Conclusions

This chapter examined the relationship between the XO's design and CEIBAL's reconfigurations of it, and laptop-related practices among children, parents and teachers. Part A focused on how competence was delegated materially in the laptop's inscription and how this was transformed by CEIBAL as it entered the programme's discursive and material space. It argues that disjunctions in the set of values objectified by OLPC and CEIBAL created tensions in the relationship between utility, function and value attached to the device. These tensions were explored in relation to working-class parents' perception that, because of its child-like design and most prevalent uses, the XO is not 'a real computer' – that is, a Windows computer – as it does not signifies its 'function' properly. In other words, it is not perceived to be the appropriate computer for accomplishing the modernising goals certain groups have grafted onto CEIBAL. Part B explored the interplay of function and meaning in practice by looking at how the device was appropriated by different actors. More specifically, it looked at how children, parents and teachers internalised and externalised the normative as XOs were normalised and integrated into Uruguayan classrooms and households. I argued that despite significant differences between appropriation processes among teachers, parents and children, there is a strong interconnection between them: an underling tension between 'play' and 'work' that conditioned, to a great extent, both functions and values projected into the laptop. In particular, teachers' value attribution processes increased as more functions were discovered, which were intrinsically linked to children's frequency and types of use. These were also reflected in what the laptop actually *became* as a result. The chapter concluded by looking more specifically at breakages and complemented the analysis by bringing light to the different ways in which 'the technical' was confronted by 'the social'. This left spaces for a deeper exploration in the next chapter of the different ways in which social values and class were reproduced through, and mediated by, the use of XOs in different contexts.

Chapter V: Local negotiations

'CEIBAL created these networks of wires and bits and bytes across the country. And it's just like our ties as a nation, the social fabric, how we are connected to each other.

Yes, CEIBAL is wiring up our social fabric'.

Father from school 42 in Paysandú, Uruguay.

This chapter continues to analyse technologies as they are used and assimilated into cultural contexts yet shifts attention from the device to the specific characteristics of its users, focusing on how children make sense of the values mediated by them. It consists of two complementary sections: the first examines the notion of social inclusion – central to CEIBAL's self-conception – as a critical component of what happens *before* children receive their laptops as it explains how they were framed; the second part focuses on what is *made possible* by these framings, contrasting them with actual experiences of 'social *ex*clusion'

More specifically, Part A looks at how the programme's framing was performed as laptops were handed in to children, parents and teachers in schools, creating a particular sense of what they can accomplish and the laptop's role in enabling these achievements. I draw upon anthropological literature on gift giving to bring light to both symbolic and material nuances of exchanges between 'the state' and its citizens, which outline normative notions of 'proper' uses of such technologies. I argue that the circulation of laptops provided a morality tale that could be easily communicated and easily grasped precisely because of its tangible character: for thousands of Uruguayans, physical access to technology also implied access (for the first time) to a national identity card, providing them with existential legitimacy. This effectively consolidated both the role of the education system as the space for reproducing national subjectivities and of CEIBAL as the programme through which those subjectivities were built. With the underlying notion of a 'new' country emerging, part B looks at how children enacted, reconfigured or resisted technologies as they encountered CEIBAL's self-conception in three different sites: Montevideo, Paysandú and Queguayar. Doing so explains *how* the group of users explicitly targeted by the programme consumed, modified, domesticated, reconfigured and resisted the symbolic and utility values of XO laptops. In other words, how they navigated through what we term here 'geographies of possibilities'.

Conceptual framework: towards geographies of opportunities

As discussed in the previous chapter, the importance of technology and technical needs was inscribed in the laptop's design as its materiality interacted with more encompassing assemblages of meaning, expectation and understanding. Tying the small details of children's daily activities, such as following them to the public square after class or travelling an hour by bus to the nearest town to get online, to on-going social, historical, and economic processes illustrates how the context in which children engaged with their laptops shaped both the choices available to them and the choices that they made. Rather than claiming a deterministic role, this reinforces the ANT idea that there is no such thing as a fixed 'context'. Instead, children's practices were inextricably linked to, cannot be understood apart from, and are constitutive elements of other processes such as informal segregation, the privatisation of the education or the dismantlement of the welfare state. They influence how children come to understand themselves and the world in which they live and explain the types of relationships that are possible and desirable for them to make.

Respondents in Montevideo, Paysandú and Queguayar established and negotiated relationships to their laptops in the hope of constructing a particular lifestyle and/or of maintaining a specific identity, as working or middle-class, as boys or girls, as urban or rural people. Some of these practices, however, were also a medium through which inequalities, particularly those of class, were formed, experienced, imposed and reproduced. Relationships between social inequality and technology use have been explored extensively in the literature (Warschauer, 2001, 2004; Hargittai, 2008; Norris, 2001; Livingstone and Helsper, 2007). Key issues discussed include differences in frequency of internet use by socioeconomic status or differential returns to gaining access to ICTs. These analyses generally position technologies as neutral goods and assume a model where inequality is reproduced through class, gender or ethnicity and shape how technologies are used and vice versa. As it becomes clear below, rather than black-boxing the ways in which social differences are reproduced, it is important to focus on the processes that 'link them together or the ways in which each might shape what the other becomes' (Halford and Savage, 2010:940). Put differently, how classed processes shaped what the laptop became in different localities (including its different affordances) as well as how the laptop shaped what class in 'modern' Uruguay has come to mean. This idea of a 'mutually evolving' relationship is particularly attractive as CEIBAL's laptops were conceptualised in relation to the connections that they were capable of making, which were perceived to be constitutive of people's social positioning within a certain landscape of possibilities.

As it is described extensively below, 'social inclusion' was defined in relation to the work of establishing 'connections' in both material and symbolic ways. To be 'included' was defined as having access to certain type of connections and the experience of 'exclusion' was often described as 'being disconnected'. Laptop computers were perceived as the *mediators* that allowed people to establish and/or to negotiate certain possibilities through specific material and symbolic relations in a much broader landscape of connections. An example of this explored in the previous chapter was the widespread belief that accessing the internet – the assemblage of connectivity, laptops, skills and children – was a way of enacting CEIBAL's objective of social inclusion as those connections 'wired up the social fabric'. Different values and forms of agency were performed through heterogeneous assemblages of people and laptops, ultimately negotiating people's positioning in the 'field of connections'. Put differently, the possibility of making connections is dispersed over networks and its multiple translations through assemblages of people, laptops, skills, and so forth. Ultimately, these assemblages reflected what people consider 'possible' for them to do by using these laptops. The 'possible', in turn, emerged from certain social and technical relations of people, devices and institutions, that people have to constantly to think through: they are constitutive elements of what Bourdieu (1990) has referred to as the 'logic of the situation'.

Inequalities therefore emerge from what we term here 'geographies of possibilities'. The field of connections is visible to different actors from their respective positions within it, which they need to navigate by establishing different types of assemblages. The concept of 'geographies of possibilities' is useful because it allows one to maintain ANT's principle of symmetries while connecting CEIBAL's everyday practices with broader questions on class cultures and inequality and on the reproduction of subjectivities. This idea also resonates with principles from contemporary class culture research (for example, Bourdieu, 1990; Chin, 2001; Calhoun *et al,* 1993; Savage *et al*, 2010a) because it implies fluid forms of relationality, much like Bourdieu's concept of 'fields' in which actors compete for positions of advantage. Our point in this chapter, and in the thesis as a whole, is that different 'geographies of possibilities*'* allow for competition over the making of connections that are deemed valuable. Rather than a competition between material devices, as Savage *et al* (2010a) point out with their concept of 'field of devices', we claim that 'geographies of possibilities' is a more encompassing way of describing geographies of power that influence the ability to make technology *perform*.

The key to this notion lies in the recognition of different forms of agency that are enacted in strategies to navigate through these different geographies. People negotiate

connections and operate in the field on the basis of their positioning within it and of their habitus or experience of class. Bourdieu discussed this in terms of having a sense of appropriate aspiration, and of acting upon it, when looking at working-class culture and consumption as determined by the 'choice of the necessary' (1986). In other words, people think through material and symbolic elements of these geographies – 'the logic of the situation' (Bourdieu, 1990) – to assess what is possible and or necessary for them to do. They reflect on their own situation, examining how certain social and material conditions (for example, experiences of class, devices' affordances) are either enabling or hindering the possibility of making desired connections. And so they negotiate strategies of connection precisely by reading this field of possibilities, which can also perform and reproduce their positioning within it even further. An example of this discussed below was the case of parents in Queguayar who did not believe that laptops had any utility value at all without internet connectivity.

In turn, based on assessments of their current situation, people can, and often choose to, interact with the world around them in very particular ways. Once that work is done, the aggregate can be conceptualised as a 'map' that describes both the landscape of assemblages and the possibility of making these connections (or lack thereof). These maps are not 'the context' in which associations are formed, but rather, after the associations are traced, they show the *density* and *types* of associations formed. People's positioning in the landscape is therefore defined on the basis of the volume, composition, and evolution over time of their different capitals (Bourdieu 1984, 1986). In Bourdieu's words, 'the position of a given agent within the social space can thus be defined by the positions he occupies in the different fields' (1986: 724). People use different types of capital to deploy their technological capacities and make these associations. The Bourdieusian concept of capital is useful here because it focuses on 'the set of actually usable resources and powers' (Bourdieu, 1984: 122, cited in Halford and Savage, 2010a: 944) that can be mobilised to achieve advantage and classify social difference. In that sense, cultural capital influences the ways in which people perform their connections (or lack thereof), and thus reproduce their positioning as 'connected to' or 'included in' within those networks. As it becomes clear in the three localities studied here, different types of capitals are cumulative, so they both accentuate advantages and are also converted into further opportunities. A case in point is the transferability of technical skills, which in certain cases enables, for example, political participation or access to the labour market.

Despite representing different conceptual traditions within sociology, the presumed opposition between Bourdieu and ANT is, in great part, unjustified. Incompatibilities

between these perspectives have been identified by emphasising particular readings of their arguments: a very crude version of Bourdieu and a very narrow one of ANT. As recent literature has explained (particularly Entwistle, 2009; Halford and Savage, 2010a; Gilbert, 2010, Zhang, 2010) there are, in fact, significant points of contact between them. The first is that both are concerned with a methodological move towards 'deflating' social categories like class: they need to be traced and assembled, just like actors do. What counts, for both ANT and Bourdieu, are the processes and actions through which social entities, categories or relations are produced and 'temporarily stabilized' as heterogeneous networks (Law, 2008:634). For both, the key does not lie on social groups; but, instead, on group *formation* (Latour 2005). The second point of overlap is the focus on the material. For ANT, artefacts do not reflect the social order, 'as if the 'reflected' society existed somewhere else and was made of some other stuff. They are in large part the stuff out of which socialness is made' (Latour, 2000: 113). The artefacts' affordances emerge precisely from relations with other actors. For Bourdieu, 'class' is something that actors 'do' and assemble through tastes, objects, and practices; it is not something that they 'have' (although, of course, what they have is constitutive of what they do). The third point of contact, which follows from the other two, is the performative nature of these assemblages or categories of social difference. Bourdieu's idea that distinctions are enacted in the practices that reproduce them is mirrored by ANT's claim that 'technologies, knowledges and work may be understood as the effects of materially, socially and conceptually hybrid performances. In these performances, different elements assemble together and act in certain ways to produce specific outcomes' (Law and Singleton, 2000: 774 cited in Halford and Savage, 2010a: 947).

Inequalities result from the consistent performance of heterogeneous assemblages – they are stabilised. As Halford and Savage (2010a: 949) explain, class cannot be seen outside of the assemblages that produce them; instead, they should be seen as a 'form of crystallization of such heterogeneous networks'. Although both Bourdieu (1986) and Latour (1991, 2005) recognise that asymmetries exist as a result of these formations and that networks can have potential cumulative effects by feeding into each other, there is still much analytical space for examining how certain forms of inequalities are consistently stabilised. In particular, looking at these relationships of power by tracing and mapping the knowledge, devices and associations that establish these relationships of continuity and discontinuity can bring light to their dynamic and performative nature, emphasising possibilities for different configurations. A clear example discussed below is the perverse effect of certain types of unintentional assemblages, which despite aiming at generating

'inclusion' further reproduce what is perceived and experienced as 'exclusion'. Recognising this sense of agency is important to avoid categorising beneficiaries of CEIBAL as mere recipients of social policy and or to underestimate the range of ways in which people choose the decisions that they make.

Part A: Encountering CEIBAL's self-defining values

As discussed in depth in chapter three, CEIBAL's self-conception was defined by appealing to a natural affinity (Miller and Slater, 2000) between the programme and elements of what it means to 'be Uruguayan'. This section explores how social inclusion and equality discourses were introduced, interpreted and played out in interactions between different actors – governmental officials, children and their families with their laptops, – to generate the programme's political act of composition (Latour, 2000). In other words, it focuses on how the programme and the laptops were framed before and during the process of delivery. It does so by interrogating 'social inclusion' as one of the core social values governing CEIBAL's self-conception, which was enacted through the making of connections that allowed Uruguayans to navigate different 'geographies of possibilities'. It argues that the value of 'social inclusion' was performed through the laptop's ability to 'make connections:' connecting to 'the world'; to other children around the country; to their classmates and to their neighbours and to siblings at home.

There were infinite ways of describing the laptop, yet it became clear that the device was always defined in terms of what it was connected to (or not) in different contexts. As discussed in chapter four, in parents' appropriation processes, connectivity was defined as a technical requirement for the XO laptop to be perceived as 'working;' to be helpful and useful, laptops needed to have internet connection. 'Being included' was equated with 'being connected', both in a physical sense by having infrastructure in place and in a symbolic sense by having the 'right' type of subjectivity. A father in school no. 42 provided an eloquent metaphor:

> CEIBAL created these networks of wires and bits and bytes across the country. And it's just like our ties as a nation, the social fabric, how we are connected to each other. Yes, CEIBAL is wiring up our social fabric.

The laptops' ability to connect children with each other enabled the country to recompose 'our ties as a nation'. The closeness of distance, the tightness of the 'social fabric', has historically been characterised as foundational to Uruguayan egalitarianism as the country has been described by national historians as a 'cushioned' society (Real de Azua, 1985), 'of

short distances' or as 'hyper-integrated' (De Armas, 2005). CEIBAL's 'wires' are now allowing children to enact this cohesiveness.

Similar metaphors were used both by children and by teachers to describe the XO laptop's features. For instance, the laptop's 'mesh network', which was created to share internet connection by linking up laptops peer-to-peer, was often described as making a local 'social fabric'. Paola, a fifth grade teacher in Montevideo, explained that she 'could not use the mesh network capability very often, it was not very reliable' but 'she loved the idea' of allowing each other to go online by being in close proximity: 'we need each other, to be connected up, to get connected'. For the internet, considered the mediator per excellence, to 'work', connections had to be made between children and laptops, laptops with other laptops, and children with other children. Another feature that was defined along these lines was the 'neighbourhood view', which displays all connected XO laptops nearby and their shared activities (see figure 5.1). Children in Paysandú chose names that present themselves to others through the neighbourhood view – for example, one boy named his laptop 'Martin, the biggest Penarol [football club] fan' not only to show that he was online but also to express his love of football, great loyalty to a particular football club, and being 'the most' enthusiastic fan of that club. This way, children saw each other through these representations as enacted in each other's screen. As Noel, from Paysandú's fifth grade, explained to me, 'you can see who's in and who's out'. These examples show that both notions of 'connections' and of 'social inclusion' were redefined, which contrasts with how 'exclusion' (that is, 'disconnection') was experienced in practice, which is explored in part B.

Figure 5.1. The 'neighbourhood view' in the laptop shows who is online in the immediate surroundings.
Source: Author's photograph, 2010

Reproducing subjects of modern Uruguay

Images and portrayals of the poor were an important element in people's encounters with CEIBAL's values, particularly that of 'social inclusion'. These representations were invoked by policymakers as they designed policy and are therefore crucial for understanding how they mediated people's perceptions of the programme. The clearest example, which was discussed in the introduction, is ANEP's use of the term 'critical sociocultural context' in order to describe schools where geographical, cultural, historical and family circumstances are perceived to generate 'cultural deprivation' (ANEP/MECAEP, 2004). These classifications imply that certain environments are not 'conducive' to traditional schooling, reinforcing pre-existing marginalisation. They are considered in the selection of teachers (for example, their remuneration is higher) and in the implementation of other initiatives, such as the introduction of 'community teachers'. Their role implies a combination of teaching and social work by visiting students' homes both to make a bridge between the school and the family, and as an additional type of pedagogical resource for 'the most problematic' students.

In turn, these representations of areas considered 'critical sociocultural contexts' are considered when analysing what is feasible to do and how to make it happen: the types of connections that are seen as possible for certain people to make from their positioning in the 'field'. They are also reflected in the ways in which certain people are perceived by others, which ultimately have an impact on how they see themselves. In fact, what is perceived as 'the possible', particularly in terms of making certain connections, is defined in relation to people's perception of their own positioning relative to others. Although emphasising a slightly different point, this is intrinsically related to Bourdieu's concept of 'the logic of the situation' (Bourdieu, 1990) as other people's perceptions of one's possibilities can also obstruct or potentially enable them. For this reason, images and portrayals of the poor actually matter greatly for the concretion of specific 'geographies of possibilities'.

More specifically, there is derogatory term used in Uruguay to describe people who are perceived to be 'marginal': the 'planchas'. The term originated in the last decade and initially referred to young poor people that had been criminally convicted and shared specific aesthetics, tastes and lifestyle. In Spanish, the word 'plancha' means a sheet steel or a plate, referring to the placard criminals hold for their mugshots. It is linked to a music genre called 'cumbia villera' originated in Argentina that stem from 'villages' (ghettos) with distinctive hairstyles and clothing, particularly bright yellow hair and winter jackets with fur on the hood, referred to as 'las aviadoras'. In recent years, those encompassed by the term

'planchas' expanded considerably, not limiting its membership only to those with criminal records. Among Uruguayan middle-class people, the term operates as a 'quick' loaded descriptor for marginalisation (poverty, drugs, crime, joblessness) and is often accompanied by moralising, explanatory pronouncements on taste and/or on personal choices (laziness, lack of self-discipline, greed). Images of welfare moms and streetcorner drug deals in the outskirts of Montevideo populate media outlets and policy circles, and are presented precisely in opposition to the venerated image of the educated middle-class Uruguayan that has historically been held so dear.

This phenomenon emerged during and after the 2001 economic crisis and it could be explained, at least partially, by the combination of considerable unemployment and the dismantlement of social programmes during two decades of neoliberal policies; a whole population group 'fell out' of the state's safety net. In recent years, as Uruguay's economy recovered and grew significantly, this section of the population has tended to occupy low wage and low skilled jobs or to use alternative modes of survival such as informal dealing and petty crime, usually referred to as 'hustling' (Hall, 1978: 340–341). As Stuart Hall (1978: 340–341) explains, referring to hustlers in London who live by their wits, 'they are people who always know somebody, who can get things done, [...] they work the system; they also make it work'. In Uruguay it is often, erroneously, thought to be synonymous with professional crime, which is of course reinforced by the group's self-definition. It is perhaps not surprising, then, that much of CEIBAL's framing contains the not-so-subtle message that if only 'those people' would get themselves on track, by wanting the right things and using technology in the right way, they too could be part of Uruguay's educated middle class. Alas, the labelling speaks about those who are being labelled and about the ones doing the labelling.

Interestingly, there are two main ways in which those specifically targeted by CEIBAL as the 'beneficiaries of the programme' – those who require 'inclusion' – responded to these values. First, and as it becomes clear in part B of this chapter, some people reacted to these representations of 'exclusion' by acting them out. As Elizabeth Chin (2001) pointed out in the context of African American children in the United States, the power of these stories 'cannot be underestimated as they are embraced even, at times, among the communities who are most damaged by them' (Chin, 2001:43). Acting out membership means sharing lifestyles and involves knowing codes of needs and wants, as well as the social relations that reproduce them. Willis' (1981) research on 'working-class lads' in the UK is particularly illustrative of this. The counter-culture of 'lads' disqualified them from the opportunity of entering the white collar labour market. The social order is both displayed

and reinforced through these particular types of practices, but it is also enacted and made operational through them. People's positioning within 'geographies of possibilities' determines what people believe is 'possible' or 'necessary' for them to do, while reinforcing these beliefs through the types of socio-technical connections they establish as a result.

Another way to negotiate CEIBAL's self-conception was by questioning its values and people's positioning in relationship to them. A case in point was Maria, a teacher living and working in Porvenir, a small town of approximately a thousand inhabitants only forty km away from Paysandú. The irony of the town's name, which in Spanish means 'future' or 'prospect', was not lost to me as I became familiar with Maria's story of isolation and detachment. She coordinates the town's MEC centre, which has five PCs used for teaching courses from the National Digital Alphabetisation Plan and for free public use. The Centre also organises cultural activities, such as folk dancing lessons. At the time of my first visit to Porvenir, internet had just been installed and the centre was filled with children playing videogames in their laptop computers (see figure 5.2). When asked about her opinion of CEIBAL, Maria said she liked the programme but 'strongly dislike[s] the idea 'social inclusion, which is 'what the programme is about'. In her words, 'it makes you feel worse':

> I'll tell you why. Do you remember the National Emergency Plan [PANES][17]? Well, I was a student back then and didn't have a job so I could get some money from it to get by. I can assure you that with that plan, and for everyone I talked to that received it was the same, you felt excluded... I had never felt excluded until that moment. Because they said the programme was for the excluded so it made you feel like shit. It was actually worse, it made you feel like you were pretty much excluded. There were people from all levels that needed help, just like with CEIBAL now that many people cannot buy a computer, and it helps. But with those programmes and things, when they tell you that it's for 'social inclusion', I can tell you from having suffered it myself, that it makes you feel like you are screwed and it might not be that way at all.

The irony was very clear: a programme intended to generate inclusion, to make people feel integrated, actually made them feel excluded for the first time precisely because it positioned 'beneficiaries' as 'the excluded'. The programme was so successfully framed as promoting 'social inclusion' that it led those that received laptops, the 'beneficiaries', to question their own positioning as members of such an 'egalitarian' society. In Maria's experience, if beneficiaries receive such assistance, then 'they must be excluded'. Recipients realised that in order to be enrolled in the project, to be entitled to enact the possibility of making certain connections, they needed to act this condition out. However,

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[17] The National Emergency Plan (PANES), as explained in the introductory chapter, was a conditional cash transfer programme introduced by President Vazquez's government during its first years to alleviate the impact of the 2002 economic crisis

as Maria explained, 'it made you feel worse' or 'screwed' because 'you never felt excluded until that moment'. Considering meanings and assumptions loaded onto descriptors such as that of 'the marginalised', tinted with moral rejection, it is no surprise that people like Maria feel appalled by this realisation.

However, there were also other ways of performing social inclusion that generated different types of outcomes. For example, some working-class families in Paysandú described a strong 'sense of empowerment'. For them, 'inclusion' was represented by having access to a luxury good that is the 'the same as' the one that more privileged children from Montevideo also have. Put differently, 'inclusion' was reflected in a newly acquired symbolic and physical entitlement to own and use what 'everybody else' (that is, the middle class) deems socially valuable. They now had access to the opportunity of making connections to others and to devices and institutions that others have access to, 'to get connected to each other'. In addition to pointing to a specific negotiation of the programme's framing, these alternatives also show how empty and easily malleable concepts such as 'inclusion' actually are. As discussed in chapter three, despite being floating signifiers 'fudged' to define policy objects, the use of these values has real consequence for those it affects: what is perceived as 'the possible' is what determines – to a large extent – the kinds of connections that are ultimately made in practice.

Figure 5.2. MEC Centre in Porvenir had just received Internet connectivity when visited in 2010
Source: Author's photograph, 2010

The space per excellence in which the core value of social inclusion was negotiated was the formal education system, which has always been credited with the role of reproducing subjectivities and social relations, including labour ones – that is, produce

workers. The work of Pierre Bourdieu (1977) is crucial here. In his words, 'pedagogic action reproduces the dominant culture, contributing thereby to the reproduction of the structure of the power relations within a social formation in which the dominant system of education tends to secure a monopoly of legitimate symbolic violence' (Bourdieu and Passeron, 1977: 6). This reproductive role was not lost to Uruguayan authorities, particularly as the education system has traditionally had an important role in the creation of local notions of nationhood. As it was explained in chapter three, and paraphrasing one of Uruguay's most important historians, it was precisely through the education system that the state 'created the nation' (Caetano, 1992). However, as Bourdieu and Passeron (1977) point out, the education system is also involved in the reproduction of geographies of power, by opening or closing down the space for identifying certain possibilities from different actors' positioning within fields of connections. A case in point is the label of 'sociocultural critical context' used by ANEP which implies lack of mediators to create those assemblages.

Nancy Núñez, Paysandú's inspector, vehemently explained that 'to educate is to form people. We form them to be part of our society, to feel part of it. It's not just about cognitive stuff, it's about teaching children and parents to be better people, happy and in equal conditions to others, with equal opportunities, that's what educating is'. Núñez's point is interesting because she used the verb 'to educate' instead of 'to teach' in order to make a distinction between the 'everyday role of teachers', which is to teach 'the cognitive stuff', and the actual role of the system, which is 'to form people', to mould them, so that they could 'be better people, happy and in equal conditions to others'. With the implementation of CEIBAL, in fact, some of the authorities felt that the education system was called upon, once again, to 'form people:' to create a more appropriate citizenry for modern Uruguay. Edith Moraes, former Director of ANEP who headed the organisation when CEIBAL was created, made the point very clearly:

> I want to highlight that the education system was the one chosen to implement this programme, not the Ministry of Social Development. The schools were the ones chosen, basic compulsory education, to forms citizens. It's not a minor detail and it is a massive challenge for the education system, a massive challenge indeed.

By explaining that the system's responsibility was that of 'forming citizens', Moraes was also acknowledging the importance of education in the reproduction of subjectivities. Yet she went further and pointed out that the fact that CEIBAL was implemented through schools is 'not a minor detail', because (as it becomes clear below) the delivery of laptop computers was objectifying what was seen as appropriate subjectivities, what the technically skilled citizen of Uruguay was projected to be.

In fact, the delivery of laptops through the education system provided the reproductive process with very specific characteristics: firstly, it was embodied in a tangible object widely perceived as 'a gift'; secondly, it was instantiated in a choreographed sequence of events, a ritual of sorts, with remarkable political significance; and third, it transformed children's relationship to 'the state' as expectations of reciprocity were made explicit as part of political discourses on social justice.

Firstly, the fact that the reproductive process of this type of subjectivities was embodied in a very tangible object, the laptop computer, had very important implications. One of them was that the actual materiality became 'proof' that the social change being promised by the newly elected government was being delivered. The laptop both embodied these promises and, to a certain extent, kept them. Laura Motta, one of the members of the Teachers Council, explained that 'I think that the laptop as an object, as something tangible, makes people feel that a transformation, social change, is coming. It is clearly an object for integration and inclusion, and its strongest impact is to show that change is possible'. She elaborated with a remarkable metaphor:

> the first thing that comes to mind is when children use baby walkers or walking frames, it makes them feel safe and makes them realise that it is possible for them to walk. This is the same, it is a concrete object that society has, that everyone has, so it is possible for all to be included and for social change to happen. Of course this is not enough and social change needs to be generated, but these elements make it possible.

The laptop embodies social change by acting like 'a walking frame', helping people make the difficult transition towards it, by allowing them to 'hold on' to them, to the idea that change is possible. Although acknowledging that the laptops are not the only necessary change, as '[it] needs to be generated', the object is perceived as an enabler, no less because of its tangibility.

The other clear implication is that the laptop was widely perceived as 'a gift from the government'. It is worth mentioning that 'the government' was generally perceived by families and teachers as a monolithic entity, particularly because CEIBAL was seen as an initiative from the President, 'Vázquez's CEIBAL', as opposed to public services, for example, which tend to be identified more directly with the organisations responsible for delivering them. Children and parents talked about CEIBAL's laptops as a 'gift', both with appreciation, 'such an expensive *tool*', or with disdain: 'such an expensive *toy*'. As it becomes clear below with the description of the moment of delivery, the fact that it was mainly embodied in a concrete and very visible object differentiated the programme from others. It was not like any other social policy, this was about an object given by the government to children, *for free*. It was social policy that they could touch, work on, learn

from, and even break. And the object was expensive technology, no less, with everything that this entails.

Just as anthropological literature on gift giving has pointed out extensively (for example, Mauss, 1954; Godelier, 1999) the fact that it was perceived to be a gift created and maintained very specific types of bonds between givers and receivers. However, there are two main differences in this case: the first one being that the exchange was maintained between people and an institution, 'the state' or 'the government', and that, as a result of this, and particularly because it was delivered through the education system, the exchange was part of a broader system of reproduction (Weiner, 1980) of subjectivities. Put otherwise, the circulation of laptops was part of a broader national political project, objectified in – but going beyond – this particular exchange. The work that stands out in that respect is Titmuss' 'The Gift Relationship' (1970), which examined the connections and obligations extended when giving and receiving blood in modern welfare states. Titmuss explained that the key to the exchange between 'the state' and citizens was that, despite assuming a degree of social distance between 'helped' and 'helper' (Wilensky and Lebeaux 1958:141 cited in Titmuss 1970:216), it still followed the same rules of gift giving as outlined in anthropological literature, including that of reciprocity. The degree of social distance separating blood donors who cannot see the recipient of his blood is significantly different to that of the taxpayer who sees children on a daily basis walking around the streets holding flashy laptop computers. However, precisely because of this social distance, reciprocity is assumed to be rather indirect, although still expected, and may be a 'fall-out' benefit acute in the longer-run.[18] As Titmuss (1970:215) explains, there are 'unspoken assumptions of some form of gift-reciprocity; that those who give as members of a society to strangers will themselves (or their families) eventually benefit as members of that society […] a vague and general presumption of a return gift at some future date'.

These assumptions were no different in the Uruguayan case. The clearest illustration of this 'vague and general presumption of a return gift' in the future were President Mujica's words at the delivery of the first XO laptops in secondary and technical and vocational schools in October 2010:

> Perhaps, and only perhaps, this is the most serious attempt in recent history to make our children, our grandchildren, better than us. And perhaps it is the most audacious attempt to build up a future with boys and girls smarter and more capable than us. And perhaps, this is a gift to our own memory. Or perhaps, this is just consolation and comfort for our own old age. It is the promise, the certainty and the possibility of a better world because better

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[18] A similar argument was made by Polanyi (1977) when discussing the moral basis of the economy through different forms of integration and supporting structures where he concluded that 'instituted processes' of reciprocity, exchange and redistribution require symmetry.

will be its inhabitants. [...] One feels nostalgic for being born too early on and not being able to see what these changes will mean for the future of humankind.

CEIBAL is, undoubtedly, an 'audacious attempt' to 'make children and grandchildren better than us' in the sense that it aims to construct a 'more inclusive and educated' society and to do so through innovative policies. But it is also, as Mujica's words reveal, a 'gift to our own memory' as it calls upon children to become the 'technological citizens' that the future needs and that are so necessary to consolidate the country's national project. It is a gift from current taxpayers to future ones so that they can create, in exchange, the type society that the country wants to be. This reinforces, once more, the idea that reciprocity towards CEIBAL should be analysed as part of a broader reproductive system with a long-range set of obligations that switches back and forth between givers and receivers through time (Weiner, 1980:71-85).

Finally, a more obvious sense of reciprocity was reflected in renewed expressions of 'national identity' and in affiliations or sympathy towards Frente Amplio and the consequent mobilisation of civil society to support CEIBAL, which was discussed in chapter three. Framing CEIBAL in this particular way both opened and closed the space for politics, for what it is and what it is not possible to criticise about the programme.

Ritualising social reproduction

This process of reproduction was clearly articulated and enacted in the moment of delivery, when laptops were handed in, which 'instantiated' the moment in which children and their teachers were realised as proper citizens of modern Uruguay. The idea of laptop delivery being a 'ritual' is best supported by the fact that the process had a very distinctive structure, an almost unmistakable rhythmic pattern described unequivocally by informants during fieldwork. There was a clear sense that exchanges were being 'choreographed', conducted according to unwritten but tacitly accepted rules that reinforced the values being objectified in the programme. This generated among all kinds of informants a certain sense of evocativeness and longing for the day in which laptops were handed out. The Principal from school no. 8 in Montevideo explained that 'it was like a party, one that we prepared for months, with so much joy'. Maria José, a member of RAP CEIBAL, described from the perspective of those responsible for the delivery, 'it was so exciting, to see how much expectation we have generated, children that hadn't slept for days before we arrived'. Hania, a teacher from Villa Cardal, where the pilot experience took place in 2007,

evoked nostalgically the day she helped hang the street banner that read 'welcome future'. She claimed to still wonder *when* that future would actually arrive.

The 'ritual' consisted of different steps which were replicated with impressive precision in schools and high schools throughout the country. Maria Elena, one of Paysandú city's MEC Centre coordinators, volunteered for RAP CEIBAL and participated in most deliveries in Paysandú's schools. She explained to me that in Paysandú, 'the delivery machine was well oiled' to make sure that the different components of the delivery were executed efficiently, particularly the all-important speech that precluded the hand-in. It was important because it was perceived to be 'the way in which CEIBAL was introduced', 'how it was presented' to the citizenry that it so desperately wanted to enrol. After all, how could it 'digitally include' them otherwise? In her words,

> Yes, we had a speech more or less prepared. We were not scripted per se, but we did, more or less, had a manual with frequently asked questions, the most possible questions that we would encounter […]. Maybe not all of the answers, but we were prepared. [...] we had a little speech, more or less thought through, and we would then go two or three compañeros because it strengthens us and we give them the laptops at the very beginning. We would turn on the laptops and we would get their attention because they are attractive, and then we would tell them that it is not a toy, that's what we tried to explain. We would show for example how the laptops' camera works, and how to take pictures with audio, and that also helps a bit.

Although Maria Elena claims that the speech 'was not scripted', the RAP team in Paysandú had prepared what they thought would be 'frequently asked questions' and the appropriate responses to them. This significantly closed down the space for dialogue, for actually letting teachers and parents make sense of what was being given to them. Instead, the delivery was choreographed: 'we would give them the laptops at the beginning' and turn them on 'to get their attention'. Once the volunteers had got this critical attention, they showed practical applications of the laptop 'to tell them that it is not a toy'. Interestingly, the kinds of practical uses or features that the volunteers usually showed in these encounters, such as taking pictures or listening to music, were not necessarily what CEIBAL would consider as the 'appropriate ones'. In fact, as it was discussed in chapter four, these uses were generally positioned in opposition to learning. However, these were presumed to be the ones that 'got their attention', so they were the ones effectively promoted.

Figure 5.3 illustrates the entire process of delivery, from preparation within schools prior to CEIBAL's arrival to the moment in which laptops were handed in to students from high school no. 30 in Montevideo. From the perspective of the 'ritual', it all started within the school with a wide range of preparations that 'set up the scene'. These were significant

in themselves and included a whole reconfiguration of space within classrooms, the installation of antennas in public squares and schools and meetings with parents to explain different aspects of the programme. The reconfiguration of these spaces as a result of CEIBAL's 'intervention' was briefly discussed in chapter four. In addition to building up expectation, these instances were crucial for enacting the programme's framing by transmitting it to parents and communities. In fact, teachers in both Paysandú and Montevideo explained that CEIBAL served 'as an excuse to get parents to come to school' and many used these visits to discuss other aspects of their children's education, behaviour, and so forth. For example, the fifth grade teacher from Montevideo's school no. 8 told me:

> When I need to get parents together, to get their absolute attention and make sure they all come, I send out a note mentioning that there is a CEIBAL-related issue to discuss. And then they all come. Everyone's parents, even those that had never, ever, showed up before. There's always something CEIBAL related to discuss anyway, but once they're here, I can also bring up some other more difficult issues too.

What the teacher was implying is that CEIBAL generated so much interest that it was an effective way to 'connect' with children's parents, to 'get their absolute attention'. And the strategy was not necessarily one of deception because, 'there's always something CEIBAL related to discuss anyway'.

Figure 5.3. The delivery ritual at high school number 30 in Montevideo was carefully choreographed
Source: Author's photographs, 2010

The second step in the process occurred once computers had already arrived. Teachers and Principals went over the laptops, one by one, and stuck a label onto the laptop with the child's national identity number. The laptop brought a code as well, so teachers then registered which code was assigned to each student by matching it with their national identity number. During a 'delivery day' in a particular high school it was explained to me that this procedure was carried out in order to guarantee the laptop's 'traceability'. The combination of the laptop's code and the student's national identity card number were to be used in all technical support services as 'reference numbers'. There are two

interesting things to highlight from this. The first one is that in order to insert a label with the number, teachers and principals needed to take the laptops out of the boxes and assemble them as shown in figure 5.3. The laptop itself became 'whole' as the two numbers were matched – by virtue of its encounter with its recipient. To put it differently, when the 'the technical' and 'the social' were assembled, attached to each other. Interestingly, the tracking system within CEIBAL was in reference to the laptops' numbers and not to children's identity number, which is illustrative of the importance given to 'the technical' rather than 'the educational' journey of both the laptop and, more importantly, the student. The second one was that the process had forced approximately six thousand students to officially register in the National Office of Civic Identification (*Oficina Nacional de Registro e Identificacion Civil*) and to obtain a national identity number, which is discussed in greater depth below.

Finally, the last step was the moment of delivery itself, when CEIBAL officials and RAP volunteers came into the classroom to hand in computers and 'sensitise' students to basic care rules and their functionality. For the young person to obtain the laptop, already identified with him, she needed to show her national identity card so that information on the laptop could be checked to match the student's. In high school no. 30 (figure 5.8), children applauded when the very first laptops were handed in, but as they all started to receive their own, they began to turn it on and to explore it, and so they stopped paying attention to the others. The last picture shows students opening up their newly received laptop under the careful supervision of the Principal, standing in the back of the classroom. The technician from CEIBAL, alongside a member of RAP CEIBAL, delivered a speech in order to introduce CEIBAL to the students. She started by identifying basic features of the machines, explaining,

> This is where we have the antennas and this is how you open them, with the screen up. It is very similar to the ones you have seen around in schools. What is different is that you will have 8 gigabytes of memory, 1 giga of RAM processing, so it will be much quicker. You need to charge it for about 3 hours, would be great if you could all pitch in and buy an electrical extension to have them charging here the whole time. But also charge it at home, okay?

The fact that the very first way in which laptops were introduced to students was through its basic physical properties was quite revealing, particularly as students confessed to me shortly afterwards to 'not be sure' what terms such as 'gigabytes' or 'RAM processing' actually meant. In fact, Pablo, a 15-year old sitting next to me while just shrugged his shoulders and responded to my question, 'I have no clue what she's saying, I just want to go on Facebook so I am waiting to hear how to turn internet on'. As it was discussed in

chapter four, however, the prominence of the laptop's features illustrates the significance of the relationship between affordances, scripting and expected use. It also shows how practical solutions, especially those related to the laptop's integration into the classroom, were defined in technical terms. The problem of charging laptops, for example, was presented in relation to power extensions, 'would be great if you could all pitch in and buy [one]', when in fact it was a much broader socio-technical system that they needed to fit it into, which included skills, class routines, students' knowledge, negotiations with teachers over competence, and so forth.

Interestingly, the 'delivery speech' continued with a very revealing discussion on laptop use: it reflected CEIBAL's perception of what children were actually doing on their computers and the extent to which these uses contrasted to different understandings of both normative use (of what they should have been doing) as well as expectations of the types of subjectivities that they would generate. In CEIBAL's technician words,

> You can watch videos on YouTube, you can. You can download music, but please don't start with the cumbia right now, that wouldn't be cool. You have the speakers and keys for playing videogames. And this is how you rotate the screen. And with this key here, with this key, are we all here? We turn it on. Let's turn it on now.

She acknowledged that it was possible 'to watch videos on YouTube' and 'download music' but made clear that listening to cumbia, the type of music associated with 'planchas' (discussed earlier in the chapter) and less directly with the working class, 'wouldn't be cool'. While reluctantly accepting that some of the most common uses, such as watching videos and downloading music, might not necessarily be the 'educational' ones, it is revealing that she drew the limit on the *type* of content that could be consumed. In this way, it became clear that uses were in fact associated with particular notions of instrumentality as they were expected to generate specific types of people. Presumably, the type that would listen to pop music instead.

The last part of her speech reinforces a point also made in the previous chapter about the relationship between types of use and value attribution. She magisterially finished her speech by asking her extremely anxious audience:

CEIBAL's staff: Are you going to take care of it?

Students: YES!

CEIBAL's staff: Will you research?

Students: YES!

CEIBAL's staff: You promise me?

Students: YES!

CEIBAL's staff: And one more thing: you can't drop out of school. If you drop out, we'll take the computer away. Do you promise me to stay in school?

Students: YES!

CEIBAL's staff: So now what we will do with my colleagues is handing them in, did you bring your IDs? The ones that didn't, we will ask the teacher to testify it is really you. I will call you one by one and we will give you a computer, the charger and a manual. I ask you to be quiet, calm and to come forward one by one. The pink paper that we give you is the guarantee, give it to your families, it is what they signed as a guarantee'.

The seemingly natural link between 'taking care of it' and using it 'to research' highlights issues of value attribution related, once again, to notions of normative use: to take care of the laptop, to use it properly, was to 'research'. Although this was, as mentioned in chapter four, clearly scripted into the laptop's software, it was constantly reinforced as the programme's framing was transmitted from the government to students and their families. Interestingly, only very rarely these messages included any elaboration of what 'research' actually meant: what were students expected to research and how? How did the laptop facilitate these tasks? As discussed in the previous chapter and above, when practical uses of the laptops were mentioned, they generally did not conform to CEIBAL's prescriptions, more inclined to demand faithful submission to the three-Rs rather than independent 'research' or picture taking. Regardless, this 'ritual' of laptop delivery effectively consolidated both the role of the education system as the space for reproduction of national subjectivities and of CEIBAL as the programme through which citizens could become the subjects of modernity that the 'new' Uruguay was demanding them to be.

Providing existential legitimacy

This exchange was consistently framed in relation to 'citizenship' and 'rights': just by virtue of receiving this object from the 'government' children allegedly became 'citizens'. The message was clearly articulated by policymakers and served to stabilise a strong belief on the universality of technical needs. Miguel Brechner, President of CEIBAL, proudly exclaimed at a seminar organised by the Inter-American Development Bank in Washington DC: 'what was a privilege in 2006 is a right in 2009'. Access to laptop computers, an expensive luxury good, was transformed into a 'right' for all, effectively converting technology consumers into citizens. At least rhetorically, technology provided 'everyone' with the possibility of making the connections perceived as necessary to be 'included' in 'modern' Uruguay: it enabled and mediated new geographies of possibilities. The annual

CEIBAL conference in 2010, in which policymakers and academics gathered to discuss the programme's advancements, was revealingly called 'Digital Citizenship'.

In addition to the rhetoric, it is interesting to point out that children's first direct interactions with 'the state' were, in fact, mediated by technology. The clearest example is the use of CEIBAL's hotline, a telephone number free of charge that children can call to ask questions about their XO laptop, to get 'technical' help on how to fix minor problems or to receive a reference number to get their laptop either sent to CEIBAL's offices in Montevideo for repair, or to be presented at repair shops around the country. It became clear while I was observing a repair shop in Montevideo (see figure 5.4) and spending some time in the call centre offices, that children's encounters with 'the government' were mostly through these 'technical' conversations about laptop parts, software or logistics. Children needed to be able to articulate their laptop's problems to a technical support team that is the same for all and to pose a 'technical' question about a device that is only theirs. As Jorge, the owner of one of the repair shops explained, 'children are the ones that usually call because it's their laptop they are calling about, they know what its problem is better than their parents. So to get children to talk to us with such fluency... that's just unheard of'. Children not only communicate a 'technical' problem to an adult and managed the repair process by obtaining a number and making decisions on where and how to send it, if necessary, but are also demanding a service from 'the state'. They wanted their laptops fixed. In turn, these conversations materialised and stabilised 'the state' and it was precisely in this way that the notion of 'digital citizenship' was actually enacted.
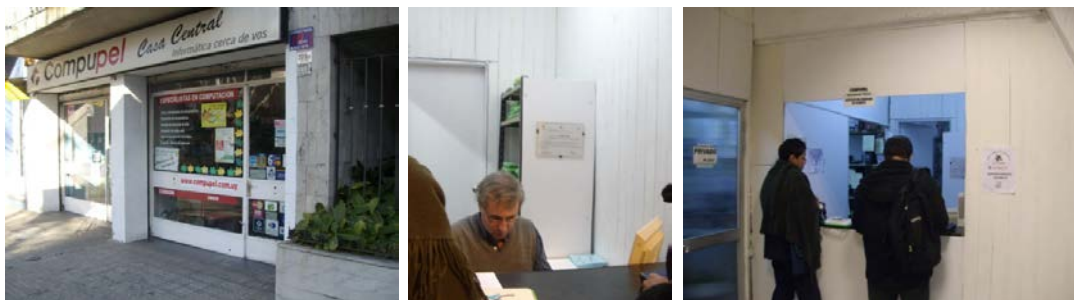
Figure 5.4. The repair shop where breakages are negotiated as a 'public service' between children and the State
Source: Author's photograph, 2010

By and large, the most explicit way in which this exchange mediated children's encounter with CEIBAL's self-conception was by providing approximately six thousand children with national identity cards. As already explained above, each laptop is attached to a child's national identity number and in order to receive their computers, children needed to present their national identity cards. Thus, children without identity cards had to be

officially registered as citizens of the country, making them eligible for all types of social services. CEIBAL's objective of promoting 'social inclusion' was at least partially accomplished just by taking that very first step – technology provided these children with existential legitimacy. The story of how these identity cards were obtained is actually interesting for another reason, too: it illustrates the heterogeneous nature of the assemblages required in order to negotiate students' 'identity' and their 'inclusion' not only into the programme but also into 'modern Uruguay'. It describes one particular type of 'geography of possibility' as it illustrates the interplay of different social and technical elements assembled and used to navigate through fields of very real and pragmatic connections, such as paperwork and transport links.

In the school no. 157, located in the outskirts of Montevideo, there were between fifty and sixty students that did not have identity cards when CEIBAL arrived in 2009. The school had one thousand one hundred and fourteen students when visited a few months afterwards, so the percentage of undocumented students was relatively low. The Principal of the school explained the process of getting them ID cards involved, at the very least, coordination between the education system, the Ministry of Social Development (MIDES), the schools' personnel, particularly community teachers and the students' family members: 'ANEP sent me three buses to take children to the national registration office, and we went back and forth like three times, as community teachers went with them'. In addition to the education system (ANEP), the national registration office and the teachers, the process required the delicate assemblage of transportation, people (children, teachers, and government bureaucrats), paperwork and money. And as happens with these assemblages, the intricate work of making these associations became visible when one of its components failed. More specifically, the Principal explained that in many cases, the difficulty was getting a birth certificate, which is necessary for the registration process:

> Clearly most of these children did not have a birth certificate either and some of the parents do not even remember where they were born, so they had to go to Pereira Rossell (the public hospital in Montevideo) to ask for it, but that has a cost too, because they need to pay for a bus ticket back and forth, and pay for the certificate.

Negotiating these associations required then another set of assemblages that are also socio-technical in nature. The birth certificate needed to be collected from a public hospital, to which parents could only arrive by bus, which has costly fares. Parents also needed to have the necessary cultural capital to make the trip to Montevideo's centre and to know how to move around government offices to successfully get it done.

In that respect, the Principal's story of getting birth certificates is an example of how 'exclusion' was felt – and constructed – in both technical and social ways: not having the piece of paper that enabled children to get an identity card, which then allowed them to receive a laptop computer, was just as social as it was technical, assembled through pieces of paper, money and presumably databases, office spaces, and the like. Having 'cultural capital' was necessary to navigate or 'get around' different 'geographies of possibilities', influencing the kinds of connections that people made. This specific idea that 'cultural capital' – which is also assembled – interacts with these processes becomes clear in the Principal's account of one of his student's story:

> The problem with birth certificates was that the child was born, let's say, with the name Florencia Perez. But during her life, her mother changed partners and instead of dating Mr Perez, she formalised a relationship with Mr Martínez and had more children. So when she came to school to register Florencia, and there were no IDs or paperwork or anything and she registered all of her children as Martínez, and that was that: Florencia Martínez. She has never had an ID but I need to register her anyway because education is always first, with or without an ID. And so when we started doing the paperwork to get Florencia's ID, her mother told me that she was born in the Pereira Rossell hospital on a particular day. And the community teacher went to look for the birth certificate and there was no baby born there that day with that name. So back to the school, back to finding the parents and having the discussions, and so on. In the end we got to the conclusion that Florencia Martínez was in fact Florencia Perez, and the mother was furious because the father, 'that *!^&* registered her with his last name' and then left. We had a few cases where the children lived with their grandmothers, and neither of the parents were around so getting the real information was not even an option. They could be named anything because there is not a single paper.

Children's and parents' *habitus* permeate this process, too. In order for the Principal and the school's teachers to assemble the different components and negotiate children's 'inclusion', they had to navigate through a complex web of processes: job insecurity and poverty, gender relations and unstable family units, government bureaucracy and so forth. Ultimately, the process of assembling these identity cards illustrates how the process of 'inclusion' was about negotiating these associations, which reflected a particular type of geography of power that enabled, prevented or even obstructed the possibility of making certain types of connections. As the next section shows, this was then enacted as people made reference to 'class' in order to explain their own choices and practices as they negotiated their place in the country's technocratic and 'inclusive' future.

In summary, this section discussed three main ways in which the notion of 'social inclusion' (as one of the core social values governing CEIBAL's self-conception) was encountered and negotiated in everyday practice: firstly, through the government's

representation of 'marginal' people as policymakers' mobilised and materialised their notions of 'exclusion' in policy design; secondly; through the actual delivery of laptop computers, which instantiated the education system's attempt to reproduce 'appropriate' subjects for modern Uruguay; and third, in the case of a considerable number of children, through the provision of identity cards, which implied, among many other things, actually being registered as a citizen of the country. In that particular respect, access to technology provided existential legitimacy. These processes were important not only in determining how the programme's framing was enacted, but also, crucially, in creating a sense of the kinds of connections that were deemed possible for different Uruguayans to navigate through their respective 'geographies of possibilities'. They resulted in very tangible strategies for dealing with notions of 'social inclusion' constructed by policymakers, different understandings of how technologies created possibilities and different practices to enact them. It was precisely at the level of social practice that it was possible to perceive how the laptop mediated these negotiations. This is the focus of part B of this chapter.

Part B: Negotiating social values through the XO

This section focuses on how children enacted, reconfigured and/or resisted specific aspects of technology as they encountered the social values governing CEIBAL's self-conception. In other words, on what the framing of the programme made possible for them to do. It looks at differences and similarities in these negotiations in Montevideo, Paysandú and Queguayar, in an effort to explain how different 'geographies of possibilities' mediated the ways in which children contested notions of 'exclusion' or 'inclusion' through the laptop. Although the three contexts were defined as having a similar 'socioeconomic conditions' by CEIBAL authorities when I negotiated access to the project, realities of inclusion and exclusion differed significantly from one place to the other. As mentioned before, this was reflected in different perceptions over the possibility of making the types of connections that were deemed valuable and resulted from the number and density of mediators in each context, and from people's access to different types of capital (particularly cultural), to make sense of them.

Each of these types of relationships to the technology are analysed here by using a quote from informants in those spaces. Although I attempt to explore nuances in their full complexity, it is important to emphasise that these quotes are used to illustrate a specific aspect of this appropriation and are not a totalising explanatory force. I am most certainly not claiming that there was a unified, let alone totalising, way of conceiving CEIBAL in each

of these places. Rather, I claim that through these particular stories it is possible to deconstruct different aspects in the relationship between core values and identities in distinct systems of social and material relations. This approach allow me to uncover and account for different experiences of exclusion, in the sense of describing different constructions of what it is to be 'included'. It is through the comparative mapping of opportunities and differences that one can get a more grounded sense of whether different localities are confronting the same types of forces, disruptions, and reconfigurations, as they negotiate their own 'social inclusion'.

Montevideo: 'a window to the world and a mirror of our society'

During a quiet and rainy morning in Montevideo's school no. 8, the fifth grade teacher, Paola, came anxiously looking for me during recess, announcing that she had just had an epiphany: 'I'll tell you what: the XO laptops are both a window to the world and a mirror to our society'. Poetic, indeed, and enormously insightful: a master class in material culture studies. She elaborated upon the thought,

> They are windows to the world, because they allow you to see it, to get information about it and about anything, to connect with the rest of world. But they are also mirrors of our society because through them, you can also see all sorts of problems. Like when children send letters to the repair shops explaining why their laptops are broken, and it's heartbreaking because they tell the truth: 'please fix it, my father broke it when he was drunk', 'please don't charge me, we are too poor to pay'.

Laptop computers are truly domains of material culture through which people project the infinite possibilities of communicative technologies – they are '*windows to the world*' – but also through which it is possible to materially embody a set of very complex social relationships – '*a mirror of our society*'. They mediate particular forms of social life and provide clues about children's social practices, family dynamics and so on. Interestingly, Paola also wanted to make connections between these facets of the laptop, as 'windows' and as 'mirrors', and children's relationship to the device, both materially and symbolically. For middle-class children, who have had exposure to computers at home or through internet cafes, laptops are became more easily '*windows to the world*'. Following the argument from the previous section, they had the necessary cultural capital to make sense of the laptop's possibility as expected by CEIBAL authorities, following normative notions of proper use. On the other hand, for children from resource-deprived families, these laptops became 'mirrors' of their own 'social isolation', as Paola and other teachers desolately admitted.

Social inequalities, in that respect, were a constant feature of Montevideo's CEIBAL. School no. 8, for example, located in the city centre, was characterised precisely by significant differences among its students: whereas most students came from working-class families, others came from middle-class ones, and a small number even come from very deprived and 'marginalised' ones. Iris, the Principal, explained it in this way:

> There is a really wide range of socioeconomic backgrounds among students here. You have some whose parents are university graduates, which is quite significant. I'd say twenty out of three hundred students or so, have parents who have a degree or some tertiary education. And we also have families on the other side of the spectrum, children whose parents have not finished primary education. Not many but there are some of those, too. Especially single mothers that work in the sex industry around this area. And in between, many students whose parents are working people that have got some secondary education.

These differences, the wide range of backgrounds in the student body, can be explained by the characteristics, and evolution, of the urban space. Montevideo's city centre has historically been a working and middle-class neighbourhood, yet in recent years, middle-class families have moved east, both to the coast ('ciudad de la costa') or to more affluent areas such as Parque Rodó and Pocitos. Due to its proximity to the port, the area has also seen a significant growth in the sex industry, which has also meant that an increase in children living in single female-headed households and in temporary accommodation (for example, hostels). Iris, the school's Principal, affirms that these differences were clearly visible in students' and parents' dispositions towards formal education:

> You can see that the parent that has had access to education is constantly worried about the child, making sure she comes in, progresses, learns, advances, wears the uniform in good condition, has a good relationship with the teacher. That parent comes to the school regularly, asks questions, supports our work, you see her. And then the other type of parent, they don't care if their children come to school or not, so their children skip class, drop out, and the parents never come, it's very difficult to bring them in.

These differences in the student's – and parents' – relationship to the school and its authorities, were revealing of broader issues, such as the possibility of reproducing specific types of subjectivities, that were also mediated by and negotiated through laptop computers. In that respect, there were mostly two different ways of responding to CEIBAL: by enacting middle-class aspirations of social mobility through 'connections' and a discourse of technological determinism, and by resisting to it with a growing oppositional culture that reproduced children's experience of exclusion and, crucially, their 'disconnection'.

The middle class: inevitability of technology

One of the clearest ways in which middle-class parents made sense of CEIBAL's values in school no. 8 was through constructing a narrative on the 'inevitability' and 'pervasiveness' of technology that enacted the programme's message on the universality of technical needs. As mentioned above, 'being included' was equated with 'being connected' which was defined mostly in technical terms, particularly in relation to 'being online'. Technology was *'necessary to be part of today's world'* and (as mentioned in the previous chapter) the internet was seeing as a requisite for the laptop 'to work'. During the focus group, Alison's mother vehemently expressed,

> The world is growing at a huge pace and we cannot, Uruguay cannot, be excluded from it. Unfortunately our children were born in a different era. We can't leave them behind. I understand that we cannot be so selfish as to deny our children to be part of the world. Because if not, they are disconnected. If they are not integrated into the world, like the rest, they will be disconnected. Uruguay is doing it because otherwise we would be a village. For God's sake.

For Uruguay to be 'included' in the world it was important to be part of larger processes of change mainly defined in technical terms, *'if not, we are disconnected'.* Although this type of inclusion is different from how 'social inclusion' was generally conceptualised in the programme's framing, it still bore a close relationship to 'connectivity'. In other words, even at the national level the notion of 'being included' for Uruguay was equated with 'being connected' and defined in relation to 'global' technologies. The narrative had almost a 'Castellian' complexion (Castells, 1996, 1998, 2000, 2001), claiming that technology has reorganised social relations, switching people and places 'on' or 'off' the 'network'. Put differently, Uruguayans enact certain grand-narratives on the development of a 'new' type of society characterised by the role of technology in processes of 'globalisation' that closely resembled the one proposed by Castells (1996, 1998, 2001), which was extremely popular in Uruguayan policy circles.

As discussed above, this also provided a new metaphor for 'social inclusion' by translating it into access to technology, which provides 'connectivity'. The moral imperative raised was therefore quite clear: denying children access to technology was to 'disconnect' them from the all-important 'global network society'. In the words of Sofia's mother, *'we cannot be so selfish as to deny our children to be part of the world',* because of the 'enormous power of technology',

> We can't close our eyes to the era we are living in. We cannot shut the door to technology because she enters by itself. We can't deny that it exists, so if we cannot deny it we need to deal with it to take best advantage of what it

has to offer. […] in the information age, in this century, everything related to technology has such a big social value, we cannot deny that.

Technology, therefore, is here to stay. It is perceived as both omnipresent and omnipotent: 'you cannot shut the door, because she enters by itself'. It is everywhere. And it is precisely this pervasiveness that is the source of its utility and of its value, 'we need to take the best advantage of what it has to offer', as it has 'such a big social value'. She goes as far as to claim that 'everything related to technology has social value', precisely because 'we cannot pretend or think that it does not exist'.

This same type of narrative was shared by Lautaro's mother, who explained that its value resides in the fact that 'everyone is into technology'. The scale of this appreciation, she explained, can be measured by the amount of money that Uruguayans 'spend on modernity' as a proportion of their salary. During the parents' focus group she pointed out:

> I recently read in a newspaper article that there was a survey done where it said that Uruguayans spend more from their salary in what is modernity, you know, cellphones that have everything and computers, than in other countries. I read it from a survey that came out in the newspaper. Much more money is spent in cell phones, technology and computers.

Technology, therefore, was not only socially valuable but also valued by Uruguayans who 'spend more much money than others in cell phones, technology and computers'. These devices, interestingly, were what 'modernity' is about, irrespective of their different functions: cell phones, computers, television, were all part of this same 'package'. So much so that her intervention was followed by a murmur of agreement and Rocio's mother's exclamation: 'Yes, when flat screens came out everyone asked for credit to get one. Everyone needed to have the best television!'

These narratives on the inevitability – and desirability – of technology were associated with another belief, very much engrained among middle and working-class parents, on the importance of technical skills for obtaining a job in the labour market of the future. Being technically skilled – particularly having 'digital skills', however defined – was perceived as crucial for obtaining a job in the 'information age'. In Bourdieusan terms, technical capital was seen to accentuate advantage. In that respect, positive aspirations of middle-class parents for the education of their children were now rearticulated not only towards support for formal education but also towards using a particular type of technology. Sofia's mother, for example, went as far as to say that in today's labour market, 'if someone does not speak a bit of English or knows something about computers, he does not exist'. This was echoed by Camila's mother who explained that technology was necessary for all types of business or work related activities, 'even if you need to use a credit card in a store, for everything, you need a computer. To take money out of a cash

machine, that's a computer you're using'. It also implied that, because of the strong association with the core value of 'social inclusion', the language of technical skills and internet connectivity as well as the notion of 'connection' were also reconfigured as a result. Their value not only resided in their 'instrumental' purpose but also in more symbolic terms: after all, 'they were constructing the social fabric'.

Interestingly, this narrative was received with a certain level of apprehension among working-class parents in the focus group. Although it was, of course, not possible to distinguish them – nor was it necessary or desirable – it became clear that those who did not have access to computers or the skills to use technology, felt unease with such strong claims on the relationship between technology's pervasiveness and existential legitimacy. Their jobs are not dependent upon technology, how could their existence be? Micaela's mother, who works in a factory and does not have a computer at home, intervened in the conversation by saying,

> I disagree with what this mother is saying, that if you don't know English or computing you don't exist. I don't think it is that way, not for me. There are other values that are being lost. I think that it would be better for my daughter to be a good person, a good human being and not that she knows how to work with a computer or speaks many languages and be a bad person. I agree that we need to keep up, I am 30 years old and I don't know anything about computers, I don't like it either, I don't know anything about Facebook but I am not interested either and I don't want my daughter to be into it. If I want to show a picture or something to my family I do not need to have it published so that everyone in the world can see it.

Although technology was important, 'I agree that we need to keep up', it was overvalued by those that saw it as embodying their aspirations, 'other values are being lost'. For her, who 'does not know anything about computers' and does 'not like it either' it was not true that English skills or computers provided existential legitimacy, 'I disagree [that] if you don't know English or computing you don't exist'. What is particularly revealing is that this resistance to the narrative was expressed through a dichotomy between technology and the terrain of social values, 'it would be better for my daughter to be a good person, a good human being and not that knows how to work with a computer [...]'. The moral imperative to be connected was responded, precisely, in moral terms: the 'information age' so venerated by the other parents represented an era of moral decay. The argument was articulated through the distinction between what was perceived as part of traditional everyday life and the 'global' and distant technology: 'if I want to show a picture or something to my family, I do not need to have it published so that everyone in the world can see it'.

Controversy unfolded as Sofia's mother challenged these ideas by saying 'it has nothing to do with values, for someone to be able to use technology and to work with technology does not mean that she is a bad person or that you do not raise your child properly'. To which Micaela's mother responded, unequivocally, 'All opinions should be respected. It is a matter of balance, everything within reason, with what is reasonable in this society. It can't be all about informatics...technology needs to have its limits'. This idea that of 'balancing out' the use of computers other types of skills for the 'information age', such as English language, 'within reason, with what is reasonable in this society', was part of a broader narrative already mentioned in the previous chapter in relation to children's play and their experience of childhood. Just as childhood needed to be 'protected' as a vulnerable time of play and creativity, so should 'values' be preserved from the pervasiveness of technology to prevent them from being reduced to just instrumental for certain types of work. Although mostly limited to the level of discourse, this was seen as especially important in opposition to CEIBAL's framing, which was precisely based on the reproduction of specific types of subjectivities that associated 'learning' and doxa with the right ways of being Uruguayan. And beyond this particular point, it also allowed the value of 'social inclusion' to continue to be defined in ways other than by connectivity.
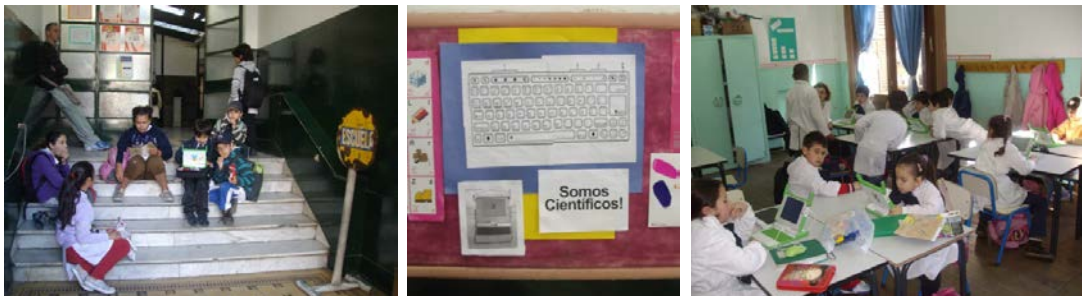

Figure 5.5. School number 8's different places of laptop use, from the classroom to the school's surroundings
Source: Author's photographs, 2010

The 'excluded'

My first encounter with children from a 'critical context' in school no. 8 was, not surprisingly, mediated by a laptop computer. I was observing second grade students during recess inside the classroom when I noticed that there was a bright-eyed girl sitting behind a desk in the first row that seemed to be immersed in her laptop, completely oblivious to the chaotic environment of thirty eight-year-olds playing around her. I asked Catalina what she was doing and she pointed to the laptop, explaining that she was looking at pictures. By then, I had already recognised a certain pattern among girls that looked for pictures of their

favourite singers or actors on Google images, so I was expecting to see yet another picture of Selena Gomez or Miley Cyrus. Instead, she showed me a picture in the laptop's gallery, taken with the laptop's camera, of her smiling self. There were at least ten pictures: up close, from a certain distance, of her face with eyes opened and eyes closed, of her standing. Just her, always in the same room. At the time, I was not sure how to ask the difficult question of *why* but sensed that there was something more to it, and it was not just vanity. It couldn't be. A few weeks later, after we had got to know each other a bit better, I asked her why she *only* took pictures of herself. To which she responded naturally, 'I have pictures of other things, too, but these ones are my favourite because I use them me to see myself'. During the time of fieldwork, Catalina was living with her four siblings and her single mother in a hostel (called 'pension' in Spanish) close to the school. The tiny room where they all lived and slept did not have any mirrors. Neither did the school, mostly because, as Iris Ponzo, the Principal, explained, 'we never got around to buying new mirrors because the money that it would cost could always be better spent elsewhere: we are always short of food in the afternoon shift or could buy more radiators for the winter time'. So Catalina saw her own face properly, up close, for the first time, on the laptop's screen.

Although this thesis does not engage directly with the complexities of 'inner city' lives, this encounter and others I continued to have with individual students in the school prompted me to visit two schools defined as 'critical context' in Montevideo to understand what children in them, and their parents, made of CEIBAL's values. After all, if anyone had to be 'included', those regularly called 'the marginalised' would have to be the ones on the top of the list. I visited a school in Maracana and one in Villa Garcia, both in the outskirts of Montevideo, one towards the west and one in the eastern side of the city. In both cases, as well as with children in the city centre, the experience of exclusion was described in terms of 'social isolation'. Paola, the teacher from fifth grade, explained that 'social isolation is about this lack of vocabulary and general knowledge, because they have such little relationship with the rest of society and with the world' – they were 'disconnected'. Karen, the community teacher from Villa Garcia, explained that:

> It is like a ghetto, we say. Going to the city centre, to 8 de Octubre Avenue, it's different for them. Distances are different for them. It's all seems just so far away. So the school trips that we organise in the school are to the city centre, to the beach, to take them out of this ghetto.

The experience of 'social isolation' was, precisely, described in both material and symbolic ways: not just about transport links and bus ticket prices but also about cultural capital that influenced their sense of 'distance'. It explains why, despite being fifteen minutes away by bus, some children had never seen Montevideo's famous coast line or had never made the

trip to the city's centre to obtain birth certificates or national ID cards. As Ana Laura Martínez, CEIBAL's Director of Social Policy explained, 'one thing is to be isolated geographically and something different is to be isolated socially: I have seen towns close to Montevideo, or even neighbourhoods in the city, that are socially isolated. They were dead, in every aspect, including the use of XOs'. The laptop's failure to 'connect' to people's everyday practices, aspirations and socio-technical systems, was an enactment of this.

Pictures from the school in Maracana (figure 5.6) illustrate, however, that this sense of isolation was also very concretely built upon as well: police officers' presence at the gate, bars in its windows and a label of 'critical context', could be either resisted or acted upon but never ignored. As mentioned above in relation to obtaining national identity cards, this notion of exclusion emerged from a particular geography of power that enabled, prevented or even obstructed the possibility of making connections. To negotiate 'inclusion' in this context, therefore, implied assembling heterogeneous arrangements of skills, distances, transport links, and ticket prices that reconfigured this geography. And this negotiation was all the more difficult considering the presence of physical obstacles to sort out, such as the gate. From the perspective of those on one particular side of such gate, that is, from a particular positioning within the field of 'connections', what was rationally perceived to be possible to accomplish by using the laptop was rather limited. I am therefore not claiming that children's behaviour was determined by 'objective' or 'external circumstances', (such as the gate itself, the presence of the police, or their working-class backgrounds). Instead, what I am proposing is the need for a way of conceptualising *how* and *why* children navigated through 'geographies of possibilities' in the ways that they did. Although some of their strategies might often be self-defeating, I argue that people were ultimately reflexive about their circumstances, they pondered on their sense of possibility, and generally operated in relation to an implicit practical logic – a practical sense – and bodily dispositions (Bourdieu, 1977, 1984). They acted according to a 'feel for the game:' 'feel' being, roughly what Bourdieu conceptualised as 'habitus' and 'the game' being the 'field'.
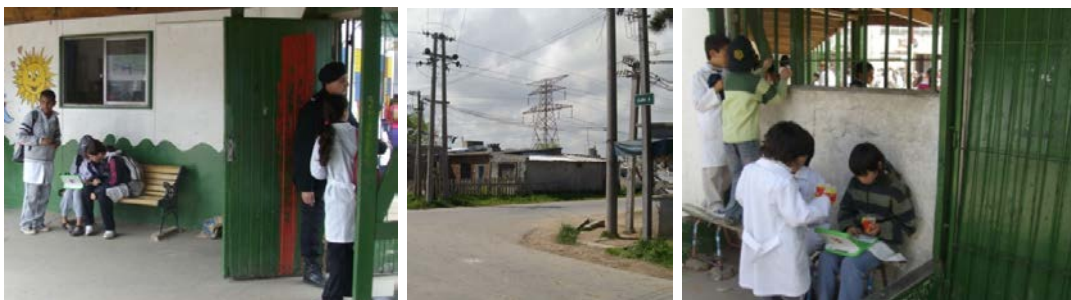

Figure 5.6. The school in Maracana is 'gated', which obstructs the possibility of making connections
Source: Author's photograph, 2010

More concretely, an obvious and explicit way in which these core national values were negotiated throughout different 'geographies of opportunity' was through children's opposition to school 'authority'. Formal education no longer provided a credible aspiration for 'social inclusion', generating a growing sense of frustration among children and parents, but also among teachers. For the latter, this resistance was reflected in parents' lack of interest in their children's formal education. Iris, the Principal from school no. 8 in Montevideo pointed out that:

> It has changed during the last few years, not necessarily because of the laptop. But I have noticed that the importance given to education has decreased. It's astonishing, really, something I had not seen in my twenty years of teaching. We have parents that tell us that they children don't come to school because they don't feel like it, because they are not interested. That was not even conceivable a few years ago […] it's very worrying, something that we have not been able to revert, to make education be seen as a possibility for change in life. […] I would have never let my own children choose whether or not they wanted to come to school. It's a right, they have the right be educated.

This resistance to the education system, the fact 'the importance given to education has decreased' was manifested in parents' lack of interest, 'children don't come to school because they don't feel like it'. In fact, parents explicitly told me that one of the biggest advantages of sending their children to school was the fact they could get two or even three meals a day if they came. It was not its role as vehicle for social reproduction that was being recognised but its assistentialist one: education was no longer 'a possibility for change in life'. It was no longer the mediator for generating certain types of connections. Although this is, undoubtedly, part of a more profound discussion on the relationship between education and social mobility, it seems clear that both parents and children of 'critical contexts' calculated and were realistic about their life chances, about the mythical nature of some of the stories behind national core values, and about the skills they really needed to get ahead in life. 'Digital skills' were just not the ones. This led parents to explicitly disregard promises of 'inclusion' objectified in the technology as they did not 'connect' with the reality of what they calculated and perceived as 'possible' from their own positioning. Laptops were wrapped up in promises of social transformation that people in certain places and positions decided to explicitly disregard: they did not see themselves to be the kind of person that these promises were for.

Laptops were not 'connecting' up to their everyday practices, needs and even aspirations. Parents were thus very reluctant to send their children's laptop to repair shops, to 'even bother with it' or to pay for the repairs when it was considered 'broken by misuse'.

When I first visited one of the second grade classrooms in the school in Maracana, for example, there were twenty four broken laptops (thirty students were officially enrolled, although attendance varied significantly throughout the year). Three months later, only two of those twenty four laptops had been fixed. Spending four hundred pesos on repairing each laptop (approximately twenty US dollars) – when families can easily have four or five laptops per household, and possibly more than one to repair – was not always considered 'reasonable'. Bourdieu discussed this sense of appropriate aspiration, and how to act on it, when looking at working-class culture and consumption as determined by the 'choice of the necessary' (1986, cited in Slater 1997b: 163). The point is that laptops are not seen as what is 'necessary', as defined by the children's habitus, by their experiences of the economic deprivations of their class.

However, not all of these strategies were necessarily self-defeating. Although the laptop 'was hard to use' and it was difficult to find its function in relation to people's everyday practices and aspirations, people found alternative ways of making use and sense of other possibilities. For example, one of the fathers from the school in Villa Garcia explained that, instead:

> Some of the parents, a neighbour or two, saw that this gift was kind of hard to use and you had to pay for the repairs. But it could be sold, at least in pieces, and you could make some good deals, so there you go.

Making 'some good deals' of laptop pieces was perceived to be part of everyday 'hustling' to get by. Just as it was described in the previous chapter, for example, with children that charged for downloading videogames into others' laptops, the computer was naturally integrated into the common practice of hustling. In many respects, this reflects a classic opposition between the formal and the informal: hustling skills are part of the realm of the informal, where the buildings, rules, and pedagogic action of the formal are systematically denied.

Paradoxically, explicit resistance to the laptop or to normative notions of appropriate use was also a way of enacting CEIBAL's projected user: it was a way of acting out the notion of 'the marginal' that needed to be 'included'. A case in point was Julio, a fifth grader from school no. 8 in Montevideo, who explicitly attempted to act out his identity as 'plancha' in the context of the school. At age eleven, he was already spending his days begging in the streets and occasionally sleeping rough. Paola, his concerned teacher, had already picked him up from the street twice and contacted his father numerous times to discuss the situation. Both at home and at school, he was universally identified by teachers, classmates and resigned family members as a troublemaker. Julio's condition as 'problematic' was made very concrete in countless small ways, particularly his clothing and

poor hygiene. In fact, despite seeming pointless, much of the conflict between teachers and 'problematic' students took place over clothing: the uniform was an elected ground for the struggle over authority. Julio, and a small group of children that 'hang out' with him, expressed their own culture of resistance by adhering to the 'plancha' aesthetic, wearing hooded jumpers and football t-shirts to school and refusing to uncover their heads even inside the classroom (figure 5.7). The style was purposely calculated to give them the maximum possible distinctiveness from the uniform's white coat and blue ribbon. As discussed in the previous section, the ethos and 'identity' of those who identify themselves as 'plancha' strongly contrasts to that of the educated middle-class Uruguayan pupil, in no small measure because of how others perceive them to be.

This resistance was also made very concrete materially through their relationship to the laptop, both in its use and in the physical care and maintenance of the artefact. In the first case, children used their laptop to listen to music and to watch television and videos online. As the pictures below illustrate, they used the laptop to download music, particularly *cumbia*, and regularly walked around the school and the streets playing it aloud, as if they were 'pum boxes'. They also watched television in one of CEIBAL Jam's programmes, called JAM Media, and did so as loud as possible in every available opportunity. Considering how clearly normative uses have been associated with 'educational' activities (as discussed in chapter four) it is safe to say that these were a manifestation of oppositional culture within the school. They were a performance for everyone to see: in this case, for everyone to listen to, literally. Julio knew exactly how much this exasperated his teacher and made the point of consistently showing it to me, so that I can 'get to see cool stuff too'.

This culture was also enacted in children's relationship to the materiality of the laptop. For example, Damian, from sixth grade, wrote with indelible marker on his laptop, 'for the repair to shop to know what is broken'. As figure 5.7 shows, the laptop now reads, 'mause [mouse], clic [key], teclado [keyboard], antena [antenna]'. Perhaps needless to say, the laptop was not actually sent to a repair shop to get fixed during the entire duration of fieldwork. It just made very visible, as an explicit sign of sorts, that his laptop was broken. This resembles what is sometimes signified in the practice of getting a 'tattoo': the indelible permanent expression of 'exclusion' naturalises the situation. In other words, by having this external 'sign' of exclusion one materialises the condition and makes it more permanent.

Julio's laptop was also broken, and had been for months. He explained clearly that he broke it shortly after receiving it because he 'punched it, real hard' while playing:

I was trying to download a game and the laptop was acting funny, it was taking ages to download. Like five or six hours. So I just kind of lost it and I punched it, real hard, you know. So it broke.

Julio's reaction to the laptop was partly linked to issues discussed in the previous chapter as the laptop is, after all, too slow and clunky for some of its expected uses. But violence was also, crucially, a way for him to respond to the symbolic violence being excised over him by an education system that was perceived as irrelevant, and to enact his positioning as 'the marginal' and the 'problematic' one in the classroom. Children are informally in-classed even in the ways in which they are expected to show anger and frustration, and 'punching' the laptop is certainly not the expected way. On quite an obvious level, not having a laptop as a result of such violence prevented him from participating in many different types of classroom activities, thus reproducing even further his membership to an excluded group. Other children reinforced it by distancing themselves from him, making clear what the difference was.

In turn, resistance was manifested in children's relation to both CEIBAL as a programme (that specifically targets them by labelling them 'excluded') and to the XO laptop as the material culture of a 'modernity' that people could not even credibly aspire to. This resistance was expressed through a growing 'oppositional' culture that effectively reproduced them as part of the 'excluded' class. However, considering the programme's ritual value as a 'contract' between individuals and 'the nation', this also implied writing themselves out of a much broader cycle of reciprocity defined by CEIBAL's politics that quite directly involves future generations as well.
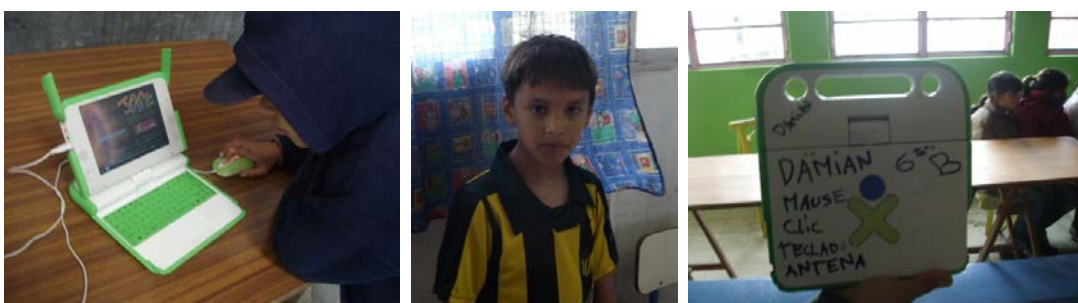
Figure 5.7. The laptop used for oppositional culture, which reproduces membership to an excluded group
Source: Author's photographs, 2010

This is of course not to say that everyone in working-class families related to laptops in these particular ways: many used them frequently for different types of activities, such as for searching for information online or for taking pictures of family events such as baptisms and weddings. In Villa Garcia, for example, families claimed to have used

the laptop to get information about medical conditions as the nearest hospital was 'too far away'. Others used to look up recipes of their families' favourite meals and even to get in touch with relatives abroad. In other cases, the laptop even became an effective way of working on, and through, these 'oppositional values' even within the context of the classroom. Raquel, a teacher from a 'critical context' school in Minas, for example, narrated the story of one of her most 'successful experiences with the laptop'. At the time of fieldwork, there was a 'complicated' group among her fourth-grade students that 'watched videos and listened to cumbia during recess'. One of the most popular songs at the time was called 'Exemplary Father', from a group called 'Pala Ancha' which was also 'cumbia villera' [cumbia from the 'village'] 'because that's the kind of thing that they listen to, you know, that aggressive type of stuff'. Raquel recounted:

> They kept trying to play that music during class time so I gave up in wanting to fight it and asked them to bring the lyrics to their favourite song for us to listen to and work on in class. So they brought the lyrics to that one, written in print on a piece of paper, and we analysed it together.

The song was about a regretful father that had abandoned his children, an 'exemplary' father. Interestingly, children only listened to the song in their laptop, and did not think about using it to either look for the lyrics online (I had assumed they Googled it when I first heard about the story) or to type them up on the Word processor. For them, the laptop was a tool for listening to music, that's what they did with it, what they found it useful for. So the attractiveness of the activity, explained Raquel, was clearly manifested in the amount of time that children spent listening to the song over and over again in order to be able to transcribe it by hand. As she recalled:

> The song was very challenging, about a father that abandons his children, and we analysed it together, and discussed all of these issues that are part of situations that they experience everyday, with parents that abandon their children because of drugs. That day, everyone participated, I'll never forget.

The laptop, in turn, was the bridge between the formal and the informal, the excuse for bringing 'these issues that are part of situations they experience everyday' into the classroom, of transforming this oppositional culture into the subject of formal education, using an object that embodies the types of subjectivities that these children were explicitly distancing themselves from.

Paysandú: 'Did I take advantage of my opportunities today?'

The third grade in Paysandú's school no. 42 had thirty five enthusiastic eight and nine year-olds. It had been a long day of learning about the Oriental Revolution of 1811 when the

teacher decided to give the students some 'free time' on their laptops for the remaining twenty minutes before the bell rang. Children immediately gathered in small groups and started to play videogames, to listen to music, to look for images of their favourite actors and singers online. After circulating around the classroom to observe them for a few minutes, I decided to have a short conversation with the teacher, who had always been a bit reluctant to discuss her views on CEIBAL. She was explaining how little training she had received and how insecure she felt about using the laptop, when one of her students came to talk to us. With a smile as big as the blue ribbon from his uniform, Marcelo raised his laptop to proudly show us a beautiful drawing, exclaimed: 'Mae, did I take advantage of my opportunities today?' Marcelo has been incessantly told that CEIBAL 'provides new opportunities to take advantage of', so it seemed only natural to him to ask, after using the laptop for what he understood was its 'appropriate use', whether or not that constituted 'taking advantage of his opportunities'.

A genuine question for the child, eager to please his teacher (his 'mae', which is a short name for 'maestra', teacher, unmistakably similar that of mother, 'ma') was revealing in at least three different ways. Firstly, it showed how the framing of the laptop – the use of floating signifiers such as 'equal opportunities' – was transmitted as it was passed along throughout CEIBAL's institutional landscape, from its authorities in Montevideo all the way to this child, using exactly the same language, from a small school in Paysandú. These relationships of continuity and discontinuity, up and down the 'chain' of actors that linked policymakers to localities, were also mediated by the different ways in which laptops were objectified across its multiple translations. Secondly, it illustrated how malleable floating signifiers such as 'new opportunities' actually were. In particular, these empty signifiers – combined with the laptop's inscription that encouraged 'exploration' as discussed in previous chapters – led to an enormous diversity of practice, which did not necessarily follow notions of normative use. The rhetoric of having 'new opportunities', could be enacted almost in any way, without generating those desired 'connections' as discussed throughout the chapter. This led to tensions in children's efforts to conform to normative uses that resulted in the reworking of both the object but also of children's and teacher's identities in relation to technology. Thirdly, Marcelo's question also showed how proud children and teachers were of enacting this 'sense of opportunity'. Not only did I see honour in Marcelo's beaming smile and his teacher's response, but also in the protective plastic that some children kept over their spotless laptops. In them, one could see a determined effort to shore up the belief that things had in fact changed, if only children and teachers 'would starting acting right', using the laptop 'in the right kind of way'.

This sense of pride and value attribution was also displayed by a group of very distressed mothers who explained to me that CEIBAL was refusing to cover the repair of their children's laptop because of what they could only see as 'an honest mistake'. Just as they did with anything that was deemed valuable, these three mothers had washed their children's laptops, 'as you do with what you value'. They had discussed it with each other outside of the school one afternoon and decided that it was important to do so, to 'take good care of it', and to 'show the teacher that we care, too'. Matias' mother common-sensically explained to me that, having never owned a computer before, they did not know that they were not meant to wash them: 'how would I know?' These ways of enacting 'value', however, also showed a clear form of distance from the laptop as an artefact, from the projected user as envisioned by the MIT, and from CEIBAL's project of 'modernity'. The terms and conditions of the warranty – the small print – did not include any stipulation for such cases: CEIBAL officials could not have anticipated that something like this would happen just as much as those mothers could not have known that laptops were not meant to be washed. The practice was clearly a way to enact the enormous value attributed to the laptop, as explained quite explicitly by the mothers interviewed, yet it was also a way of reproducing exclusion, as their children no longer had access to it.

Children's and teacher's hesitation over how to use the laptop and how to 'take care' of it showed that they found it hard to connect it to other socio-technical systems around them: laptops did not seem 'to fit in' with their everyday activities. They could not 'connect up'. The two teachers from fifth grade, for example, asked me to 'have a conversation with them, tell them examples of activities I have seen with other teachers that use them to do something different, something that works'. Otherwise, as Maria Rosa explained to me, 'we end up planning our lessons as always and then, in order to tick CEIBAL's box in our monthly planning, the one we need to show to the inspector, we let the children use the laptop as 'free time' or we just ask them to look for information online'. This perception that they need to make an effort to integrate them into the classroom, to have them 'fit in' the monthly planning, shows that there was a willingness to enact this sense of opportunity but also that, because of the distance between it and their everyday lives, this performance was very often rather disconnected: a tick in the CEIBAL's box, a question about whether opportunities were taken advantage of.

The different forms of distance to laptops and the values objectified in them were also visible in children's relationship to the materiality of the laptop. In particular, it was clear that they did not take them on as naturally as children in Montevideo did. One of the most exciting activities that the school 42 in Paysandú organised was called 'exchange': fifth

grade students visited kindergarten once a week for an hour in order to teach the younger children how to use the laptops, 'to prepare them for when they'll receive their own in first grade'. The activities were coordinated by fifth grade and kindergarten teachers and usually involved showing the laptop's basic features (how to turn them on, how to open different applications) and a bit of content (for example, looking up traffic signs as the school was driving a traffic awareness campaign). In these exchanges, older children brought their laptops to class and shared them with younger children, which was considered a great gesture. As Jacqueline, the kindergarten teacher explained, 'it shows that they have the right values, that they are willing to share their laptop with the little ones'. Children were paired, an older child with a younger one, and they would work together on the laptop. The experience of being able to teach others was valued by the students who expressed great satisfaction in doing so, many reporting that going to kindergarten was 'one of their favourite activities at school' or even that it was 'one of the best things about CEIBAL'. Figure 5.8 shows the convivial environment in the classroom on a particularly rainy and dark winter morning.

As most children explained to me, the 'little ones' always showed some hesitation at first and it took time for the older children to get their interest in the activities. A case in point was Margarita, a very shy five-year old. She was paired up with Tatiana and Andrea, both from fifth grade. During the first few weeks, Margarita showed no interest in the activity. As Tatiana and Andrea wrote on their weekly reports, instead of working on the laptop, 'she just played with the button of her uniform coat'. Interestingly, fifth grade students were asked to write reports every week after the visit, 'to make them reflect on the activity and practice their writing skills'. Some of these reports were incredibly insightful and spoke volumes about children's initial responses to laptop computers and their appropriation process. In Margarita's case, her initial 'fear of touching the laptop', as Tatiana wrote on her report, was overcome as the older child realised that she could help her friend to navigate through the laptop's activity: as figure 5.8 shows, Tatiana started to put her hand on top of Margarita's to guide her through it. This way, she broke the physical barrier of Margarita's fear, the sense that it could break just by touching the wrong key. Her case illustrates that these forms of distance to laptops, which were also shown by parents that do not use them (as discussed in chapter four), also raised questions over entitlements to access: to whom they belong to symbolically, legally and morally.

Figure 5.8. The 'exchange' programme between fifth graders and kindergarten pupils in school 42
Source: Author's photographs, 2010

This question over entitlement to access to technology, which embodies modernity and its promise of 'new opportunities', was also negotiated in the parents' positive valuation of the XO laptop as a tool, even if they could not find its function in relation to their everyday activities. For example, Matias' mother, who works at home raising her four children, explained to me that having three laptops in her house is something that 'she would have never expected'. Her eldest daughter, already in high school at the time laptops were delivered to schools, was the only one that had not received her own at the time of fieldwork. She still used her younger siblings' when she needed it for homework. As the mother explained:

> I never thought I would be able to buy a computer and now I have three of
> them in my house. I would have never been able to pay for a computer
> course for my children and now they know so much about computers, it will
> be so useful for when they get to high school and hopefully they'll get better
> grades than their older sister.

Matias' mother expresses, as middle and working-class parents in Montevideo do, this sense of the 'inevitability of technological change' as connected to further opportunities for her children. Underlying, once again, this belief on the universality of technical needs, laid the expectation that 'knowing about computers' would be 'useful for when they get to high school' – wherever the aspirations are. This social value attributed to the laptop was independent of whether or not parents use it and of what children use it for. In other words, despite not finding the laptop's utilitarian value individually it was still perceived to be valuable *collectively.*

This generated what was described as an overwhelming 'sense of empowerment' and 'self-esteem' among children as laptops specifically designed for them were being 'yearned' for by others. As Carla, a teacher from Minas explained:

> The XO had this impact, this very special impact: something for children is
> desired by outsiders, and not the other way around. In general, the image is
> of the child with her nose 'stuck against the window'. And with the XO, that

relationship is reverted: the adult has her nose stuck against the window to the children's world.

The feeling of empowerment that emerged from owning something that is deemed socially valued, that has 'adults with their nose stuck against the window' instead of children, was even more accentuated in Paysandú than in Montevideo. Children from working-class backgrounds, who feel disconnected from the world of consumer culture and many from the opportunities perceived to exist in the capital, were now symbolically and physically entitled to access this luxury good. As Ana Laura Martínez, CEIBAL's Director of Social Policy explained, one of the clearest ways in which CEIBAL has affected children's lives, particularly outside of Montevideo, is at 'the subjective level'. She explained:

> There is a subjective level of impact, of perceiving to have an opportunity and of occupying a certain role that would have otherwise been the role of 'excluded from', and that now at the very least it is of 'having the same as'. So children feel empowered by using something that they know, that they wanted and that they like, and that they perceive as valued for society in general. And for the parents, this is a fantasy of opportunities that maybe gets concretion in some way but that for now it is just a huge expectation.

As it is articulated quite clearly by children in Paysandú, there was an enormous sense of 'empowerment' from being entitled to have 'the same as' as other children (more privileged, from Montevideo, and so forth). As Ana Laura explains, children 'feel empowered by using something that they know, that they wanted and that they like:' the object of desire was now lawfully theirs, to be longed for by others instead. This was manifested in a variety of ways, especially during the first days after receiving the laptop, and stories of children's 'emotional attachment' to the laptops abounded: some took their laptops everywhere they went, others made special arrangements for them within their homes, for example by assigning a table just for them. A third year student in school 42, Gaston, explained to me that he slept with his laptop under his pillow 'to care for it even after I fall asleep'.

Interestingly, this was interpreted by CEIBAL authorities as one of the programme's most important 'impacts'. This was possible to do, as discussed in chapter three, because objectives were 'fudged', defined in very ambiguous and open-ended terms, so everything that 'happened', could be claimed as 'impact'. When asked about the programme's biggest achievement so far, the President of CEIBAL, Miguel Brechner, explained:

> The first that comes to mind is that the laptop helps improve self-esteem for many children. That's what I would say first because for the most deprived sector, the laptops were a way of generating hope that these kids will be better than they were before the laptops. This might be some mothers' fantasy, but still. Self-esteem issues are clear: children that would have not have access, today they do. They do the same thing than others do, even

> though they live in very deprived situations. […] there is this mysticism around it, that it improves people's situation. Many mothers from critical contexts tell you that it will bring them something that they did not have, an opportunity.

The 'mysticism' that CEIBAL authorities found around it, that created a sense of 'improving people's situation' or of bringing mothers in critical contexts the expectation that their children now 'have an opportunity' resulted from broader processes of value attribution to technology and from the programme's successful stabilisation of its framing as the provider of opportunities and inclusion. In addition to this the value attributed to the laptop resulted – at least on some level – from the fact that it is a luxury good for which parents and teachers struggled to have a function to. As Veblen would have argued, it was valued so highly *precisely* because it is seen, in some cases, as having little practical worth ('children use it to play', as discussed in the previous chapter). In other words, in places like Paysandú, where children and parents feel distant from objects like the laptop and from CEIBAL's project of modernity, the value attributed to the technology lied precisely in the fact that it was seen as 'vicarious consumption', as remote as possible from 'productive' work.

Just as with the stories from Montevideo, it is important to point out that not all children in Uruguay's countryside – and most certainly not everyone in Paysandú – used and made sense of the laptop in these ways. There were many that did, in fact, use the laptop in ways that conform to different notions of normative use, including MIT's prescriptions as reflected in the XO's design. A case in point was Agustín Zubiaga, a fifteen-year old from Puntas de Cañada Grande, a small town in the Department of San Jose, seventy seven km away from Montevideo. At the time of writing this thesis, Agustín had been selected as one of twenty winners in Google's Code-In international contest, which awarded him with a trip to Google's offices in California. The competition aimed to encourage students aged thirteen to seventeen to participate in open source programming (Google, 2013). The example is particularly interesting because Agustín had been programming for three years when he participated in the contest. His interest in the practice had been sparked by his mother, an informatics teacher, and by another teacher from his high school, who introduced him to the work of the Sugar Labs community, which develops open source software for the XOs. As explained in the introductory chapter, the XO's operating system, 'Sugar', has very distinct characteristics in addition to being entirely based on open software. In an interview published by the local press (El Espectador, 06/02/2013), the student explained that:

> one of the first things I did when I joined [Sugar Labs] was developing a browser for Sugar, because the one we had was a bit slow [...] One of the most important activities I did for Sugar is an application that allows you to

create graphs, like we do with other computers, based on data. That did not exist in the XO, so I came up with the idea and got a lot of support because it was a good idea.

Aged fifteen, Agustín already developed full applications for Sugar that were being used by the OLPC community in Uruguay and abroad. Despite this, he does not develop for Plan CEIBAL and has not had any contact with programme officials; instead, he collaborates directly with Sugar Labs, which is not only entirely supported by volunteers like him, but it also promotes the type of ethos and practice that he feels so comfortable with. As discussed extensively in chapter four, the kind of agency encouraged by OLPC's team (including Sugar Labs) contrasts quite sharply with that of CEIBAL's: a programmers innovative and exploratory type of agency is, by nature, the opposite from that of a pupil.

Public squares regaining their role

Paysandú city, like most cities and towns in Uruguay's countryside has been built around public squares. Following colonial urban planning, these squares hold a church, a government office and/or a school. This made squares places of sociality *per excellence*, no less because all institutions around them are meant to have an important role in the reproduction of people's subjectivities – that is, the education system and the church. People have always gathered there, including for leisure activities over the weekend. This was clearly taken into consideration by CEIBAL authorities when they decided to install antennas and provide connectivity in approximately 250 public squares throughout the country. Paysandú was not an exception and there was one particular square that was perceived to be especially transformed as a result: Plaza Artigas. As Natalia's mother explained, 'we come to the square every day after school and during the weekends. [The children] sit there, in the sidewalk, and play videogames and stuff'. Although Natalia's family lives close by, and 'sometimes get connectivity' from the square's antenna, they go to the square anyway 'so that Natalia can play with her friends'. She complained, however, that sometimes 'the square is just full of kids, and it is impossible for adults to be here'.

Put differently, the transformation that Plaza Artigas underwent as a result of having internet connectivity was an intensification of the possibility of making connections; this increased even further its role as the city's preferred place of sociality for young people and children during summer afternoons and weekends. What is particularly interesting to point out, however, is that because the squares have traditionally been places for leisure, where children go to play, parents have slightly resisted this change. Instead of coming to

the square 'to play', children now bring their laptops, which were handed in 'to work'. For example, Nicolas' parents, sitting on their beach chairs in Plaza Artigas one sunny Sunday afternoon (see picture below) explained to me that, with a hint of resignation:

> We need to control this laptop thing. It's okay for him to use it in school and to come here to do his homework after class, but now we just came to have some fresh air and he brought the laptop … once again.

As mentioned in the previous chapter, parents feel the need 'to control this laptop thing' because it conflicts with modern romantic constructions of childhood as the time of play. Children, in that respect, were expected to come to the square 'to play with friends' and not 'to work'. Making the connections that CEIBAL's antenna was allowing them to make was perceived as following normative use, and therefore, as opposed to play. This led to a type of resistance that has been traditionally been manifested with all types of technology when they are new – the clearest example was Nicolas' father who vehemently exclaimed, 'if he continues using the laptop so much, his head will end up as square as the screen!'. In this way, the public square became a context for practice within which multiple facets of identity were configured and reconfigured. Aside from providing children with a physical place to carry out different activities, both online and offline, with or without the laptop, these location opened up (or closed off) various spaces for play, fears and fantasies.

Figure 5.9. Plaza Artigas on a Sunday afternoon is filled with children playing with and without laptops
Source: Author's photograph, 2010

Queguayar: 'Too much for this town'

The possibility of enacting 'inclusion' through 'connectedness' was far more limited in Queguayar, approximately fifty km from Paysandú's city. Although the town is actually located next to a main departmental route, its lack of infrastructure or public services provides a very palpable feeling of 'remoteness', of geographic isolation. Put differently, the lack of mediators necessary to make connections – infrastructure, transport links, communication flows, skills – was experienced as 'disconnection'. Other than the one family who owns the small grocery store, the entire town's male inhabitants work in the *estancias* around it and women work in their homes, caring for their children. Families tend to stay there or move to similar towns in its vicinity. Monica, who has two children that go to school no. 78 and has lived in Queguayar during the last ten years, explained to me that their lives 'are very quiet, not so fancy but we get by'. She constantly compared her family's lifestyle with that of her sister's, who lives in Montevideo, and 'doesn't have the peace of mind that we have, that we can let our children come in and out of the house all the time, almost since the day they take their first steps, you know, they come back and forth from school by themselves and it's okay, not like [in Montevideo]'. This sense of safety, yet also of remoteness and isolation, means that people feel systematically excluded from whatever happens in the rest of the country; news of events in Montevideo, or even from the city of Paysandú, are perceived to be very distant. Put differently, the map of possibilities look very limited from their respective positioning.

This was so much the case that when CEIBAL was first announced, as Gaston's and Martina's mother told me, people in Queguayar did not think they would receive a laptop. Questions over physical, symbolic and moral entitlement loomed large. In her words:

> Martina's mother: I thought, this town is so far ... they weren't going to get them here. I thought that these computers were for a different type of kids.
>
> Interviewer: What type of kids?
>
> Martina's mother: Well, the ones from Montevideo'

The town's geographic isolation, 'is so far...', is perceived as related to different entitlements to access: laptops are 'for another type of kids'. When asked what this meant, Mónica could only shrug her shoulders and say 'the ones from Montevideo'. Children in the capital, 'where everything happens', were thought to be the ones receiving laptops, just as they are the ones receiving other types of services. This was echoed by Sandra, whose children also attend Queguayar's school, who mentioned that, 'I thought that computers would be only for kids in Montevideo. I even told the other mothers: don't get excited, we

are from the 'interior' and we don't exist... we are poor and don't exist in the map'. This geographic isolation, the perception of 'being far', is also experienced as social isolation: 'we don't exist in the map'. Interestingly, 'the interior' is how Uruguayans talk about their countryside, and because the country's population and activity is so concentrated in Montevideo, it is also referred to as 'the outside' [*afuera*, in Spanish]. This means that the countryside's population, particularly from rural areas, are referred to as being 'from outside'. It is therefore not surprising that these groups feel systematically excluded, socially isolated and lacking a sense of entitlement to access. They do not have the symbolic capital to claim a place 'inside' modern Uruguay.

These maps of geographical and social isolation were, in fact, redrawn even further with CEIBAL's arrival. During the initial stages of laptop distribution, policymakers had to make difficult decisions about where to install internet connectivity. Although all schools were to have internet connection, it was decided that during the first few years, until more elaborated solutions (for example, satellite connection) could be implemented, internet servers would be installed in towns with five thousand people or more. Fiorela Haim, CEIBAL's Director of Logistics and Operations explained that:

> We needed to define what it was a town and we used a practical criterion. Schools, all schools regardless of where they are and the number of students they have, have internet access. They may not have lighting, electricity or running water but now have internet connection. That's the criterion. But for the towns, in general, we established that they need to have 40 children in the collection of houses surrounding the school or at least 300 meters from the school, and then it's met. It was very practical because we looked at the list of students per school, the school's location, then we passed it through the filter and got the 180 localities that exist.

The map of countryside, 'the outside' as it is revealingly called, was both literally and physically redrawn around technological extensions. CEIBAL served, effectively, as a mediator of different 'geographies of opportunities'. In that respect, one hundred and eighty localities were established according to a 'practical criterion' based on the density of population around the school. This means that those with already enough density of connections – at the very least having sufficient physical proximity to interact with each other in person – were the ones receiving internet connection. The others, where there is no density to allow for enough interconnections between people, were the ones that did not receive the mediator (the internet server) outside the school.

Crucially, the map drawn for the implementation of a 'social inclusion' programme left the town of Queguayar without internet connection. Despite having installed an antenna and visiting the school at least four times from 2008 to the end of 2010, CEIBAL could not provide internet connectivity for the school either. At the beginning of 2011, after

fieldwork was completed, my informants reported to have finally received internet access through satellite connection in the school. Lack of internet connection in the school and in the town meant that children had to travel to the nearest town of Quebracho to go online. The pre-existing lack of mediators was even reinforced by the lack of internet connectivity, intensifying the sense of remoteness and isolation: 'you see that children here have nothing, they need to go to Quebracho, because we don't have an internet cafe here, nothing. Every time they need anything, they have to go to Quebracho'. Not having internet in the era of CEIBAL was felt and experienced as 'having nothing'.

Figure 5.10. Poster with CEIBAL's connectivity 'hotsposts' redrawing Uruguay around technological extensions
Source: Author's photograph, 2010

As it was already mentioned in previous chapters, I made several trips there with children from Queguayar to observe their activities online. Only two children, aged eleven and twelve, regularly travelled to Quebracho by themselves and did so mainly to play football with the town's children league. They regularly took the inter-departmental bus in the route, which is free of charge for children wearing a school uniform, for thirty minutes, and then walked to the town's school. Playing for the football team was considered a sign of status in the school, as it was associated with the possibility of upward social mobility: 'professional footballers make good money', explained Nicolas, the eleven-year old who was preparing for trials to the junior league in Paysandú. These two children, already playing for Quebracho's team, were the ones that went online more often and downloaded games for their laptops. Their use of the internet was solely to download games and only rarely to 'get information when the teacher asks for it'. The other children visited the town much less frequently so they were not as familiar with the intricacies of the web. Agustin,

for example, pointed out that 'I ask Gaston or Nicolas for help when I need to download a new game'. In turn, Gaston and Nicolas, who already had more connections and cultural capital acquired through their experience of playing football in Quebracho, were the ones that went online more often, making more connections than others.

In Quebracho, the experience of having an antenna in the school was felt as profoundly transformative, 'a great change', despite, as one of the towns neighbours explained to me, 'not much has actually changed'. This perception of change was mostly expressed through the sense of 'having the same as' the rest of the country, with internet representing the opportunity of making connections and of expanding their possibilities. Despite not necessarily translating this change into something identifiable or concrete, particularly for adults, the mere presence of the mediator (the atenna) was considered sufficient evidence of it. For example, I found students from Quebracho's school using their laptops outside of the school one afternoon and asked them what they were doing. They responded that their teacher had asked them to bring information on the national football team during the 2010 World Cup, so they were looking for pictures of different players and basic information about them, such as their age and where they are from. As Sofía Sánchez, coordinator of MEC Centres in Paysandú pointed out, 'people in these small towns don't give much importance to it, to having internet connection, because they can't see much use it in, their lives are about other types things'. In the original, Sofía used the colloquial expression, '*estan en otra*' which would translate literally to 'being in other': other dimension, other reality, into other things, out of place. In fact, she explained that during digital literacy courses in MEC Centres in towns like Quebracho, this became visible even in the way people manipulated technology: 'clicking the mouse is difficult for them, sometimes, having these really strong rough hands used to working with tools outside, those are not hands that can easily adjust to the sophisticated coordination required to double-click the mouse's button'.

The experience of rural life, embodied in these 'rough hands used to working with tools outside', is presented as the obstacle to manipulate technology at a physical level, yet also at a cognitive one, 'they can't see much use in it'. As mentioned above, people's culture and consumption can be explained in Bourdesian terms as the 'choice of the necessary' (1984) – reflecting in everyday practice what is perceived as needed within their habitus. In Bourdieu's words (1984: 372), 'the fundamental proposition that the habitus is a virtue made of necessity is never more clearly illustrated than in the case of the working classes, since necessity includes for them all that is usually meant by the word, that is, an inescapable deprivation of necessary goods'. The laptop, which could often not 'connect

up' to socio-technical systems in rural areas, is just not considered as one of those 'necessary goods'. This has led many to believe that laptops 'were not for them'. In other words, and as it was pointed out in the previous section, there was a constant tension between the value attributed to the programme *collectively* and the one people found *individually* when integrating the device into their everyday lives.

The clearest example of how CEIBAL's promise of change through connectedness was felt as 'out of place', can be found in the town of Queguay, only twenty km away from Queguayar. The school had access to the internet when laptops were handed in to students, yet connectivity was unreliable. As the school's Principal explained, 'we had internet, but it was cut off sometimes, it was not normal'. The Principal called CEIBAL's technical department to explain the situation and they sent a technician to check on the antenna and make an assessment. He determined that the area was too densely populated by trees, which were intercepting the antenna. In order to cut trees around the school, however, the Principal had to ask for authorisation at ANEP, the education system. After a long process of bureaucratic negotiations over institutional competence, the Principal hired a local lumberjack to cut the nearest pine tree, which was identified as the most likely cause to the technical problem. The lumberjack cut the pine tree but, alas, he did so in a way that it fell on top of the antenna, cutting it in half. This is clearly shown in the picture below, where it is possible to see the antenna broken in half and the pine timber neatly laid next to it. 'It took such a long time to get that sorted', lamented the Principal, 'and now we are completely left out of reach, completely disconnected'. Interestingly, many parents were not completely disappointed with the outcome, as one father explained to me in confidence, 'it was just too much change for this town'. In turn, this disconnection resulted from having an antenna that was perceived to be 'out of place' in many different – yet very concrete – ways: the area was unsuitable for technical connectivity for having 'too many trees;' and it did not connect up with other things in the town, which did not have enough experience of change. CEIBAL's promises of connectedness, inclusion and opportunities did not even represent a possibility, or a future, that their children and their families can seriously or even imaginatively aspire to.

Figure 5.11. The broken antenna in Queguay with the timber next to it: too much change for this town?
Source: Author's photograph, 2010

Conclusions

This chapter explored how the programme and the laptop were framed and the relationship between this and what was made possible for people to act out, contest, resists or reinterpret. It focused on the notion of 'social inclusion' as central to CEIBAL's self-conception and analysed disjunctions between policy driven notions of 'inclusion' and the reality of how exclusion was felt and experienced in three distinct systems of social and material relations. Doing so explained *how* the group of users explicitly targeted by the programme consumed, modified, domesticated, reconfigured the symbolic and utility values of CEIBAL's technologies. It argued that 'social inclusion' was performed through the laptop's possibility of making connections, which were perceived to be constitutive of people's social positioning within a certain landscape of possibilities. To be 'included' in Uruguay's national project was defined as having access to certain type of connections, which were facilitated by the use of mediators such as laptop computers. Inequalities therefore emerged from what we termed here 'geographies of possibilities:' fields of connections that were visible to different actors from their respective positions within them that needed to be 'navigated' by establishing different types of heterogeneous assemblages. Borrowing conceptual elements from ANT and from the work of Pierre Bourdieu, the concept was introduced to describe in a more comprehensive way the different topographies of power that influenced the ability to make technology *perform*. People's positioning within their 'geographies of possibilities' not only determined what

they believe was 'possible' or 'necessary' but it also reinforced it through the types of socio-technical connections established as a result.

By and large, people in the three localities studied in this thesis (Montevideo, Paysandú and Queguayar) created very tangible strategies for dealing with the notions of 'social inclusion' constructed by policymakers, expressed different understandings of how technologies created possibilities for them and enacted these beliefs through a wide range of practices. The latter were, crucially, also a medium through which certain inequalities – particularly that of class – were formed, experienced, imposed and reproduced. This is not say that people's behaviour was 'structurally' determined by 'objective' or 'external' circumstances', but rather, that people were ultimately reflexive about their circumstances, they pondered on their sense of possibility, and generally operated in relation to an implicit practical logic – a practical sense – that was elaborated from a particular positioning in a broader landscape of connections. They negotiated strategies of 'inclusion' by reading this field of possibilities and by examining how certain social and material conditions (for example, the laptop's affordances) either enabled or hindered the possibility of making desired connections. While some enacted this through articulations of these new metaphors of inclusion based on 'connectivity', others explicitly disregarded promises of 'inclusion' objectified in the technology as they did not 'connect' with the reality of what they calculated and perceived as 'possible'. In a certain way, the device became truly a domain of material culture: people in different locations established different relationships to their laptops in the hope of constructing very specific types of futures.

Chapter VI: Conclusions

'Where have you seen this much justice being done in this country or elsewhere?

Where have you seen that the poorest and most neglected
have the same capabilities than others?

What will the consequences be for the social hierarchies
that we have been educated in and got used to living in?

Could this be the same world? I don't think so'.

President Jose Mujica, October 2010

This thesis departed from a slightly different set of research questions than the ones eventually explored here. Initially, it aimed to understand how the CEIBAL programme was defined and framed both within official development discourses and within individual narratives of social transformation. It also intended to understand how these stories were performed (or not) through every day practices around the use of XO laptops. This implied looking at different accounts of social change throughout CEIBAL's institutional landscape by tracing mediations up and down the 'chain of organisations' that linked Montevideo to rural localities. In other words, it involved exploring the different types of agency delegated for the accomplishment of futures imagined as possibilities embedded in the XO laptop. What it became increasingly clear during fieldwork was that there was a dominant story about social inclusion that was consistently referred to and enacted throughout the system. The interesting question, therefore, became *why* this was the case: why was 'social inclusion' so often perceived to be the incontestable end-value? More importantly, what did 'social inclusion' actually mean? Were there different interpretations of the concept? If so, what were they? Why was CEIBAL – mostly defined organisationally as a *technical* project – so clearly and consistently articulated in relation to historical social values? Why did technology become the central means by which these national identities and projects (of equality, education, and modernisation) were thought about?

This was analysed in three interrelated ways. Firstly, by looking at how a national project of development was conceptualised around themes of techno-modernity as it consolidated the promise of inclusiveness through claims on the universality of 'technical needs'. As discussed in chapter three, this was clearly reflected in how the programme was designed and implemented: the importance attributed to the technology reflected

underlying judgements about rights and wrong ways of modernising Uruguay. In fact, technology provided the conceptual space in which to resolve a presumed dichotomy between themes of equality, education and paternalistic state and those of economic development, modernisation and innovation. Secondly, it was analysed by exploring the way in which heterogeneous assemblages of people, values, laptops, skills and interests, were mobilised to stabilise the programme's material and conceptual order. This was based on the recognition of a 'natural affinity' (Miller and Slater, 2000) purposely built between CEIBAL and Uruguay, which concealed differences, provided coherence and built a strong sense of 'national consensus' through the circulation of texts, materials, and so on. In this way, the device embodied and performed a political project of inclusion. And finally, as a result of the other two, it was analysed by examining the relationship between 'the technical' and 'the social' as inscriptions and values objectified in the device encountered users and their expectations.

Throughout this exploration, it became clear that what lied at the core of the programme – and in the way in which 'development' and 'social change' were thought about in the country – was the interaction between an object, the XO laptop, and a social value, that of 'inclusion'. For those in charge of CEIBAL, the most difficult task was not to develop the project *technically*, to hand in laptops and connect them to the internet, but to make this laptop embody social inclusion, and its infinite promises, so that it could perform them. This meant making the laptop a mediator in negotiations over different 'geographies of possibilities', a concept presented and discussed in chapter five. A crucial research finding in that respect was that one way to do so was through the notion of *connection,* which was used as a way to negotiate 'inclusion' through different geographies of material and symbolic opportunities. In fact, the very idea of 'social inclusion' was translated into 'connectivity', reconfiguring both social values and definitions of what constitute 'connections' as a result: a 'connection' was redefined to mean 'inclusiveness' into a particular national project of development. The sense of 'being connected' was therefore constructed in both technical and social ways, by having infrastructure in place (that is, internet connectivity) and the opportunity to enact the right type of subjectivities. In that respect, the density and types of connection mattered as they drew different cartographies of opportunities for the enactment of such 'inclusion'. In other words, as was discussed in chapter five, the laptop's ability to connect children with each other was perceived as a way to perform the country's cohesiveness: CEIBAL has *'wired up the social fabric'.*

Interestingly, this perception was almost independent of whether or not the programme achieved its 'results' (whatever those were seen to be) and of whether or not

children were able to enact those opportunities. Even the fact that the laptop itself did not signify its function properly – it was sometimes not even perceived as being a 'real computer' – was rendered invisible. This can be explained by the use of core social national values to frame CEIBAL (that is, the perception of a 'natural affinity' between OLPC and the programme), which closed down the space for politics. Uruguayans took to the programme in a way that connected to core dimensions, and contradictions, of their history and 'values;' it fitted in with a central preoccupation of returning to the egalitarian, innovative and educated society that Uruguay has historically been. In turn, the programme became the moral and political project through which Uruguayans imagined their future and through which they could act as the egalitarian and educated people that they 'really are'. In that respect, laptops were truly domains of material culture through which people projected the infinite possibilities of communicative technologies: as a teacher pointed out, they are *'windows to the world;'* but they are also instances through which it was possible to materially embody a set of very complex social relationships: in her words, *'a mirror of our society'*. They mediated social relationships as they played a key role in reproducing particular forms of difference.

By and large, people in the three localities studied in this thesis (Montevideo, Paysandú and Queguayar) negotiated different relationships to their laptops in the hope of maintaining a particular identity or constructing a specific type of future. Some of these practices, however, were also a medium through which inequalities – particularly that of class – were formed, experienced, imposed and reproduced. Being equally reflexive, each of these children navigated through their 'geographies of possibilities', operating in relation to an implicit practical logic—a practical sense—and bodily dispositions (Bourdieu, 1977, 1984). They acted according to their 'feel for the game' (the 'feel' being, roughly, habitus, and the 'game' being the field): what is or what is not possible to achieve given his or her objective circumstances. For middle-class children, for example, who have had exposure to computers at home or through internet cafes, laptops were increasingly becoming 'windows to the world;' for children from resource-deprived families, laptops were 'mirrors' of their own 'social isolation', as a teacher from Montevideo poetically (and desolately) explained. The same device was configured differently in these places, but children were also configured differently through these objective relations.

The following paragraphs explore diverse and complementary ways of conceptualising the relationship between 'fudged' meanings and 'moulded' objects. The aim is to reduce the presumed dichotomy between materiality and meaning by conceptualising intentionality and meaning as emerging from mediations in heterogeneous

assemblages of laptops, social values, skills, wires and policy documents. The last section offers a final reflection on the importance of looking at policy from an ethnographic perspective and at political and practical implications of these findings in the context of growing reliance on techno-nationalistic discourses in development 'practice'.

Objects and values, assemblages inside out

CEIBAL's stated goal in the 2007 Presidential decree was to get children and parents to use the XO laptop to achieve social inclusion. Put in analytical terms, the aim was to make a very specific device embody a political and moral project of inclusion, so that it could perform it. Underlying the analysis of empirical findings was, however, an important conceptual tension: whereas 'technical' and 'social' elements of the programme were conceptualised as ontologically distinct and consequently purified in CEIBAL's organisational structure, the national programme of social inclusion and the technical project of delivering laptops were almost indisputably presented as one and the same. This prompted me to explore and unpack presumed dichotomies – of materiality and meaning, technical and social, objects and subjects, and ultimately, national programmes and technical projects – in order to avoid replicating them. Doing so necessarily involved rejecting analytical traditions that rest upon (and perform!) these dichotomies, including those that use one or the other as explanatory variables.

We conclude here, as it is expanded in more depth below, that CEIBAL successfully objectifies the country's inclusive and technocratic future as both a national programme and as a technical project: they are indeed one and the same. As Riles (2001) would argue using Strathern (1991), they are 'seen twice' as it is not possible to 'step outside of them' (Riles, 2001:18): there is nothing 'outside' of the overarching national values and the socio-technical assemblages that comprise CEIBAL from which to describe them. It is not that assemblages 'reflect' social values or that values or associations create the programme. Rather, the point is that it is all within the recursivity of a *form* that literally speaks about itself (Riles, 2001:69). Riles' metaphor is helpful here: this *form* is like 'a figure that, seen twice, appears to turn inside out and thus to generate a sense of reality or dimensionality, each serves as the inside or outside of the other' (2001:69). CEIBAL's national programme and technical project, values and assemblages, are the same *form* 'seen twice'.

The starting point for exploring dualisms between materiality and meaning, the technical and the social, was a discussion on how the programme's framing was stabilised in chapter three. I argued that values emerged from material relations and it was through

these relationships and objects that they got mobilised and stabilised, and later reflected or transformed into, 'common sense'. For example, pictures of smiling children in school uniforms or representations of an idyllic countryside were all displayed in CEIBAL's official publications and videos, consolidating the project's political composition. Interestingly, in his article 'Visualisation and Cognition', Latour (1987) takes the concept of inscription to interrogate the relationship between scripts and forms of cognition by exploring the extent to which print, images and writing can carry explanatory burden. More specifically, Latour (1984) claims that the constant mobilisation of inscriptions, the multiple layering or 'cascading of simplified inscriptions', become 'objections' that block the possibility of interpreting otherwise: 'for each 'objection' there is an inscription that blocks the dissent' (Latour, 1987:18). For this reason, inscriptions are not interesting in themselves but in increasing their 'mobility' and their 'immutability', which allow for the stabilisation of meaning as it is dispersed, gathered, compared, superimposed and redrawn across entities. And precisely because entities can be interpreted differently, Latour (1987) argues, so much energy is devoted to stabilising meaning with specific superimposing arrangements of texts, images, and so on. A clear example, already used above, is the picture of a child in a shanty town holding her laptop, which depicts 'equality of opportunity' and stabilises the programme's overall framing when superimposed with many others on Uruguay's history of equality. Without them, the picture could have been interpreted very differently.

The concept of inscription is extensively discussed in the sociology of science and technology and in ANT, mainly in relation to different delegations of competence: scripts are practically oriented to what devices (should/can) do, establishing them as agents and as mediators. They can even mediate particular social relations. In Suchman's words (2005:379), objects have 'affiliative powers:' 'they are not innocent but fraught with significance for the relations that they materialise'. In that sense, because relations with objects, such as the XO, are simultaneously relations of affiliation, one can situate them as 'emerging subjects' that explain *how* and *why* practices take the form they do, and the implications of these choices for different dynamics within the education system, the classroom and at home.

What it becomes clear in chapter four is that in addition to having certain values inscribed in them, laptops also objectify broader concepts that the notion of 'inscription' cannot capture and that are crucial for those affiliations. The clearest example is how laptops embody 'modernity'. People in Uruguay know, narratively, that laptops are modern in quite a different way than notebooks or pencils are. Discussions on whether or not the XO is a 'real laptop' are intrinsically related to what these narratives are and to different

notions of what it means for an object to be modern – that is, what it requires to achieve the serious 'end' of 'modernity'. Although abstract notions of 'modernity' can potentially be materialised, for example, in the laptop's bright colours and clean lines, the process of embodiment is much more profound: you cannot inscribe modernity in a device, yet you can see it objectified in it. It involves not only constructing a certain aesthetic shape, affordances or formal properties, but also, crucially, enacting particular *forms* that allow the object to be connected to others in different ways. For this reason, to see the laptop as modern – more so than a book or a pencil, -is an incredibly complex cognitive achievement related, precisely, to how the laptop connects to books and pencils. Calculations on how to achieve a particular type of future, a 'modern Uruguay' in this case, are therefore mediated through this object but also through the various *forms* that are associated with it.

It is important to briefly point out that I left notions of 'modernity' and 'modernisation' purposely open to be defined and explored empirically. Understanding the process of embodiment therefore also implied problematising those discursive elements as they were used to theorise a particular direction of social change, which was generally made in relation to technology. The interesting finding was that the 'modernity' of technology was conceptualised almost in Habermasian terms, eliminating the distinction between the practical and the technical (or the instrumental). To objectify 'modernity' in the laptop was to insert it within rationally construed means-ends relations: for the device to be 'modern' it had to be 'useful' in very particular ways. Curiously, this instrumentality was constructed around yet another type of definition of 'modernity', one built in relation to northern-based representations of change used as 'benchmarks' for the developing world. Technology in those narratives is generally defined as politically neutral, as an instrumental 'factor' for the successful 'modernisation' of those countries, so the appearance of 'technical planning' legitimises policy interventions. In fact, much of Latin American 'development' narratives have been construed in those terms, responding to the 1950s theory of modernisation that provided a platform from which to articulate political agendas of the post-world war II context. These notions are different, yet again, from definitions of modernity as used widely in the literature both as analytical terms (for example, in Giddens, 1998) and/or as ways into conceptualising the relationship between the technical and the social, nature and culture (for example, Latour, 1993).

What lies at the core of these definitions – the link between Latour's modernity characterised by practices of purification, the modernity of politically neutral technology and the ways in which Latin American development has been articulated – is the close relationship between technology and political interventions. Embodying modernity in the

XO laptop is both a way to enact such understandings and to further reproduce and experience them.

In that respect, the concept of objectification as developed by Miller (1991), out of Simmel, is useful in making sense of how laptops took certain aesthetic and value forms as it collectively addresses the difficult struggle of meaning, materiality and practice. Although ANT's 'material-semiotic assemblages' (discussed, for example, in Law, 2008), would allow one to explore relational ties within networks and their enactment in practice, they 'lose sight of precisely the radical leaps of meaning that make an assemblage more profoundly 'of a place', and which, in turn, make a place' (Slater, 2013:97). They also fail to reflect the unintended outcomes of such networks, for example, when they produce further inequalities or reinforce exclusion. Objectification, in contrast, is a process driven by values – meaning is stabilised as part of two aspects of the same 'larger process of becoming': 'through several stages, the subject moves to an increasing degree of separation which allows on the one hand for the development of greater variability and specificity, and on the other hand for the development of abstraction' (Miller, 1991:81). In other words, it is a process of mutual constitution by subjects, values and objects: Uruguayan XO laptops are, in abstract terms, different from all other laptops elsewhere, just as children that use it are, at least in some small measure, different from those who do not. The point, however, is not only about showing the process of co-configuration between them, but to point to the conceptual relationship between materiality and meaning, which is best explored by material culture.

The critique towards the concept of objectification, and of material culture studies more generally, is often related to its dialectical roots. The argument frequently made is that it deepens the dualism of subjects and objects, materiality and meaning. For instance, Latour has claimed that the 'Hegelian dialectic expands the abyss between the poles of subject and object that it aims to fill' (Dosse 1998: 99 cited in Miller, 2005). I argue, however, following Miller (1991, 2001, 2005), that the philosophical roots of the concept are precisely what allows one to transcend this dualism. Critiques are missing the point. Objectification is not a theory of representation: it is not about a pre-existing object 'representing' a pre-existing social value. In Miller's (2005:8) words, 'the critical point about a dialectical theory such as objectification is that this is *not* a theory of the mutual constitution of prior forms, such as subjects and objects'. On the contrary, there are no entities prior to the process of objectification: 'humanity is not prior to what it creates' (Miller, 2005:10). The foundational basis of the argument is unequivocally Hegelian because this rejection of the separation between humanity and materiality is given by the idea that

'everything that we are and do arises out of the reflection upon ourselves given by the mirror image of the process by which we create form and are created by this same process' (Hegel, 1977 cited in Miller, 2005:8). It is historical in the sense that we know what we are – and become so – 'by looking in a material mirror, which is the historical world created by those who lived before us' (Miller, 2005:8).

What is particularly interesting, philosophically, is that 'the very act of creating form creates consciousness or capacity, such as skill, and thereby transforms both form and the self-consciousness of that which has consciousness or the capacity of that which now has skill' (Miller 2005:9). The process of *giving form* produces what appear to be independent subjects and independent objects, but those are never autonomous or defined a priori. That is why it is dialectical, as people both produce and are the products of these processes. Uruguayans and the CEIBAL programme are mutually constitutive. The point, however, is that objectification also creates a sense of ourselves as subjects that is always capturing the materiality by which it is constituted: 'inclusion' in 'modern' Uruguay is unmistakably constructed by the very materiality of the laptop that is configured by it. One cannot, using Riles' (2001) argument again, step 'outside of them', as processes of objectification are not a 'character' or 'event' in the story: they are a *frame*, a *form*.

Although the point is quite far removed from everyday practices, it is worth making because it is also tied to the relationship between objects and broader processes of social reproduction addressed in chapter five. More specifically, as argued before, practices create the appearances of both children and laptops as children internalise and act upon the normative, which is also determined by the object's inscriptions. To reiterate the point: 'things that people make, make people' (Miller, 2005:38). Therefore, socio-technical assemblages are material culture: they take particular aesthetic, material, social and informational *forms.*

What is interesting in this case is that laptops are increasingly taking 'the burden' of objectifying 'modern Uruguay', consolidating how certain values are defined in the country. Put differently, 'social inclusion' is increasingly objectified in the laptop rather than in relations of people with each other or with their laptops. Other objects that have taken this 'burden' previously have included, for example, the white coat and blue ribbon that comprise the school uniform: in the 'Switzerland of Latin America' every child had to wear them to school, it made them 'equal'. As discussed in chapter three, the Uruguayan formal education system has been historically perceived as the space in which national subjectivities are reproduced – as one of the informants explained, 'the children of immigrants [...] actually finished school... transformed into Uruguayans'. The current

objectification of 'social inclusion' into XO laptops, however, has strong implications both for the devices and for social values, which have been 'translated' into technical terms and consolidate the association of 'modern Uruguay' with the reproduction of very specific types of subjectivities.

This makes a very clear argument for the need to approach CEIBAL from an ethnographic perspective to be able to relate laptops to a broad national project in practice, and to do so in relation to the core value of modernity, which links Uruguayans, laptop designers, Miller and Latour in very specific and concrete ways. In fact, without having to reconcile the philosophical underpinnings of Hegelian dialectics and Tardian epistemology, the substantive material presented here showed certain theoretical possibilities by moving without much difficulty between this sense of objectification and the tracing of socio-technical assemblages throughout CEIBAL. Borrowing Riles' (2001) language, the key lied in the possibility of turning CEIBAL 'inside out', retaining the idea that national values and narratives are not located 'outside' of the programme (they are not 'structures' to be analysed separately). Instead, they are seen as intrinsic to socio-technical assemblages and to the practices that generate them. They are on an analytical par with affordances and with the material properties of objects and people, reinforcing the need to abandon divisions between subjects and objects, meaning and materiality, and focusing on *how* and *why* they are connected up.

One way to do so was through examining why values were embodied in and negotiated through laptop differently in different contexts, as it was discussed in relation to Montevideo, Paysandú and Queguayar. Expectations and values characteristic of different groups were constituted by and enacted in the relationship with everyday things, the less tangible grounded on the more tangible. The point is not just about diverse types of laptop uses, but rather about broader aesthetic, value and cosmological forms – that is, different objectifications – enacted throughout assemblages that are very heterogeneous in nature. Laptops are quite different things in these contexts, both philosophically (what they 'mean') and practically (what they 'do'). As hinted in chapter five, this is reflected in different possibilities of making connections and in what these connections allow children and laptops to do. In other words, assemblages of children and laptops only have properties in and through their associations, what they are connected to, so it is through these engagements that people imagine and enact different values and forms of agency. These different logics of connection are the material and symbolic relations through which 'geographies of possibilities' are constituted, negotiated and performed. The point, therefore, is mostly a material cultural one about the way in which the programme and

laptops are acted upon, formed or configured as instantiations of wider values, possibilities and principles that people are able to project onto them. However, as it is also found in the work of Latour, it helps dissolve the 'common sense' dichotomy that separates objects from subjects.

What is interesting is that because the 'object' in question is a fully-fledged country-wide national programme – a collection of documents, texts, laptops, wires, children, practices – its identity and meaning are widely dispersed. CEIBAL is materialised in children's keyboards, in different websites, in official policy documents, in teaching practices. It is a network across a wide range of sites, devices, practices and actors that are constantly configuring and constituting each other. The best description in that respect is that of a 'moving assemblage', as proposed by Entwistle and Slater in relation to a different example, because it is dispersed and mutable, 'unfolding across multiple practices and sites, and 'belongs' to none of them [….] continuously worked upon, moulded, contested, performed, something that is identifiable out there in the world and yet it is constantly de- and re-stabilised in new forms' (Entwistle and Slater, 2013: 8–14). The programme is not just located in the laptops or in the children; meaning and materiality, device and values, are emergent, disentangable and constantly performed. CEIBAL is, in summary, a complex and heterogeneous accomplishment that cannot be seen outside of the assemblages that produce it; these assemblages, in turn, perform and reconfigure different 'geographies of possibilities'.

In conclusion, the purpose of this section was not to reinvent the 'philosophical wheel' on the relationship between materiality and meaning, but to reflect upon *how* certain processes of assemblage and objectification panned out in practice. Put differently, it aimed to bring light to how devices, wires, skills and children were connected, configured, performed, and reconstituted by an overarching political and moral project, and by 'geographies of opportunities' in practice. The key conclusion is that different relationships between materiality and meaning described as mundane everyday practices in the empirical chapters illustrated the successful objectification of CEIBAL as a 'moving assemblage' and of laptops computers, which now embody 'social inclusion'. This is so much the case that it is impossible for people to discuss CEIBAL and its laptops without making reference to 'a new Uruguay', unintentionally rejecting this dualism and transforming what it means to be Uruguayan as a result. In this way, Uruguay's path to social change is defined and produced, at least partially, through the ways in which its people make sense of CEIBAL.

Concluding remarks

Following the discussion above, I would like to offer a final reflection on my work and on the political and practical implications of adopting an ethnographic approach to development policy. In a way, these paragraphs are meant to address the question of why this thesis is so different from most other studies on public policy and on ICTs for development programmes. Although it is argued theoretically and methodologically in the introduction, I feel it is necessary to do so explicitly here because the majority of informants interviewed over the last few years – some of which I know will be reading these words – are expecting a different kind of analysis. As they have repeatedly told me during this time, they are interested in reading 'policy recommendations', and in hearing explanations about, or forecasts on the 'impact' of their interventions on, people's lives and/or on learning outcomes. I am honoured to have been given spaces in which to share insights from my work but I also feel, very strongly, that in order to truly and fully grasp the complexities of social change, policy is the wrong place to start. In fact, although this thesis was very much focused on CEIBAL as policy, I specifically did not want to assess questions over the relevance, efficiency or adequacy of the programme's policy instruments.

Generally speaking, the majority of research work on ICTs for development and on public policy (both in the country and elsewhere) is based on two main premises, which are determined largely by particular policy agendas: first, that technology has the potential to significantly improve the lives of all kinds of people, especially of those in 'developing' countries; and second, that if practitioners followed policy prescriptions 'in the right way', they could achieve something loosely defined as 'social change'. Interestingly, this implies the need to produce instrumental knowledge that can be made to work in serving those priorities. Examples of this abound, particularly studies and reports assessing the extent to which technological 'interventions' such as CEIBAL bring about improvements to people's lives in diverse areas, such as in education, health, poverty and governance (Warschauer, 2006; Buckingham, 2003; Livingstone and Haddon, 2009; Avgerou *et al*, 2010; Madon, 2006).

A particularly good example of this is the work of Mark Warschauer (2004, 2006, 2009) from the University of California at Irvine, which analyses the relationship between different forms of access to ICTs and social and economic inclusion through the notion of 'digital divide' (Warschauer, 2004). The concept has been defined in the literature as 'the gap between individuals, households, businesses and geographic areas at different socioeconomic levels with regard both to their opportunities to access ICTs and to their use of the Internet for a wide variety of activities' (OECD, 2000:5). It is therefore seen as both

an expression of other inequalities (social, economic) but also as their perpetrator. Efforts to address the 'digital divide,' led by international organisations and governments around the world, are characterised by the provision of access to technologies (in the form of multimedia centres, laptop computers, mobile phones, tablets) and of additional resources that would allow people to make sense of it, such as technical skills.

Interestingly, in his book '*Laptops and Literacy: Learning in the Wireless Classroom,*' Warschauer (2006) examines the extent to which the presence of laptop computers in American schools improves students' literacy practices, particularly reading and writing, information use and multimedia development. He arrives at the conclusion that laptop programmes were not found to improve test scores yet students gained important technology-related literacies such as those that involve analysing information or producing multimedia –which he termed 'twenty-first century skills' (Warschauer, 2006:10). The concept describes a set of practices and competences that are perceived to be crucial for students' future integration into the knowledge economy, namely 'digital-age literacy, inventive thinking, effective communication, and high productivity' (Warschauer, 2006:9). Those precious 'skills', the argument goes, are 'more functional literacy', considering the needs of the current labour market.

This type of academic work, which has been widely cited in Uruguay, leads to interesting comparisons between the 'impacts' of those interventions in different contexts: what happens to learning outcomes or to civic participation when technology is 'handed in' to students in Uruguay, Nieu and Nigeria under significantly different conditions (availability of teachers, training courses, infrastructure, etc.)? The results are very appealing, yet hardly ever surprising. Part of the reason for this is the fact that the perspective treats ICTs programmes as 'monolithic' entities, as 'interventions' with a set of 'measures' that create more or less direct 'impact' on pre-defined social outcomes. Technology is perceived to be a politically neutral object with fixed properties assumed to be the same in Uruguay, Nieu and Nigeria. The general aim is to produce models that can be applied in different settings and to observe the extent to which social outcomes are changed as a result of this 'intervention'. This does not mean overriding difference, but rather finding common 'entry points' for policy within those settings. While this makes development policy much more 'manageable' and predictable, it black-boxes *precisely* the phenomenon in question: there is no clear sense of how projects are actually linked to development, education or health, what technology is *concretely* good for and how it makes it (development, literacy, democracy) happen. More importantly, it says little about how people make sense of

devices and express their expectations and needs in relation to the much broader moral and political articulations always associated with national programmes.

For this reason, instead of treating policy as a framework with which to evaluate the achievement of certain technical goals (that presumably 'solve' particular problems, such as 'development'), this study aimed to look at policy and governance with an informed sociological mind. To do so, it examined *how* policy goals and *forms* were produced and translated into very concrete everyday practices. It focused on understanding empirically the contingent, emergent and mediated way in which social change is materially and symbolically realised in practice. In other words, on how the project was stabilised by weaving together different components – such as laptops, practices, meanings, social values, policy documents, skills, wires – distributed, constructed and sustained across a wide range of sites and actors. The analytical focus was, precisely, on tracing empirically different mediations that stabilise it in material and symbolic ways, and to understand how assemblages perform certain values and expectations – i.e., how they configure different 'geographies of possibilities'.

There were two important conclusions from the exercise, which are at the core of this thesis' contribution to the discipline, and that can be applicable to the wide range of countries implementing projects with similar types of politics. First, reiterating a previous point, it is not possible to 'step outside' of national programmes or of technical projects: there is, in fact, nothing 'outside' of overarching national values (whatever those might be) and of material and symbolic associations from which to describe them. Socio-technical assemblages do not 'reflect' social values or create programmes: they are one and the same, mobilised across several different sites and levels of practice. As explained in the introduction, looking at national programmes in this way has both political and methodological implications. Politically, it implies that it is possible to look at policy without reproducing northern-based normative notions of their effects. This also allows one to think about social interventions in relation to the values that policymakers are actively trying to realise and to the kinds of resources that are needed to materialise programmes and expectations. Methodologically, this approach allows one to engage with policy without reproducing it as an analytical and organisational framework with pre-defined social outcomes. It prompts one to abandon the comfort of 'bounded' fields and to engage with it from multiple and simultaneous levels, for instance through national-scale values and organisations as well as through their local level instantiations.

The second overarching conclusion was that conducting an ethnography of policy from this perspective gives people a much stronger sense of agency. If one leaves the

definition of 'change' or 'development' empirically open, it is easier to appreciate the wide range of ways in which people can, and choose to, interact with the world around them. It allows one to recognise people not as mere 'recipients' of policy or development programmes, but as active constituents of change – even when they do not frame or explain their own actions in relation to the programme or to the social values in question. As was discussed extensively in chapter five, people are reflexive about their circumstances, they ponder on their sense of possibility, and generally operate in relation to more or less explicit practical logics to act upon it. They negotiate their own sense of 'social change', their own 'inclusion', by reading their fields of possibilities and by examining how certain social and material conditions (e.g., the quality of formal education, the laptop's affordances) can either enable or hinder its advancement. Giving people a voice is therefore crucial not just from a methodological perspective, but also from a political one, recognising people's capacity to actively bring about change in their everyday lives.

In summary, I started this thesis hoping to understand the relationship between development policy and social transformation. Like many others studying and working in the international development arena, I have always been profoundly committed to social justice and truly believe that academic and policy work could be important vehicles to achieve it. However, as I mentioned earlier in this section, the experience of carrying out an ethnography of a national programme from the bottom-up made me realise that, that in order to understand change, – and perhaps also to promote it – policy was the wrong place to start. Instead, it was much more important to remain open to the kinds of knowledge, insights and understandings that can be generated out of an ethnographic engagement. Put differently, instead of departing from a predefined framework, it was important to remain open to alternative and unexpected definitions of what 'change' means to people in different places, to what actually matters to them. Uruguayans of different paths of life have clear ideas and expectations for their future and were happy to share them with me. But the stories I heard had usually very little to do with the stated goal of the CEIBAL programme or with purpose of the technology at hand: they were related to the much more complicated work of mobilising and assembling resources, social values, devices, skills, and collective and aspirations. They were stories about conceiving, constructing, implementing and sustaining policy goals not just within government offices but also at the level of national social values and in the micropolitics of everyday life. In turn, they were stories about the much messier, richer and livelier ways in which social change is made sense of, performed and actively brought about.

I do not know if the programme will be the 'intelligent revolution' that President Vázquez anticipated, or whether Uruguayans will truly one day be just as equal 'before life' as they are 'before the law'. As a Uruguayan, there is nothing I would like more – yet I seriously doubt it. I also do not think that 'the poorest and most neglected' now have 'the same capabilities than others' as President Mujica claimed in one of his most eloquent speeches. At the time, as he delivered laptops to students in secondary and technical schools, he described CEIBAL as 'the possibility of a better world because those inhabiting it will be better as a result'. The world is not necessarily better today than what it was in 2010. Yet, inevitably, I am moved by his words when I think about his personal story of struggle for social justice and about the country's recent history, about tales of equality where 'no one is better than anyone else' and about Catalina's dozens of pictures of her smiling self in the laptop, the ones where she saw her face for the first time. In that brilliant speech, Mujica asked rhetorically an audience of hundreds of expectant 15 year-olds, 'could this be the same world?' and responded his own question unhesitatingly 'I don't think so'. Today, nearly three years and 100,000 words later, neither do I.

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Appendices

Interview with Tabaré Vázquez, President of Uruguay 2005-2010

[Note: the responses below are sections of the interview that were approved to be made publicly available; those requested to be 'off the record' are not included].

DB: The first question has to do with your vision for the one laptop per child project. Which aspect of the programme captivated you the most? What made you want to develop it in Uruguay?

TV: Well, I don't know what the results are, or the impact is, right now because I have not talked to people, children, or parents since I left office. What I will do today is to think back to where it all started. What attracted me most to the possibility of developing this project, which was later transformed into a plan, was that it had certain characteristics that, from my humble perspective, are truly revolutionary. In the exact sense of the term. Because, from my point of view, it immediately introduced, from the onset, a radical change in our conceptualisations of education and teaching.

The first one is that we provided, or attempted to provide, equal opportunities to all Uruguayan children. Until then, children in that lived in more favourable socioeconomic conditions, or moderately favourably, had computers to develop learning processes or use it as an important working tool. And there were thousands of Uruguayan children that could not do it. They would see computers may be on adverts, if they have televisions. And that was a tremendous type of inequality. With this plan, we have provided almost instantaneously, or in a very short period of time, equal opportunities and possibilities to all Uruguayan children.

Secondly, this has surely allowed us to capture new types of intelligence that had been lost or wasted before the Plan. I really think that it will prevent some types of intelligence to get lost, we will be able to regain them, to the benefit of the child and of the entire country. To educate children and young people, training them to use a vital tool like information technology, this is of upmost importance.

Third, because I believe that it will revolutionize the equation in the education system. I believe that we, teachers (and I consider myself a teacher because I was a professor at the university for decades), have an equation with which we manage to get students to depend on us, on our way of teaching. And we adopt the attitude, not everyone but the majority, that we are their teachers for life. And we do not realise that we need to be their teachers to teach them to be free. And for that, we need to end that dependency, to prepare them to have their own initiative and their own work, that they can make it on their own. We need to educate for freedom. A computer in the hands of a child, in a fresh mind with endless possibilities, will provide that level of

freedom. And it has happened, as I have heard about situations in which children have taught their teachers how to use the laptop.

DB: Indeed, I have seen many cases of children teaching their teachers how to use different aspects of the laptop.

TV: This has demonstrated that it is truly a revolutionary concept that will change education, which is very important. We invested in opportunities and in capturing our children's intelligence, but also in changing that equation, which is already so out of fashion in today's world, that requires people to be free, to learn by themselves and to generate more opportunities. And looking outwards, it is about decreasing the gap between how we educate, how children learn in the First World with how children learn in the developing world.

These I believe were the most important elements, among others, that made me support the Plan so strongly. I had already heard about it, I had seen it and read about it, so when Miguel Brechner brought it up while we were discussing LATU, I supported it immediately. I had the image, in that moment, of making the computer be for our children what the blackboard and the chalk were in Varela's time.

DB: Did you imagine the role that the Plan ended up having during your term in office and then in the 2009 elections? In other words, did you foresee that this would become state policy, something so celebrated in the country?

TV: We never used it as a political tool but I was convinced that, once in motion, it was impossible for the Plan, which was of great equality, not to become state policy to be continued by all government irrespective of partisan colours, it would be inhuman not to. I think there was no way back. Even if the political system wanted to take a step back, I think people, students that had went through primary education to secondary, their parents, families and their environments, would have let. It would be very difficult for this project not to continue because of its popular support.

At the time, and I have expressed this several times, drawing good quality legislation with the best technicians is not enough. Or creating good projects with good technicians is not enough. It is imperative to reach consensuses. First, political consensus. But even if you reach complete political consensus as we did with this plan, it is not enough. You need to draw good legislation, of whatever topic, have broad political consensus to support the project and, finally, broad social consensus to support it all. Because if you have a good project but do not reach political and social consensuses, it fails. If you reach political but not social consensus, the legislation and its projects end up dead in someone's drawer. And if you reach social consensus but not political ones, the project continues because people demand it. So if you reach them all, it's the best possible case and that's what happened with CEIBAL.

DB: What were the different factors that generated such great social consensus?

TV: The most important is Uruguayan people's intelligence. The Uruguayan people are very smart. They realised very quickly what the benefits were, not only for children, for their children, but also for them and the country as a whole. You must have seen in the

countryside that it's not only children using them but also their parents, siblings, uncles and aunts. And this was because there was a group that taught teachers to use laptops that also taught parents, siblings, uncles and aunts, to use it. They asked us to learn.

DB: How did you articulate the Plan with other government initiatives, equally important, like the National Social Emergency Plan

TV: It was the result of the intelligence of those leading the Plan, carrying it out. They realised quickly what those articulations were going to be, especially because they are all young people working on this issues. It's wonderful to see, all of those young people growing and developing, professionally and intellectually. They saw CEIBAL's prospects and promptly created new programmes, small or large, that connected the Plan with the government's priorities and other activities. For example, the 'English for fun', project, they are all included more or less into CEIBAL. And CEIBAL has tremendous potential to make Uruguay advance, it's a seed that could bear many fruits.

DB: How does CEIBAL respond to the country's national vision for economic development?

TV: Uruguay is country that can have a prosperous future. I think that the right path is that of production, innovation, work and scientific production, of education. If Uruguay continues to go in that direction it can, in a very short time frame for the history of a country, become a developed country. A country needs investments for its productive sector, to produce primary goods and services. It is a small country with limited possibilities in their local agents. We need foreign investors to grow. And for those that invest in a country, they need to find certain favourable conditions to do so: clear rules of the game, legal safeguards, a quiet country, safe with educated people. Human resources, skilled people.

So let's think about a country where its people, in ten years time, will know how to work on a computer and have basic knowledge of English, among other things. Everyone, from the truck driver that will deliver soft drinks to the bank manager. They will know how to use a computer and some basic knowledge of English, and if they make a bit of an effort, they can be fluent in English. Those elements will be very important for investors, to find skilled people. Uruguay will have an important competitive advantage. So this trains human resources in a country that wants to develop, it wants to be developed.

So we needed a strategic vision. That is to say, the government needed a strategy. If you allow me to use a motoring metaphor, we needed to have the short lights turn on to see what happens right in front of the car but also the longer lights turned on to see what happens at a distance. To develop a strategic plan, and that's what CEIBAL is.

DB: This ties nicely with the last question, how do you imagine Uruguay's future? What role will CEIBAL have in the construction of that future?

TV: It is related to what I have just said. If Uruguay continues in this path, investing in scientific research, in bringing back young people that had left the country and that are well educated. Evidence of this is that those people go abroad, to any country, and

have great positions, they succeed. To train them more, to give them education as a real liberating tool, that is essential. Sometimes we are afraid of being more free, but it is essential. Freedom is essential to human life and adventure.

Having a Plan like this one will give an enormous advantage to Uruguayans. Because a country is not its territory or the surface that carries the country's name, or an emblem or the flag or national symbols or the anthem. It is all that, but it is mostly the people that live there and that have socially contracted to live together. That is the country's most important wealth. Uruguay has serious possibilities to train those people, like it did during Varela's times, that transformed us into the country with the lowest level of illiteracy in America.

Today, it is not enough to know how to read and write certain things to be literate. Today, being illiterate in the world of information technology, communications, is not knowing how to work with those elements. In this world, that's what illiteracy is. And Uruguay has the possibility of having, also in this, the lowest rate of illiteracy. And that gives us certain important advantages for the future.

CEIBAL is the nucleus, the seed that is growing and will bear fruits and will continue to do so in the future if we continue on that path. With other things included, of course, like supporting research, because what is material has a limit, but the only thing that does not have any limits is human intelligence, so that is what we are investing in, what we are betting on.