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In *New Literacies, New Agencies?* a team of scholars from some of the most prestigious Brazilian universities address issues about learners' and educators' actions through and around texts and technologies, and illustrate them with findings from research on the interplay between new literacies, digital technologies and social action in and out of school. The chapters introduce, or revisit, an array of theoretical constructs from education, sociology, linguistics and media studies, while presenting a new inside perspective about how research on new literacies is being carried out in Brazil. Altogether, these chapters provide a very useful set of ideas, tools and analytical frameworks for researchers, teachers and students of education, language and arts, and communication worldwide, especially those concerned with technology-enhanced education and social inclusion.

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AND DIGITAL EPISTEMOLOGIES

## NEW LITERACIES, NEW AGENCIES?



## Colin Lankshear and Michele Knobel General Editors

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# NEW LITERACIES, NEW AGENCIES?

A BRAZILIAN PERSPECTIVE ON MINDSETS, DIGITAL PRACTICES AND TOOLS FOR SOCIAL ACTION IN AND OUT OF SCHOOL

> EDITED BY EDUARDO S. JUNQUEIRA & MARCELO E. K. BUZATO



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To Antonio. For all the love. *EJ* 

To Beatriz. Everything. Always. MB

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## New Literacies in the Context of Brazilian Historical Social-economic Inequality

Past, Present and Future Trends

Eduardo S. Junqueira & Marcelo El Khouri Buzato

Nobel Laureate Amartya Sen theorized the concept of inequality as related to life quality, i.e., not being restricted to income or access to goods, but also including one's self-esteem and opportunities to participate in community life (Therborn, 2001). The Human Development Index includes criteria such as life expectation, access to formal education, and individual-based income. More recent debates, rising from Scandinavian theorists, have broadened the concept of inequalities to include various variables, such as nutrition, access to health services and to education, family relations, and culture (Therborn, 2001). Notions such as technology-based social inclusion (Warschauer, 2004), or digital inclusion, are supposed to address the various dimensions of inequality in such a way that eliminating inequalities is not mistaken for overriding differences (Buzato, 2009).

Despite the fact that Brazil is now deemed the sixth largest economy in the world, the country still has one of the worst levels of wealth distribution among all nations, a fact with historical roots that go back to Brazil's exploitative, slavery-based Portuguese colonization. In spite of recent improvements, insufficient access to health services, quality education, and cultural goods is a recurrent challenge for the majority of the population in the new "Global

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Brazil," as we are now called. In short, inequality-be it social, economic, or cultural-has been, and continues to be, a key element of Brazilian society. More recently, given the strong commitment of the federal government in establishing and expanding programs of wealth transfer and social assistance to the lessprivileged spheres of the population, the scenario has started to change positively, but the deep historical heritage of inequality is still a central element to be dealt with in order for Brazil to become a more equitable society. (Pochmann, 2012; Souza, 2010). Moreover, in the process of globalization, Brazil has been positioned on the periphery of the field of knowledge and trade-value production, as the country has been taken as a resource for cheap labor and a less-qualified mass market. According to Therborn (2001), this positioning is related to the fact that economic inequalities have widened globally in the past 200 years. Therborn believed that some processes that produce inequality "will advance towards an equilibrium, including medical and agriculture knowledge diffusion. The majority, however, will remain contributing to the reproduction of the inequalities in the planet at a scale never seen before" (p. 163).

The enduring character of inequality in Brazil is related to Carvalho's (2002) concept of Stateship ("estadania" in the original Portuguese), meaning that the State—and not the organized civil society—has historically led the processes associated with economic and civil rights that often reflect the interests of the country's ruling elite. Such a historical pattern, however, is not a linear one. Throughout history, Brazilians from various regions, classes, and ethnicities have joined forces and have succeeded in promoting changes to improve their lives to some extent against structural barriers and state paternalism, sometimes in confrontation with legal and disciplinary systems, other times by tactically using these very systems to facilitate change. These movements have resulted in important advancements against historical inequalities in Brazil, providing portions of the population with better life conditions during past decades. Relevant examples are the Rural Landless Workers' Movement, known as the Movimento Sem Terra (MST) (Wolford, 2010), Gay Rights (Moreira, 2012) and Open Source Free Software (Lemos, 2009; Silveira, 2004).

Public school is attended by almost 80% of the students in Brazil (Instituto Brasileiro de Geografia e Estatística, 2010). Yet, official schooling has contributed very little to challenging historical inequality. In spite of recent improvements, public schools, where low-quality education is usually provided, remain, in many cases, the only option for the economically disadvantaged classes. More recent national statistics have shown a significant drop in

the illiteracy rates in the country—91% of the population is considered literate (Instituto Brasileiro de Geografia e Estatística, 2010); however, a large portion of the population (approximately 75%) is still functionally illiterate (Ribeiro, 2011). Brazilians perform very poorly on national and international standardized tests such as PISA, and public schools are underfunded, with underpaid teachers and inefficient management. In contrast with the U.S., public universities in Brazil are free of cost and are deemed the best in terms of quality. Access to the system, however, is limited by several gate-keeping mechanisms, such as entrance exams. Consequently, only a few, mostly welleducated children from the elites and upper middle class, who can afford private, better-quality K-12 education, make it (Instituto Brasileiro de Geografia e Estatística, 2012). Meanwhile, lower class children, educated in public K-12 schools, resort to lower quality, privately owned, tertiary institutions. Recently, however, with broadened access to government scholarships (Araújo, 2012), this reality is starting to change. Nonetheless, no more than 15% of the population currently holds a college degree (Instituto Brasileiro de Geografia e Estatística, 2012).

The introduction of computers in schools in Brazil in the 1980s was followed by high expectations, largely originating with the federal government, who saw in such implementation a solution for schools' historically poor performance: a way to improve teaching and learning and to decrease high dropout and retention rates. Since then, however, and regardless of the implausibility of the assumption about a direct correlation between access to computers and improved performance at school (Junqueira, 2009), merely providing access to computers at school has remained a challenge in many parts of the country. This is a consequence of Brazil's continental scale and the sheer number of schools, teachers, and students; not to mention the economic, technical, and political difficulties involved in providing costly digital technologies to schools in the context of inadequate distribution of basic resources such as school meals and physical infrastructure.

Notwithstanding such drawbacks, as in other parts of the world, new literacies based on networked digital technologies became the new mantra associated with the dream of the country's modernization and development to eradicate the shaming shadow of illiteracy and poverty. We believe that due to the rapid expansion of access rates in the last few years, especially on the part of teachers and students<sup>1</sup> (CETIC.br, 2011a, 2011b), educators and policy makers are currently in a better position to realize, by direct experience, that access is just a small part of a much more complex problem.

## Literacy: A Key Conceptual Framework

Literacy is, of course, not only a central arena for the deployment of such strategies; it is also a powerful conceptual framework for understanding how technology and social practice are related in transformational processes, echoing Paulo Freire's (1990) seminal work on "alfabetização," an important reference for Brazilian educators to date. But as with income, power, and technologies, there are also serious discrepancies in the social appropriation of different conceptualizations of literacy in the country. At many schools, in particular, the understating of literacy and its consequences tends to be attached to what Street (1984) called the autonomous model (Street & Street, 1991; Kleiman, 2002). Governments and/or job providers, on the other hand, tend to approach literacy from a strictly functional perspective, while the critical literacies framework, a tradition that goes back to Freire, as already mentioned, is often relegated to university-led initiatives and alternative literacy agencies such as NGOs.<sup>2</sup> Not until the 1990s and beginning of the 2000s did frameworks and approaches more akin to what Street (1984) called the ideological model of literacy begin to make inroads into the Brazilian educational and academic landscapes, and, consequently, to orient literacy pedagogies and literacy-based social-inclusion initiatives.

As regards new literacies, we could probably summarize current educational approaches with reference to the aforementioned models. Soares (2002), one of the most influential theorists in the field of literacies in Brazil, extended her well-known functional conceptualization of literacy as "a state or condition" of the individual from the world of print culture to the era of cyberculture, as proposed by Lévy (1999). Like other Brazilian authors, though, Soares centered her argument on a contrast between the typographical and the digital as writing spaces and mechanisms of production, reproduction, and diffusion of written materials, leaving relatively untouched the macro social dimension of cyberculture and its possible effects on print culture itself, and on social agency at large. A more recent trend, as regards official literacy education, can be identified in the appropriation and adaptation of multiliteracies theories and practical approaches from authors such as Cope and Kalantzis (2000), to literacy curricula oriented towards cultural protagonism and the hybridization of local and global discourses.

Authors in this book have made relevant contributions to the field in recent years. For example, Junqueira (2008) established an association between cultural hybridity and multimodality as necessary to apprehend the complex communicative practices of students, indicating also the necessity of "trespassing on the traditional boundaries of official (academic, socially validated) and unofficial (non-academic, non-mainstream) uses of language to communicate" (p. 393). Ribeiro (2009) defined digital literacy as,

the portion of the literacy that is constituted by the necessary and desirable abilities developed by individuals or groups towards efficient action and communication in digital environments, whether supported by computers or other technologies of the same nature. (p. 30, translated from the original Portuguese)

Gomes (2010) brought concepts such as hypertext and multimodality to the context of school literacies, and proposed a series of strategies for the formation of hyper-readers and writers.

In a similar fashion, but taking literacies as situated social practices, Buzato (2009) conceptualized digital literacies as complex networks of other literacies, which integrate the online and the offline in conditions of transculturality. Later on, Buzato (2012) refined this conceptualization in a different direction, through a radical theoretical proposal based on the concept of heterogeneous networks. Coscarelli and Novais (2010) showed how the "state or condition" referred to by Soares (2002) translated into complex cognitive processes involved in current digital texts, with reference to Complex Systems Theory, another identifiable new trend in the area of new literacies research in Brazil. Monte Mór's (2009) research into Brazilian university students' critical literacies raised the issue, central to current literacy teacher education, of how meanings constructed by these students in their readings of visual media relate to emerging epistemological perspectives postulated by new literacy scholars such as Lankshear and Knobel (2003). Finally, Leffa, building on Vygotsky's Sociocultural Theory (Leffa, 2009) and Halliday's Systemic Functional Grammar, investigated the connection between agency and mediation (Leffa, 2011), and how they instantiate in games and learning (Leffa & Marzari, 2012; Leffa et al., 2012).

At school, however, new literacies tend to be treated along the same autonomous lines as traditional school literacies, and the pedagogical purposes most often attributed by the teachers to the use of computers at school are "to prepare students for the work market" and " to promote tasks related to students' practical, everyday life" (CETIC.br, 2011a, 2011b). As in Leander's (2007) study of an all-girl American school, the "communication" dimension is usually eliminated from the Information and Communication Technologies available, and the pedagogical strategies employed are more often aimed at bracketing off and hierarchizing new literacies in relation to traditional school literacies, than at truly promoting innovation and/or reform.

### Past and Present

#### The Context of Formal Education

The first federal initiative to bring computers to public schools in Brazil was named Projeto EDUCOM (Moraes, 2003; Valente, 1993; Fagundes, 1992). It was launched in 1983 and it lasted for 10 years. This project was extensively based on Papert's constructionism (Almeida, 2000) and Piaget's psychogenetics (Fagundes, 1992). These educational foundations oriented teacher preparation initiatives and school-based activities, mostly based on Papert's language LOGO and on Computer Aided Instruction (CAI). Very few schools had computer labs in operating condition, and activities were mostly experimental, targeting a small number of teachers and students. In short, "The EDUCOM project was vital in organizing a group of researchers who have been active since then, as well as in structuring national objectives and plans of action" (Tavares, 2003, p. 5). The second federal project, PRONINFE (a Portuguese acronym for National Program of Informatics in Education), was launched in 1989 and added to EDUCOM's project the objective of bringing back school dropouts, focusing on inclusive practices through the use of computers (Loureiro & Lopes, 2012).

The largest program to date, named PROINFO (a Portuguese acronym for National Program of Educational Technology), was launched by the federal government in 1997. It was intended to distribute 100,000 computers to 6,000 schools around the country, as well as providing training and user support for 25,000 teachers through 200 offices spread around the country (Moraes, 1997; Sette, Aguiar, & Sette, 2000; Barreto, 2001). Teacher training focused on the use of specific education software and on familiarizing teachers with projectbased learning. Learning was envisioned as a process of knowledge production through critical thinking and the use of computer technologies. An official government report published in 2000 informed that PROINFO had, at that point in time, increased the number of schools with computer labs by 41%, while the number of computers available grew 59%, and the availability of internet access soared over 350% at public schools around the country. This, apparently very important, increment of internet access at schools meant, in fact, that in 1999 around 200 schools actually had that technology. In 2001, the number increased to 700 schools in a universe of almost 200,000 public schools in the country (Brasil, 2013). That meant that only 0.35% of the schools had internet in 2001(Junqueira, in press). Most recent information indicates that PROINFO installed computer labs at 4,696 schools to date (IBICT.br, 2012b).

Although it traced an innovative path by creating the NTE [public local offices to provide teacher preparation] that offered a wide network of multiplication of knowledge and training of human resources, besides distributing equipment and Internet access, [PROINFO] was based on a model that was too complex, particularly because it left to the schools the task of building projects involving the use of technologies to teach despite the fact that schools were not prepared to do so. (Tavares, 2003, p. 11)

Besides the NTE implementation, PROINFO innovated through the use of multipliers, that is, leading teachers who, once trained, would pass the information and skills along to other teachers, and to assistant students, who would help teachers to develop activities with digital technologies at the computer lab.

As became common in the 1990s and the beginning of the 2000s, some schools had difficulties putting the computer labs to work and joined a few international projects that helped them to start dealing with new literacies practices with which they were not very familiar. The RiverWalk project, from the University of Michigan (UM), was a case in point. This project was developed at the Interactive Communications & Simulations (ICS) research lab at the School of Education at UM. It was supported by a grant from the Japanese government and aimed to integrate issues of science and environmental education, the methodology of project-based learning, and the development of new literacies. The project was translated from English into Portuguese and implemented in Brazil in 2001, in partnership with the Ministry of Education within the PROINFO initiatives. From 2008 on, it was developed also as an outreach project at the Federal University of Ceará.

The project lasted for 10 years and was developed in 35 schools in nine states, usually enrolling classes from K-6 to K-10. At most schools, two or three teachers joined to develop the project, at least one of whom was in charge of the school computer lab. Schools investigated a nearby river and developed various types of multimodal narratives: writing texts in various genres such as poetry, parody, interviews, news articles, fiction, and theater scripts. Other types of narratives developed included videos (documentary and fiction), drawings, pictures, songs, comics, graphics and charts, and hypertexts. The content of these narratives related mostly to what students learned about the river that they investigated, with topics including physical (fauna and flora, pollution, garbage, siltation), social (traditional residents and their memories, sports, manifestos, and parades), and cultural (festivals, folklore, and tales) aspects. Throughout the 10 years of its life, research was conducted about the project, and key elements of its development in Brazil were documented.

As would be expected, learning projects involving the use of digital technologies were very new for most schools, teachers, and students, despite the fact that teachers-especially those in charge of the computer lab-had received some previous training. This mainly focused on the use of the computers, since the machine was a new artifact in the life of most participants. Also, schools had very weak technological infrastructure, meaning only a small number of computers available to the students (usually 10 per school in the first half of the decade), limited internet connection (dial-up was the standard in most cases in the first half of the decade), adding to all the other historical difficulties faced by public schools previously. These difficulties were serious barriers to the development of the project at the aforementioned schools, making it very difficult to expand the project to a large number of schools. Participating schools demanded great attention from the project coordination in order to make sense of the project activities, to plan and to make the activities happen, and to develop the narratives using the computers. Teacher agency was a key element in bridging the gap between the project's demands and teachers' and schools' limited resources (Junqueira, 2006). It is not clear, however, if teacher agency transferred to other new literacies practices in the schools once the project was over.

More successful experiences of new literacies practices in schools participating in RiverWalk Brasil were associated with two factors. The first one was teachers' new methodologies based on activities that were less teacher-centered and also less structured, so that students had more freedom to develop stronger self-initiative, creativity, and authorship. Another methodological aspect was related to teachers' coordination of small group work (instead of teaching for the whole class). These two aspects were unintended consequences that originated from teachers not having extensive previous knowledge about computers and about new teaching methodologies as well as schools' weak technological infrastructure. Teachers opened up space for more dialogue with students and let them give their input about the activities to be developed during the project. When the computer lab capacity was very limited, teachers ended up bringing a small number of students to take turns working the machines. In some cases this ended up developing a much closer interaction among teachers and students. The second factor was related to students' sense of authorship and the meaningfulness of their school activities (Junqueira & Amorim, 2010). As also documented in another study of students' participation in RiverWalk Brasil,

the combination of the various elements embodied in students' artefacts indicate that they engaged in what Vygotsky (1978) has identified as "deliberate crafting." Writing was meaningful as it created a space for students to bring their cultural resources into the process of developing their artefacts. (Junqueira, 2008, p. 408)

More recently, the federal government launched the UCA program (Portuguese acronym for "One Laptop per Student") to provide 150,000 laptops to 300 selected schools around the country. In the realm of teachers' work related to UCA, activities documented by different researchers have indicated a range of difficulties. One group of researchers reported that participants have demanded further teacher preparation, in particular about how to use the laptops to improve learning by using new teaching methods (Santos & Borges, 2011). Elsewhere, Cysneiros, Carvalho, and Panerai (2011) found that while teachers had a great interest in the UCA program, most schools included in the study exhibited low levels of teacher preparation for using computers. They identified teachers who did not have an email address, while others were frequent users of online networks. Cysneiros, Carvalho, and Panerai reported that "...the teachers (from a UCA school) are absolutely unskilled (in terms of computers), none of them had an email account...two had a home computer, but they did not use it" (2011, p. 5). Pretto (2012) reported a lack of continuation in the project's actions, indicating that the project's guidelines, follow up, and assessment were not clear. Because of that, according to the researcher, the UCA program "only picked up pace in the cases where there was strong local appropriation by teachers and local authorities" (web). Despite the difficulties, many projects have been developed. This literature includes projects about cultural exchange between Brazilian and US students and project-based learning (Lima et al., 2012), the use of robotics and the Arduino micro controller (Castro, Elia, & Sampaio, 2012), and new ways of teaching Science (Lima Filho, Castro Filho, & Campos, 2012). Also, a recent study found that the use of the laptops helped increase students' motivation to learn (Fabris & Finco, 2012).

The most up-to-date data about teachers, students, and digital technologies in Brazil indicate some important trends contrasting with UCA's challenges. A national study indicates that 58% of the teachers consider their abilities to use computers and the internet to teach are sufficient, while 23% consider them below the minimum standard (CETIC.br, 2011a). Among their teaching activities related to the use of the computer and the internet at

school, teachers say that their most frequent activity is to teach students how to use the computer and the internet (64% of the teachers indicated this activity as the most recurrent one) and to look up information (43%); how to develop theme-based projects (39%), students' narratives (34%), and educational games (27%). Most teachers say that the use of computers and the internet led them to change their teaching methods (61%) and that the digital technologies allowed them to access more and diverse teaching materials (75%). The majority of teachers still complain about the lack of technical support at the school as well as the lack of pedagogical support to use computers to teach, and about the small number of computers available at the schools, which forces them to take their personal computers to school. All data are self-reported.

Most students in this same study report that they have learned to use computers on their own (45%), while a large number say they have learned it with others (39%)—only 11% say they have learned it with a teacher or educator at the school. Student reports about school activities are similar to the ones by teachers, with the most frequently cited activities including: looking up information online (86%), working on theme-based projects (79%), doing activities required by teachers (65%), and playing educational games (56%). For all activities related to school work, most students say that they are conducted with the use of computers (usually desktop models) and internet at home-and not at the school. In fact, school is usually their third option, with the second one being "another place" (not specified in the study). Students' home-based activity is currently possible given that most students report having a computer (66%) and internet connection at home (59%), but only 35% of the students have access to the internet through their cellular phones. While 73% of them say they have no difficulty in using a word processing program, and 47% of the students report having no difficulties using slide presentation software, 30% of the students report having some level of difficulty using the latter. Also, most students (59%) report having some level of difficulty using spreadsheet software (CETIC.br, 2011b). Data are also self-reported.

The experience of digital technologies and schools in Brazil in the past 40 years reflects in great part the history of the country's inequalities. This experience has been a heterogeneous one, with a few successful initiatives and a vast array of difficulties stemming from the history of the dilapidated public education system and teachers' weak professional preparation. As stated by Tavares (2003),

one cannot say that the history the computers in education in Brazil has been built on a steady basis, a coherent and consistent one. Projects started from the idea that