

# Technologies and Teacher's Motivational Style: A Research Study in Brazilian Public Schools

Magda Pischetola - Bruna Damiana Heinsfeld

Pontificia Universidade Católica do Rio de Janeiro - Departamento de Educação (Brazil)

DOI: <http://dx.doi.org/10.7358/ecps-2018-017-pisc>

magda@puc-rio.br  
brunadamiana@gmail.com

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TECNOLOGIE E STILE MOTIVAZIONALE DELL'INSEGNANTE:  
UNA INDAGINE CONDOTTA NELLE SCUOLE PUBBLICHE  
BRASILIANE

## ABSTRACT

*Information and Communications Technology (ICT) is increasingly a part of discussions on educational innovation and teaching practices. Research from the last decade points out the difficulty of integrating technologies in education and highlights the variety of elements favouring/preventing change in teaching and learning methods. In this article, we defend that the methodology adopted by teachers, their approach with regard to students in the classroom and what literature calls educational professionals' «motivational style» (Decy & Ryan, 1985 and 2000; Reeve, Bolt, & Cai, 1999; Guimarães & Boruchovitch, 2004; Pischetola, 2016) are the elements that most lead to a significant role for ICT in teaching practices. The discussion relies on self-determination theory and the assumption of the existence of more autonomy-supportive or more controlling teacher's motivating styles. Based on this premise, we present here a qualitative study undertaken between 2014 and 2016 at eight municipal primary schools in the city of Rio de Janeiro, Brazil. As a whole, we undertook 64 semi-structured interviews with teachers from the selected schools. The obtained results have allowed us to demonstrate a relationship between teachers' motivational style with the use of technology and the creation (or otherwise) of a dialogue-based and democratic space in the classroom.*

*Keywords:* Democracy; Education; Motivational style; Teaching; Technology.

## 1. INTRODUCTION

Information and Communications Technology (ICT) is increasingly a part of discussions on educational innovation, teaching practices and didactics. However, recent research establishes that teachers still find difficulty integrating technology in the classroom, due to various factors. Firstly, literature underlies the need of a good technological infrastructure in schools, facilities, access to the Internet and technical training (Negroponte, 1995; Hamelink, 2000; Warschauer, 2003; Eynon, 2008; Bonilla & Pretto, 2011; Bakir, 2016). In addition, the studies on digital inclusion indicate the essential need for on-going methodological training for the educational use of technology. Which can give the teachers some concrete ideas of how to integrate the ICT in their didactics (Bannell *et al.*, 2016; Pischetola, 2016). Research also highlights the importance of the social and school context for facilitating the use of digital tools. In this way, support from a school's management constitutes one of the elements that most stimulates the use of technology by teachers (Almeida & Franco, 2011; Cabrera, 2016).

It is hard to determine which elements promote changes in teaching and learning methods, with new tools existing for didactics. Even so, these are matters that need to be considered when we propose adopting digital technologies at schools. From the perspective that we embraced in this study, based on previous research, we defend that technical reasons are what influence least the inclusion of technologies in school contexts. On the contrary, we take as a starting point that the methodology adopted by teachers, their approach with regard to students in the classroom and what the literature of self-determination applied to pedagogy calls educational professionals' «motivational style» are the elements that most lead to a significant role for ICT in teaching practices.

Based on this initial hypothesis, between 2014 and 2016 we conducted a study of a qualitative nature on a set of eight municipal schools from different neighbourhoods in the city of Rio de Janeiro. At each school, the teachers were interviewed using a semi-structured interview protocol (Zago, 2003; Duarte, 2004), with the aim of understanding their approach when faced with the existence and incorporation of technology in their school routine.

The research results confirm the adopted theoretical premises and demonstrate a relationship between teachers' motivational style with the use of technology and the creation (or otherwise) of a dialogic and democratic space in the classroom.

## 2. TEACHERS' MOTIVATIONAL STYLE AND TECHNOLOGIES

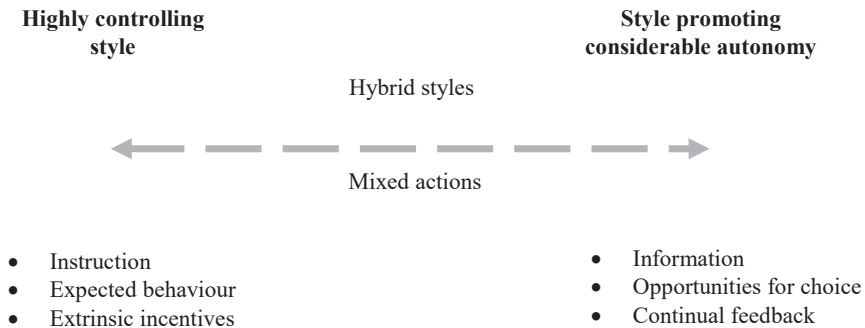
The literature on students' motivation to learn stresses the importance of teachers' actions. Following the self-determination theoretical approach, several studies point out that a didactical strategy focused on autonomy support is the primary driver of the increase of students' intrinsic and extrinsic motivation to learn. According to Ryan and Powelson (1991), the success of cognitive agendas in educational settings is dependent upon an affective process and a positive climate in the classroom. In addition, students' motivation is proven to be associated with the teachers' communicative style. Useful feedback about students' learning progress, for example, is related to stronger feelings of intrinsic motivation, better self-evaluations of developed skills and a reduction in anxiety (Noels, Clément, & Pelletier, 1999).

Whenever a person (be it a parent, teacher, boss, coach, or therapist) attempts to foster certain behaviors in others, the others' motivation for the behaviour can range from amotivation or unwillingness, to passive compliance, to active personal commitment. According to SDT [*Self-Determination Theory*], these different motivations reflect differing degrees to which the value and regulation of the requested behaviour have been internalized and integrated. Internalization refers to people's «taking in» a value or regulation, and integration refers to the further transformation of that regulation into their own so that, subsequently, it will emanate from their sense of self. (Ryan & Deci, 2000, p. 71)

Teachers' choice of specific didactic strategies is what authors call «motivational style» (Reeve, Bolt, & Cai, 1999). This concept includes two fundamental elements: (1) teachers' personality characteristics and (2) the skills they have acquired throughout their professional career. The former relates to teachers' approach with respect to their pupils, which approach can be more authoritarian or more dialogue-based. Among these skills, empathy stands out, in other words this being the predisposition to accept the perspective of others, as well as the power of language, which consists of valuing information or otherwise for establishing a relationship with students. Besides these elements, Guimarães and Boruchovitch (2004) stress that the teachers' motivational style is influenced by contextual factors, such as class size, interpersonal relations with work colleagues, parents and management, and the system for evaluating their work.

Research on motivational styles demonstrates the existence of a *continuum* of approaches between two polar opposites: on the one hand, a «highly controlling style» and, on the other, a «style promoting autonomy to a considerable degree» (Deci & Ryan, 1985). When one is closest to the controlling style, teachers' approach values their instructions, the expectation for

specific behavioural forms on the part of students and extrinsic motivation incentives, such as assessment for example. On the other hand, the closest one is to a professor whose style is to promote autonomy, the more importance information, empathy and dialogue with students take on. We stress that it is a *continuum* and, as such, there will be hybrid approaches between the two extremes, constituting the model that we have depicted in *Figure 1*.



*Figure 1. – Graphical depiction of the continuum of teachers' motivational styles.*

Now, thinking about teaching practices with the use of technology in the classroom, the challenge proposed in this paper is to understand the teachers' approaches and where on this imaginary *continuum* we can position them.

Since the beginning of the world wide web, many authors affirm that ICT allow for the creation of «communities of learners» inside the classroom (Brown & Campione, 1994; Mcloughlin, 1999; Elboj *et al.*, 2002; Yus, 2002). According to this perspective, technologies and virtual environments become a meeting place for independent subjects who share interests and undertake to work together. In this way, the virtual community presents a model based on participatory structures, task design, goal orientation and development of communicative processes, which support the learning needs of the participants (Mcloughlin, 1999).

Brown and Campione (1994) refer to this model as of one where a «guided discovery» process is fostered. In this frame, the teacher encourages participation, and effectively promotes learning through a guided process of personal discovery, and disciplined inquiry. The idea has its roots in the psychological learning theory that developed since 1960, and its implications for the educational practice. As the authors explain, these contemporary cognitive studies emphasize the active, self-conscious and self-directed

learning, and therefore replace the teacher as a facilitator in the classroom setting. With the advent and spread of ICT and the Internet, the literature on educational practices focuses even more on the model of a classroom as a community of learners.

Guided discovery, however, is not easy to coordinate and manage. What we observe in the Brazilian empirical field is that, with or without the involvement of technology, the classroom is still far from being a community of learners. In a context of considerable social change, schools feature an anachronistic curriculum and organization, which places them in deep crisis (Canário, 2006; Bannell *et al.*, 2016).

In a recent study about ICT uses in the classroom, Naumann and Pischetola (2017) propose that there are three different ways of viewing students: considering them as readers, critical readers or authors. The authors consider that different visions or beliefs held by teachers affect not just their relationship with students, but also their teaching strategies. Whenever the teacher considers the student mainly as a «reader» or as a receiver, the instructional approach prevails. Otherwise, different didactical strategies are used. To interact with students considering them as «critical readers», for example, will include the planning of teaching activities that comprise debate and discussion in the classroom. While considering the students as «authors» implies for a teacher to include activities that will foster production and creative thinking.

In other words, there are a number of important differences between using technologies in the classroom and building a space that could be considered a community of learners. Teachers are responsible for the decision to use technologies in the classroom and directing teaching activities toward student autonomy. This decision has a bearing on the manner in which teachers interact with their students and indicates the level of participation in classroom activities that they afford to students. In what way the teacher's motivational style ensures that students take advantage of the potentialities that technologies provide? How do teachers perceive themselves as professionals at this time of social change? What are the repercussions of their visions in the construction of democracy in the classroom?

We do not have the intention to answer so many questions, since they would involve more research and long-term analysis. However, in the search for response to some of the questions put forward, below we present a study covering teachers' approaches and their motivational styles, tying theoretical stances and teaching practices to the use of technologies.

### 3. MOTIVATIONAL STYLES AND TECHNOLOGIES: AN ACCOUNT OF FIELD RESEARCH

Throughout the 2015 academic year, we carried out a qualitative study at eight municipal public primary schools in the city of Rio de Janeiro, indicated by the Municipal Secretariat of Education for Rio de Janeiro as being schools with good teaching practices involving the use of technology. The main objective of the research was to learn about, analyse and evaluate teachers' views with respect to incorporation of digital technologies within school environments. The study, of a qualitative nature, made use of semi-structured interviews with eight teachers from each institution. The analysis of the 64 interviews undertaken made use of the methodological approach of *Data Grounded Theory* (Glaser & Strauss, 1967), with the objective of providing explanations for the actions of individuals, relating them to the social context of the study.

The results point to the existence of two quite polarized approaches, one tending towards a controlling style and another towards a style promoting autonomy. The discourse of the interviewees who undervalue the students' knowledge falls under the first category. Find some examples below:

I can even tell my students, encourage them to try and search [online] but when they're using the Internet, is it really what they're doing? Searching contents for my subject? (P12: 02.04)

What I see is that they [the students] waste a lot of time chatting and gossiping about someone else's life, while in the same amount of time they could actually work and realize a research online. (P13: 02.05)

On the other hand, theoretically technologies shall raise more interest in the students. But they actually don't, because the contents that they can find online do not really interest them ... (P46: 06.06)

When the student leaves the school, he looks for media, social networks mainly, for leisure. It's very rare that he uses them to learn anything at all. (P57: 08.02)

Upon returning our focus to the discourse of these teachers, we perceive the existence of a hierarchical relationship between what teachers understand as valid knowledge and pupils' practices. There is a pejorative value judgement of students' interests and of the manner in which digital technologies are used, at the same time in which academic and scholarly knowledge and other practices understood by teachers as suitable are overvalued. The discourse of these teachers features the already cited characteristics entailing proximity to a more controlling motivational style: valuing the actual teacher's instruc-

tion, expectations of behaviour deemed to be suitable and extrinsic incentives for student motivation.

Generally, teachers who describe students as merely seeking fun and poorly motivated for learning through technologies are also those who affirm having a didactical methodology that we could define as more controlling, under which the information flow is unilateral and the teacher is the one who decides the form of activities in the classroom. The following statements, for example, fall under this category:

For me, it doesn't often occur [the use of digital technology]. Also because they [the students] end up wanting to go other ways. Since they are online, they want to search other [stuff], and I can't handle thirty [students] ... I can't handle what they are doing. [...] I don't always use it but precisely for that: because I lose control. (P08: 01.08)

No, no. I'm the one who deals with it [digital technology]. I show the software on the board, go with them [the students], showing the pictures, and they keep on looking, or I use the municipal textbook. They also have the student's book, and I just zoom the sheets in [on the board]. [...] I use it, they just look. (P11: 02.03)

I don't use it [digital technology] in every class. Because I think that if I massify using it every class, I'll end up killing the magic, killing the charm that grows over it. (P16: 02.08)

Sometimes I listen to some discourses saying that we need to approve the use of smartphones in the classroom, and I'm strongly against it; I am. I don't believe that this indiscriminate use will make any difference in the student's learning process. (P19: 03.03)

In some cases, the interviewees emphasize the need to establish a rule for the use of technologies in the classroom. Once again, we observe that the interest in rules is related to the concern for control in the classroom and for student behaviour.

[*Talking from the student's perspective*] While I'm in the classroom, paying attention to something, I can't use it [the smartphone]. But if I want to search for some information about something interesting during the break time, or if I have already finished the class activity, I can't see why not. [*Talking from the teacher perspective*] So, in my classroom, I allow them to use it when they finish their duties. (P35: 05.03)

More often than one might think, they [the students] say: «I've searched. May I look it up on the mobile?». Then you see yourself in a tight spot. Then I say: «If just to a quick look up, you may». Because if you let them to keep search-

ing, in no time they will fall into something else. The limit is tenuous. So the rule is: you may just glance and stash it. (P02: 01.02)

The teaching process is shown to be centred around the teachers and around their decision-making role with respect to activities and to the use of digital technologies, even viewing their use as a measure for rewarding suitable behaviour. There is no mention of dialogue with students, of understanding their knowledge and of the potentialities in the classroom.

At the opposite end of our imaginary *continuum* of motivational styles, one finds discourse attributing greater value to pupils' knowledge, tending towards the style of promoting autonomy, such as the following examples.

[...] because there are so many resources nowadays that I try to use here [in the classroom] precisely what they enjoy seeing. (P14: 02.06)

So, they have a great practice using these resources [digital technology]. In these moments, they are so helpful. (P19: 03.03)

The relationship between media and school consists of a teaching and learning effort in which we may use the computer together with what the students bring to class, their knowledge, and their life experiences. [...] They work with digital technologies, they use them and what we do is to take advantage of their knowledge and embrace it in the class. (P21: 03.05)

So, they are already born within this culture; they deal with technologies and media in general, they deal with them fluently, with no prep course. There's no need to train them for this. They learn by themselves. One gives tips to another, and they keep exchanging and learning. [...] Of course they use the internet to other ends, but by any means, it is like knowing the world through those personal practices, like games and other activities. Anyway, the literacy is there. (P58: 08.03)

The highlighted statements feature relevant aspects in the promotion of autonomy, such as the valuing of pupils' knowledge with respect to technology and their knowledge of the world, dialogue, empathy and pursuit for active participation and for collaboration. These characteristics, as we said previously, are evidence of more democratic practices in the classroom. Find below some statements that demonstrate this style.

I think the use of digital technologies at school is important and what is most interesting is that we can create means so that our students can participate. So that they, with their collaborative opinion, may discuss the subjects and have the possibility to post it. (P16: 02.08)

The more you seek to learn from your students what already belongs to their culture, the easier it is for them to learn and deal with it [the digital technology]. But you need to be open to dialogue. (P19: 03.03)



But I think this reading, this dialogue, must always exist, in any circumstances of the teacher-student relationship. There must always be dialogue, right? (P27: 04.03)

I think we also need to keep more and more aware of what the youth likes ... what they want, what mobilize them and use the same means of communication. (P30: 04.06)

To be true, we teachers re-signify our practice based on this, on what the students bring to us. (P33: 05.01)

If the students have the facility to use the internet, they bring to the classroom the abilities they have developed; they bring this information to us. So, by the end of the year, I always ask them to perform an auto-evaluation. For me to be the mediator of knowledge, the more information they bring the better. Information is what allows an exchange. (P62: 08.07)

In the presented statements, we notice the characteristics of democratic practice, with an empathetic manner, which takes into consideration pupils' knowledge, and their preferences and seeks dialogue to improve practice. The learning and educational process is centred on students and on their interests, on participation and on active learning.

In brief, in our study, we observed the predominance of a discourse tending more towards the undervaluing of pupils' knowledge and authoritarian practices, exceeding in number that coming closer to the valuing of knowledge and democratic practices, geared towards autonomy. Out of the 64 interviewed teachers, 31 included in their discourse statements closer to the undervaluing of pupils' knowledge, whether interpreting it just as recreational or neglecting its existence, and to teachers' authority as a key part of the classroom, while 22 showed themselves to be closer to democratic and dialogue-based practice, demonstrating concern for establishing a favourable environment for the creation of a community of learning. This predominance shows us that, even today, teaching practice is in favour of a historically consolidated schooling culture, the focal point of which is teachers' knowledge and authority. From this, one infers the following: in order to achieve more democratic practices in the classroom, especially as concerns the use of digital technologies, it is necessary to redefine relations between students and teachers.

In any case, we understand that, due to dealing with a *continuum*, these are not strict, precise classifications, but rather are approximations. In this regard, we identified cases in which teachers' discourse is authoritarian at one point and democratic at another, reinforcing the idea that there are variables that influence these statements, such as the number of pupils in a class, the type of activity undertaken, school management and respective possible limi-

tations expressed by the teaching and assessment proposals, this being the case of 11 teachers. In this case, we inferred that there are contexts in which teachers display more or less authoritarianism or more or fewer democratic practices, classified as «hybrid». We perceive, furthermore, that all interviewees of a specific school (E07) demonstrated in their statements the prevalence of characteristics from the authoritarian end, with only two of these teachers being of the hybrid type, thereby confirming the influence of factors external to teachers in their motivational style (Figure 2).

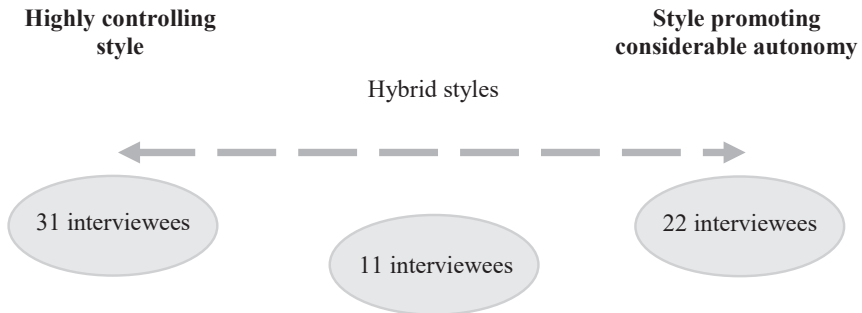


Figure 2. – Graphical depiction of the main results of the research.

Nevertheless, in the analysis of the interviews it was possible to observe another category of statements that does not fall just under the polarized motivational styles described above. It concerns teachers who do not emphasize or do not just emphasize either pupils' knowledge with respect to technologies or the lack of such knowledge, but who demonstrated distinctive reflexivity and an interesting self-questioning attitude. The focus of this vision is the teachers themselves, their responsibility with regard to teaching assessment and their guiding role with students.

There must be someone to guide the youth in the use of the internet. [...] We, who work with the youth, we realize that they don't really know how to use it very well. And they end up exposing themselves in negative ways when they shouldn't. (P05: 01.05)

They have this thing, and we need to encourage it. Because we are the school, so here is where we need to stimulate, but to the right path. (P13: 02.05)

You realize that the student is dealing with technology all the time, but the literacy issue is there, because the student needs an advisor, a teacher to intervene, to show how to use the medium in favor to their purpose, in their own

teaching-learning process. [...] They don't have this broad vision of how the technological resources may help them for learning. In their clear majority, they don't have this vision and they need, yes, they need the teacher as a mediator. (P19: 03.03)

They already come [to school] with the information, right? And so my practice goes towards this, towards showing the students how to deal with that information, how to reflect upon it, how to be critical. (P38: 05.06)

We can consider this last category as a characteristic existing crosswise to the motivational styles delineated in our *continuum*, relating to the self-reflection capacity of teachers. In fact, these interviewees demonstrated a capacity for self-criticism that we believe to be important in the job of a teacher and an interest in their students going beyond mere learning of educational contents, toward real pedagogical mediation (Berni, 2006; Sforzi & Vieira, 2010).

There were 14 teachers who put in doubt their practice in favour of mediation, representing a low proportion, with respect to the total of 64 interviewees. Out of these teachers, eight were closer to the controlling style, five to the style of promoting autonomy, while one of them displayed hybrid characteristics. In any case, as seen, the characteristics of putting in doubt one's own practice, emphasizing the role of mediator, point in a direction favourable to democratic practices, possibly indicating the start of a shift in the *continuum* for teachers positioned at the first end.

We deem that it is specifically in this process of mediation that «the intellectual role of teachers comes to light, a role which is not just one of bearer, interpreter and critic of a culture, but also of producer and discloser of knowledge» (Mellouki & Gauthier, 2004, p. 545).

#### 4. REFLECTIONS ON THE CONSTRUCTION OF DEMOCRACY IN THE CLASSROOM

Technology allows for «the creation of a new culture based on the sharing of information, interactivity and social engagement, opening a door for the introduction of new, relevant experiences in the area of education» (Pischedda, 2016, p. 66). For us, there is the understanding that the increase in the use of technologies within the scope of schools also involves the increase in the need for teachers to be more human and creative, in the search for creating a true community of learners in the classroom. The most democratic practices in our *continuum* of motivation styles, promoting autonomy, displayed themselves to be very favourable in this regard. In this scenario, the teacher mediator comes to light, who must seek to guide students in

their discoveries, including in this process their own creations and their pre-existing knowledge. To the extent that technology expands access to different information and knowledge, we understand that the classroom must be favourable, for example, to the development of critical hypertext analysis, under which students are encouraged to challenge common sense, to research and exchange their ideas, experiencing the transformation of the classroom into an «intellectual workshop» (Pischetola, 2016, p. 67).

Based on the theoretical grounds, research and data analysed here, we consider that one of the challenges of a teacher mediator is to establish specific objectives and appropriate methods for promoting education and significant learning with new media. As in other previous studies, we perceive here – upon analysing teachers' discourse as to their views on technology and on students' knowledge and practices – that one of the elements responsible for placing teachers at the more authoritarian end of our imaginary *continuum* is the fear of losing control of what happens in the classroom. Consequently, the fear of experimentation also comes to light. In order to come closer to the other end of the *continuum*, there is the need to overcome this fear.

For this, we understand that the cornerstone is dialogue; rethinking one's teaching practice and accepting no longer acting as the only possessor of knowledge, becoming, above all, an articulator. In this way, teachers and students are capable of working and learning together. This approach is closest to the motivational style promoting autonomy, listening to others, reflexivity and, ultimately, the construction of democracy in schools. It is our belief that this is also the basis to build a classroom as a community of learners, where critical thinking and knowledge sharing takes space, while individual interests and specificities do not lose their value.

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## RIASSUNTO

*Le Tecnologie dell'Informazione e della Comunicazione (TIC) fanno sempre più parte delle discussioni sull'innovazione educativa e sulle pratiche didattiche. La ricerca dell'ultimo decennio evidenzia la difficoltà di integrare le diverse tecnologie nell'istruzione e mette in luce la varietà di elementi che favoriscono/impediscono il cambiamento nei metodi di insegnamento e apprendimento. In questo articolo si intende dimostrare che la metodologia adottata dagli insegnanti, il loro approccio nei confronti degli studenti in classe e ciò che la letteratura chiama «stile motivazionale» degli educatori professionisti (Decy & Ryan, 1985 e 2000; Reeve, Bolt, & Cai, 1999; Guimarães & Boruchovitch, 2004; Pischetola, 2016) costituiscono gli elementi che maggiormente portano a un uso significativo delle TIC nelle pratiche didattiche. La discussione riprende la teoria dell'autodeterminazione e parte dall'esistenza di più stili motivanti che l'insegnante può adottare per supportare l'autono-*

*mia o il controllo. Sulla base di questa premessa, presentiamo qui uno studio qualitativo condotto tra il 2014 e il 2016 in otto scuole elementari municipali nella città di Rio de Janeiro, in Brasile. Nel complesso, abbiamo svolto 64 interviste semi-strutturate con insegnanti delle suddette scuole. I risultati ottenuti ci hanno permesso di evidenziare una relazione tra lo stile motivazionale degli insegnanti realizzato attraverso l'uso delle tecnologie e la creazione (o meno) di uno spazio basato sul dialogo democratico in classe.*

*Parole chiave:* Democrazia; Insegnamento; Istruzione; Stile motivazionale; Tecnologia.

*How to cite this Paper:* Pischetola, M., & Heinsfeld, B. D. (2018). Technologies and teacher's motivational style: A research study in Brazilian public schools [Tecnologie e stile motivazionale dell'insegnante: una indagine condotta nelle scuole pubbliche brasiliane]. *Journal of Educational, Cultural and Psychological Studies*, 17, 163-177. DOI: <http://dx.doi.org/10.7358/ecps-2018-017-pisc>

