

Education and the illusions of emancipation

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Published online: 14 January 2012
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Abstract In this article, I deal with the question of emancipation in education. In the first part of the article, I argue that contemporary concepts of emancipation are explicitly or implicitly related to the idea of the sovereign subject articulated by Kant and other philosophers of the Enlightenment. I contend that our modern enlightened concepts of emancipation rest on a dichotomy between an autonomous and self-sufficient subject and its sociocultural world. Referring to current research in mathematics education, I show how this dichotomy leads to intrinsic contradictions that haunt ongoing educational practices. These contradictions, I contend, are manifested in the hopeless efforts to bridge the gap between the deeds and thoughts of an autonomous individual and the regimes of reason and truth in which the individual finds itself subsumed. In particular, I argue that emancipation as understood in the enlightened modern sense remains a chimeric and unfulfillable dream. In the second part of the article, I suggest that emancipation can still be an orienting vector of educational practice and research, but it needs to be conceptualized differently: emancipation needs not be predicated in terms of individuals' freedom and individualist autonomy, but in critical–ethical terms.

Keywords Emancipation · Foucault · Marx · Arendt · Communal ethics · Presence in the world

1 Introduction: a grade 1 story

In a grade 1 class, Melissa is asked to solve subtraction problems. Melissa's method, the teacher observes, is different from the method that he has in mind. The teacher is afraid to induce Melissa into *his* method. After having given to the student several problems, the teacher decides to stop the line of enquiry. He “inferred that if he persisted he might merely train her to behave as *he* desired rather than encourage her to express *her* number concept in a novel way” (Cobb, 1988, p. 94; italics added).

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Behind the story is an assumed relationship between knowledge and the student that sets the parameters for what students and teachers can and cannot do. The relationship is based on two epistemological ideas: First, knowledge is something that subjects *make*. Second, the making of knowledge must be carried out with freedom from authority.

These epistemological ideas are in fact not new. The idea that knowledge is something that each one of us makes or constructs was part of the invention of the modern subject at the dawn of the modern era in the sixteenth century. As Arendt (1958a) argues, at the beginning of the modern era, there was a shift from *what* to *how*, that is, from *objects* themselves to *processes*. In this context, the possibility of knowing something no longer rested either on the discovery of its cosmic hidden sense or on tradition—as was the case in the Middle Ages. For the modern subject, the possibility of knowing something rests on understanding the *process* of its production. Against the background of the emergent mercantilist capitalism and its systematic new activities of manufacture and fabrication, *knowing* was gradually equated with *making* or *constructing*.

The second idea—i.e., that knowledge construction should be carried out with freedom from authority—is related to the concept of emancipation that became the hallmark of the Enlightenment. It was indeed in the course of this eighteenth century European cultural and political movement “aimed at liberating human beings from fear and installing them as masters” (Horkheimer & Adorno, 2002, p. 1), that a new notion of self as emancipated from tradition and power emerged. Interestingly enough, among the many ideas of the Enlightenment that have determined and still influence “what we are, what we think, and what we do today” (Foucault, 1984, p. 32), the idea of emancipation is perhaps (for reasons that shall become clear in the course of this article) one that continues to operate most actively in the various spheres of contemporary culture (whether as concrete practice or abstract ideology). Yet, such an idea is problematic on several counts. For one thing, it bears within itself a problem that is at the crux of ongoing educational practices, namely the relationship between freedom and truth. This is what the previous classroom story about Melissa and hundreds of similar stories from contemporary classrooms are about. Under inexhaustible disguises, these stories ask again and again the same question: How can freedom be exerted and emancipation achieved if truth has been defined in advance?

In this article, I pursue two goals. First, I want to underline some of the theoretical underpinnings and shortcomings of the alluded idea of emancipation in education. I shall argue that the idea is haunted by antinomies that cannot lead to emancipation, but rather to the illusion of its attainment: as the title of my article intimates, emancipation understood in the enlightened sense remains a chimeric and unfulfillable dream. Second, I want to argue that emancipation can still be an orienting vector of educational practice and research, but it needs to be conceptualized differently: emancipation needs not be predicated in terms of individuals’ freedom and individualist autonomy, but in critical–ethical terms.

2 The antinomies in the classroom

In their recent book, *Jacques Rancière: Education, Truth, Emancipation*, Bingham and Biesta note that, following the Enlightenment movement, education in the twentieth century came to be generally understood not as “the insertion of the individual into the existing social order” but, as an endeavor entailing “an orientation towards autonomy and freedom” (2010, p. 28).

Autonomy and freedom were indeed concepts clearly articulated at the end of the eighteenth century by Kant and other philosophers. Thus, in *The Metaphysics of Ethics*, Kant says: “autonomy is that property of will by which it determines its own causality, and

gives itself its own law” (1836, p. 62). In this sense, autonomy appeared first as the use of one’s own reason without outside guidance and came to be understood only later as the capacity for doing things without the help of others. In the educational context of the nineteenth and twentieth centuries, autonomy became synonymous not with being taught but with thinking and learning through one’s deeds. It is in this sense that intellectual autonomy constituted the cornerstone of French educator Joseph Jacotot’s (1770–1840) “Universal teaching” pedagogic program. “You do not know integral calculus,” Jacotot used to tell his students, “but you can learn it without explanations” (Jacotot, 1829). To be taught by someone else would be equivalent to relinquishing one’s intellectual capabilities and putting oneself in a lower position. It would amount to relinquishing emancipation. Jacotot’s fundamental message was that the only person who can teach a person is the person him or herself. Drawing on the same enlightened ideas, closer to us, we find Piaget towards the end of his life asserting that “The goal of intellectual education is in learning to master the truth by oneself” (1973, p. 106).

The aforementioned concept of autonomy and the ensuing concept of emancipation are haunted, however, by contradictions or *antinomies* that have uninterruptedly afflicted the modern subject since its historical inception. In the educational realm, the antinomies appear in different ways. In particular, they appear in the attempts to conciliate the subjective ideas and concepts that students generate in the classroom and the ideas and concepts crystallized in the school curriculum. Here, the teacher is put at a difficult juncture. Since in accordance with the enlightened principles, the students must construct knowledge by themselves, what is the teacher supposed to do if the students’ personal constructions do not correspond with the target knowledge? In *Autonomy and Education*, Robert Dearden—a member of the famous 1970s School of London—presents the teacher’s dilemma as follows:

For a child may self-directedly engage in some piece of enquiry, but come up with quite the wrong answer, or be quite mistaken in what he takes into account. The teacher might then feel pulled in two ways: should he correct the child in some way, out of respect for truth, or should his concern be more for strengthening the child’s concept of himself as ready to engage in independent activity? (Dearden, 1972, pp. 455–456)

The enlightened conception of individuals would lead us to opt for the second option. However, this option is beset with difficulties.

Indeed, it does not seem reasonable to expect that the child (working alone or in collaborative groups) would be capable of reconstructing by him/herself the complex theories featured in the curriculum. As Christine Howe notes,

no matter what its significance, group work among children will never be sufficient to deliver the science curriculum. Children working with each other are not going to construct Newton’s laws or Darwin’s theory of evolution, nor, given the difficulties that adults are known to experience (Dunbar & Fuselgang, 2005; Kuhn, Amsel, & O’Loughlin, 1988), are they going to master the full intricacies of hypothesis testing. (Howes, 2009, p. 93)

To cope with this practical situation, often, the teacher is portrayed as a facilitator or as a guide. However, it is not clear where the limits of the teacher’s facilitating or guiding acts reside. How can teachers ensure that in their interaction with the student, they are not trespassing on the space of the subject’s free and autonomous constructions and “independent activity”? How must they ensure that they are not unwillingly imposing their own meanings on the student? In accordance with the emancipatory epistemology, knowledge is not something that you can construct yourself and give to someone else or something you can induce people into. It has to be *yours*.

The teacher's difficult juncture is not a matter of mere factual technicalities. It results from something deeper than a pragmatic problem. The teacher's difficult juncture is an *expression* of the antinomies that result from specific theoretical conceptualizations of the individual and the manner in which the individual relates to knowledge. More specifically, the antinomies result from the *subjectivist* view of the world espoused by modernity (a world thought of as made and known by and through the individual's deeds) and the cultural regimes of reason and truth that precede the individual's own activity.

It is perhaps in the theory of didactic situations (Brousseau, 1997) that the antinomies have been expressed in the clearest way. They appear as "paradoxes" that the teacher and the student have to face. Brousseau explains the teacher's paradox as follows:

Everything that she [the teacher] undertakes in order to make the student produce the behaviors that she expects tends to deprive this student of the necessary conditions for the understanding and the learning of the target notion; if the teacher says what it is that she wants, she can no longer obtain it. (Brousseau, 1997, p. 41)

If the teacher shows the student how to solve the problem, the student "does not make it her own" (Brousseau, 1997, p. 42). Learning hence has not occurred. The solution, Brousseau tells us, is this: "Between the moment the student accepts the problem as if it were her own and the moment when she produces her answer, the teacher refrains from interfering and suggesting the knowledge that she wants to see appear" (Brousseau, 1997, p. 30). By refraining, the teacher provides the student with the required room for autonomous action to occur. Inscribed in a long tradition of educational research, the student appears portrayed as someone who "already knows [her] business, one that requires only a facilitative grooming to become more fully socialized and intellectually engaged" (Martin, 2004, p. 197).

Although Brousseau presents the antinomies as an unavoidable characteristic of learning, they are, I want to argue instead, the result of forms of classroom knowledge production that emphasize the subject as an autonomous producer of knowledge against an undoable separation between the subject and the sociocultural world. On the one hand, the subject is considered, and expected to act, as the foundation of meanings, thoughts, and feelings, while on the other hand, she is unavoidably engulfed in discourses and epistemes (i.e., systems of thinking) that are not her own. In this context of self-construction of knowledge, the teacher is imbued with the ambiguous role of the student's "guide" or "facilitator." The teacher is there, obliquely, residing in the background, mediating the poles of subjectivism and regimes of truth. The teacher is there, but not really. The teacher becomes a "familiar figure" since he/she is somehow always there, yet "enigmatic" (Chevallard, 1997) as we don't know exactly what his/her function really is. As Chevallard puts it, "le didactique est coextensif à l'étude. Il y a 'du didactique' pour autant qu'il y a 'de l'étude'. Qu'il y ait un 'professeur' importe peu" (1997, p. 1).¹

My previous comments should not be understood as a plea for a return to something like direct teaching. Unfortunately, we have become used to thinking that either students construct their own knowledge or knowledge is imposed upon them. This is a too easy and misleading oversimplification—what Lerman has termed the "absolutist view" about learning (Lerman, 1996). My previous comments are rather an attempt to understand some of the difficulties that derive from adopting a concept of the student modeled in accordance with the enlightened principles of autonomy and freedom. As I shall argue later, the point is not to dismiss the importance of autonomy and freedom, but to recast them in different ways.

¹ Let me attempt a translation here: "Didactic is coextensive with study. There is didactic as long as there is [something to] study. Whether or not there is a 'teacher' matters little."

But we are not there yet. In this section, we have seen one of the expressions of the antinomies—one of the manners in which they manifest themselves in practice. Now, we need to go a step further and better understand these antinomies. This is what I try to accomplish in the next section, where I turn to a discussion of their specific historic-epistemic nature.

3 The nature of the antinomies

Since its historical inception, the modern subject appeared entangled in the conception of a world seen as constructed from a *first-person perspective*: “I ‘know’ a thing whenever I understand how it has come into being” (Arendt, 1958a, p. 585, emphasis added). At the same time, the subject could not escape the fact that it found itself subsumed into a world constituted by regimes of truth and discourses, meanings and significations, that pre-exist the subject itself. Since its inception, the modern subject was thus led to a view in which the world appears as *subjectified* and yet shows a dimension that transcends the subject as such: an independent or reified world (from reification in its etymological sense, that is, “*res*”: thing, and “*-fication*”: made).

The poles of subjectivism and reification did not appear out of the blue. They were the result of the new forms of production and social relations that modernity brought with it, producing a kind of *estrangement* that was absent from medieval forms of production based on an economy of subsistence. As German social theorist Theodor Adorno put it, the estrangement expresses

the essential antinomy of bourgeois society in general ... [where] human beings have increasingly made the world in their own image, and the world has become progressively theirs. At the same time, however, the world has increasingly become a world that dominates them. (Adorno, 2001, p. 115)

Naturally, the estrangement appears in all spheres of human action. Thus, in modern literature, Lukács notes, “the hero is strictly confined within the limits of his own experience. There is not for him...any pre-existing reality beyond his own self” (Lukács, 1963, p. 21). He goes on to say that “By exalting man’s subjectivity, at the expenses of the objective reality of his environment, man’s subjectivity itself is impoverished” (p. 24). This last point was very well illustrated by Eric Fromm. Goethe, Fromm says, gives us the most poetic and powerful expression to antinomies of the modern subject in his *Faust*: “Neither possession, nor power, nor sensuous satisfaction, Faust teaches, can fulfill man’s desire for meaning in his life; he remains in all this separate from the whole, hence unhappy” (Fromm, 1961, p. 29). The Greek poet Constantine Cavafy offers us a precise description of this agonizing separation of the subject from the world in his 1897 poem *Walls*. He says:

Without consideration, without pity, without shame/they have built big and high walls around me.//And now I sit here despairing./I think of nothing else: this fate gnaws at my mind;//for I had many things to do outside./Ah why didn’t I observe them when they were building the walls?//But I never heard the noise or the sound of the builders./Imperceptibly they shut me out of the world. (Cavafy, 1976, p. 17)

It is precisely this curious, peculiar, painful, and paradoxical situation of the modern subject that Foucault discusses in the last part of *The Order of Things*. In an important sense, Foucault’s work is an attempt to disentangle the meaning of a subject that announced itself as sovereign, free, autonomous, and auto-sufficient, and whose emancipation is, in the end,

but a form of alienation. He asks: “Can I say that I am this labour I perform with my hands, yet which escapes me not only when I have finished it, but even before I have begun it?” (Foucault, 1966, p. 335; translation (slightly modified) in Foucault, 1994, p. 323). How can the modern subject be the locus of meaning, feeling, and intentionality if it has to talk, feel and intend through thoughts and words that are not its own?

can I, in fact, say that I am this language I speak, into which my thought insinuates itself to the point of finding in it the system of all its own possibilities, yet which exists only in the weight of sedimentations [that] my thought will never be capable of actualizing altogether? (Foucault, 1966, p. 335; translation in Foucault, 1994, p. 323)

To sum up, the antinomies of the modern subject result from a fundamental *dichotomy* that, historically speaking, emerged in the transition from medieval to capitalist forms of production. On the one hand lies the subject conceived of itself as master of its destiny; on the other hand lie the regimes of truth, the discourses, and the significations of the sociocultural world in which the subject finds itself subsumed. As Foucault (1966), Sartre (1943), Camus (1996), Lacan (1966), and many other thinkers have shown, the difficult existence of the modern self unfolds against the unbearable backdrop of this dichotomy and its ensuing antinomies. The antinomies cannot be erased: they are part of the modern forms of production—the very same forms that define the modern subject. These antinomies appear in all activities of human culture, such as art, literature, and education. In education, the antinomies appear in different ways; one of them, as previously shown, is around the role of the teacher. They also appear elsewhere. They appear with great force around the role of the school. Indeed, while schools are often portrayed as social environments where the students find a stimulating space for self-growth and development of their own potentialities, schools turn out to be institutional places where students are shaped and pathologized by school practices, the result being that emancipation ends up in pure fantasy. As we shall see in the next section, Foucault’s work has been particularly enlightening in unveiling this paradoxical situation.

4 The institutional constitution of the student

In *The Order of Things*, Foucault asks:

How can man think what he does not think . . . How can he be the subject of a language that for thousands of years has been formed without him, a language whose organization escapes him . . . and within which he is obliged, from the very outset, to lodge his speech and thought? (1994, p. 322)

Foucault used to refer to this transcendental dimension of the subject as *l’impensé*, the unthought. The unthought constitutes that realm of culture that escapes and eludes the reflective activity of the subject and its consciousness, yet constitutes the subject in a founding manner—a region inhabited by “dim mechanisms, faceless determinations, a whole landscape of shadow that has been termed, directly or indirectly, the unconscious” (1966, p. 337; translation, 1994, p. 325).

An important branch of Foucauldian educational research has attempted to investigate those “dim mechanisms,” “faceless determinations,” and “whole landscape of shadows” that surreptitiously shape the subject. Within this line of research, considerable efforts have been made to come to terms with the problem of a subject that thought itself as sovereign and found itself spoken by others’ discourses and ideas. For, from this Copernican and painful discovery, the subject has been left with

the necessity of thinking the unthought... of ending man's [*sic*] alienation by reconciling him with his own essence, of making explicit the horizon that provides experience with its background of immediate and disarmed proof, of lifting the veil of the Unconscious, of becoming absorbed in its silence, or of straining to catch its endless murmur. (Foucault, 1966, p. 338; translation 1994, p. 326)

Foucault's insights have produced a wealth of research in education. One of the pioneer works was done by Valerie Walkerdine who, among other things, called attention to the manner in which students are produced by the practices of school. She says: "the regulation of the practice contains subject positions through which the truth about the child is produced. The practice, therefore, contains not only modes of regulation, but actual ways of understanding and describing the children in the classroom" (1997, p. 64). Thus, "In the child-centered pedagogy, the "child" is defined in relation to certain developmental accomplishments" (1997, p. 63), but, as she showed, the very practices that claim to discover those developmental accomplishments also produce them. The student becomes pathologized "within the truths of child development" (p. 64; see also Walkerdine, 1988).

Although not unrelated to Walkerdine's production-of-subjects-in-practice research stream, another strand in contemporary educational research has focused on the question of emancipation and the eliciting of oppressive structures (e.g., Atkinson, 2000; Giroux, 1987, 1989). Many efforts have been made to investigate the subtle mechanisms of power and subjection that operate at different levels of education, from general policies, to curriculum design, to the political construction of the student. Thomas Popkewitz, for instance, refers to pedagogy as a form of alchemy, something "analogous to the medieval metallurgy that sought to transmute base metals into gold" (2004, p. 4). Popkewitz inquires into the *standards-based reform* and its search for equity. In a penetrating and interesting analysis, he shows how the reform, through its measuring tools, regulatory mechanisms, and normalization devices, works as a form of governance. He pays particular attention to problem solving. Popkewitz shows that, like communication and cooperation, problem solving is presented as "the objective, impartial management of the capabilities of people who are to become autonomous learners in the classroom" (2004, p. 13). At another level, though, problem solving works as part of the regulatory practices of schools that fabricate human kinds—e.g., the "problem-solver child." Popkewitz relates the school's contemporary regulatory practices to the church's pastoral, confessional power in earlier times. Our pedagogical regulatory practices are the modern, "scientific" strategies "of governing the moral development and liberation of the individual" (p. 13). He argues that "The narrative of the National Standards of Teachers of Mathematics (2000) places the learning of mathematics in a political context in which a child is ethically obligated to work continually toward self-improvement and self-motivation" (p. 14), and does not miss the opportunity to bring forward the question of autonomy that, as we mentioned previously, has been at the heart of the emancipatory pedagogy since the Enlightenment. He quotes the National Council of Teachers of Mathematics (NCTM) document: "A major goal of school mathematics programs is to create autonomous learners" (Popkewitz, 2004, p. 14). To show the impossible attainment of the goal, Popkewitz notes that the NCTM curriculum is organized around the "conventional ideas" of mathematics:

The notion of conventional ideas is one that assumes that mathematics has a "nature" and logical "structure" that children are to be taught... "Conventional ideas," "nature," and "structure" refer to a belief in an essential, deep, and underlying universal core knowledge of mathematics that a curriculum selects for instruction. (p. 18)

Of course, this curricular feature of selecting conventional ideas, highlighting some core knowledge, etc. is not specific to NCTM. It is true of all curricula. What is interesting is that the focus on conventional ideas is based on a particular choice that conveys unavoidable views and normative elements of science and its experts. As a result, the child is not really free to choose. The child's freedom is merely the effect of an illusion. Truth and techniques do not come from the child, but from science:

The child is an agent who uses the formulas and proper applications of the modeling techniques of mathematics to test and attest the given-ness of the external world. Problem solving becomes a strategy to make apparent the expertise of science as the arbiter of truth and falsehood. (Popkewitz, 2004, pp. 21–22)

We should not be misled in believing that the students of the reformed classrooms are more active, since in one way or the other their involvement is limited to the modeling of arguments of conventional mathematics:

Although conceptions of “participatory structures” and a “community of learners” emphasize children’s involvement, that involvement directs the children’s attention to propositions that have already been confirmed in the a priori world of schooling and mathematics education research. Mathematics is a tool to test and confirm a given empirical world. (Popkewitz, 2004, p. 21)

Even if the students are portrayed as being empowered by virtue of their belonging to a community, the pedagogical “alchemy inserts the expertise of science as a secure model for telling the truth of a given reality” (Popkewitz, 2004, p. 22). This is why, “What seems democratic in ‘problem solving’ and collaboration... may be neither democratic nor useful when the internments and enclosures are diagnosed” (pp. 27–28).

Here, Popkewitz is talking to us from the profound subbasements where the antinomies of the modern subject lie. Truth is dictated by science and mathematics’ respective regimes of truth, which serve to structure what is to be expected from the subject: for instance, in grades 3–5, students are expected to identify some characteristics of quadrilaterals; in grades 6–8, they are expected to make generalizations, and so on. We see here how, through the curriculum expectations, the student, to rephrase Foucault, is obliged from the very outset to lodge his speech and thought in something that is not of his/her own doing. In the subjective pole, the subject lives the illusion of his/her freedom, believing that he/she is constructing his/her *own* knowledge, while in actual fact truth has been defined beforehand and lies now in a language whose organization escapes him/her (Foucault, 1966).

The question is: is there a possibility for redemption within these parameters? To respond optimistically, the chances seem to be tiny. Emancipation seems to slip out of our hands. At the end of the day, the Foucauldian search for the “end of man’s [*sic*] alienation” is still hanging over us.

In the next section, drawing on the philosophies of Arendt, Freire, and Marx, I articulate a different option where emancipation is considered as an *ethical* and *political* project that can only be put in motion through the encouragement of forms of solidarity, trust, sharing, and a commitment to improving the quality of human life.

5 Historical–cultural approaches to education

In *Introduction to the Critique of Political Economy*, Marx suggested that the investigations of what individuals are, do, think, and feel in any historical period should distinguish

between two general interrelated categories: one dealing with cultural historical forms of human interaction and cooperation (in Marx's terms, *relations of production*), and the other dealing with the "technological or material" dimension through which individuals produce their means of subsistence and fulfill their needs (i.e., *modes of production*). In 1859, Marx refers to this distinction as "The general conclusion at which I arrived and which, once reached, became the guiding principle of my studies" (1970, p. 20). This distinction allowed Marx to show that in modern societies the idea of the social (e.g., interaction, relations among individuals, etc.) becomes subjected to, and defined by, the capitalist forms of production. Indeed, within the capitalist forms of production, individuals become reified and dispensable subjects. These two categories can help us better understand how current liberal political societal organizations transpose their capitalist relations and modes of production to the school.

Classroom modes of production are conceptualized through market utilitarian lenses that frame the students as private owners (they *exchange* their ideas; they *negotiate* their meanings, etc.). The result is very simple: we produce for consumption students who keep asking us about the usefulness of the mathematics we teach them, and we innocently continue to be surprised by their question. In the transposition of the market paradigm into the school, curricular knowledge becomes more and more reduced to that which can be translated into economic terms.

In a similar way, classroom relations of production are conceptualized through market utilitarian lenses. Communication and interaction remain framed by the logic of individualism and self-interest. Communication is good if the student learns more than he or she would if working alone. This is still the "me-perspective": I am willing to transact with you if, at the end, *my* wealth (here knowledge) increases. In accordance with the capitalist forms of life, the emphasis is on material advancement in detriment to a genuine social dimension: within the contemporary liberal orientation, we see that in society and in our schools,

the legitimately feasible objectives of human activity *must* be conceptualized in terms of material advancement through the agency of the natural sciences, remaining blind to the *social dimension* of human existence in other than essentially functional/operative and manipulative terms. For an alternative view would necessitate abandoning the "standpoint of political economy," equivalent to the vantage point of capital, which must see even in living labour nothing but a "material factor of production." (Mészáros, 2010, p. 29; italics in the original)

Marx's distinction between relations and modes of production is powerful not only in offering understandings about how schools are modeled in accordance with the political and economic context in which they are embedded (see Baldino & Cabral, 1998; Pais, 2011, 2012; Valero & Zevenbergen, 2004). Marx's distinction offers also the possibility to oppose the current state of affairs, to envision new forms of action, and to rethink the question of emancipation. A possible solution, I want to suggest, consists in redefining the relationship that Marx's categories bear in capitalist societies, where—as I just mentioned—consumerist modes of production determine and define the forms of interaction between humans. We can try to go the other way around. In fact, Marx paved the road through his concept of *labour* or *praxis*. Marx's concept of labour is mediated by relations and modes of production. However, it does not have the utilitarian and selfish stance that it has come to have in capitalist societies. Labour—this social form of *joint* action through which individuals produce their means of subsistence—"comprises notions of self-expression, rational development, and aesthetic enjoyment" (Donham, 1999, p. 55). For Marx, then, it is through labour that individuals develop and become themselves. Marx used to refer to labour as the expression

of a definite way of life, as the self-expression of the subject, in a way that ineluctably ties it to other subjects in a genuinely cooperative manner. Labour can be envisioned as a form of life whose product is *the existence of the individual for the others*. As Marx put it, labour

must not be considered simply as being the reproduction of the physical existence of the individuals. Rather, it is a definite form of activity of these individuals. A definite form of expressing their life, a definite *mode of life* on their part. As individuals express their life, so they are. What they are, therefore, coincides with their production, both with *what* they produce and with *how* they produce. (Marx, 1998, p. 37; italics in the original)

We can consider teaching and learning as an instance of labour in the aforementioned sense. We can even go further and consider teaching and learning not as two separate activities (one carried out by a shepherding teacher, and another carried out by autonomous students) but as a *single* and *inseparable* activity—one for which Vygotsky used the Russian word *obuchenie*. In this context, teaching–learning is *the expression of a definite way of life*: a social–political space where teachers *and* students labour *together* to become what Freire (2004, p. 98) called a “presence in the world,” that is to say, to become individuals who are more than *in* the world, individuals who relate to each other, intervene, transform, dream, apprehend, and hope.

Becoming a presence in the world is not a natural process; it occurs against the background of history and culture. It acknowledges the fact that when we arrive *in* the world, the world in front of us has already been populated not only with material objects but also with systems of thought—e.g., esthetic, scientific, artistic, ethic, forms of thinking, and being. *Natality* is thus the arrival of newcomers into an already existing world with its tensions, problems, dreams, and contradictions. It is a new beginning that makes “itself felt in the world only because the newcomer possesses the capacity of beginning something anew” (Arendt, 1958b, p. 9) and hence the power to transform the world.

Natality is the first step towards becoming a presence in the world. And presence in the world is *not* about fleeing from cultural forms of thinking because they are not *ours*, because others have formed them before us. On the contrary, presence in the world requires the critical encounter with, and immersion in, those always evolving cultural–historical forms of thinking. That is, it requires valuating, revaluating, holding, refining, improving, discarding, and contesting them, and creating new ones (Radford, 2008). To become a presence in the world, in short, is a kind of second birth through which we come to critically appear in the public space: it is, Arendt argues, “like a second birth, in which we confirm and take upon ourselves the naked fact of our original physical appearance” (Arendt, 1958b, pp. 175–76).

Within this context, teaching–learning as a genuine, non-alienating form of life, rests on relations and modes of production that are neither utilitarian nor student-centered in orientation. In the first case, we would still be in the market model of education. In the second case, we would still be nailing the students to the realms of subjectivism and its ensuing alienating worldviews. In tune with the general ideas of “labour” and “presence in the world,” relations and modes of production, I want to suggest, can be guided by a *communal ethics* that promotes participation in the public space, openness, solidarity, a sense of belonging, and critical awareness. To the ethic of market that makes us dispensable pieces of an economic game, and to the ethic of individualism that only accepts something as worthy of knowing if it comes from the individual itself, the cultural–historical approach that I am sketching here puts forth instead a communal ethics that emphasizes commitment, answerability, and caring (Bakhtin, 1990; Heidegger, 1962; Lévinas, 2006).

From this perspective, school mathematics does not need to appear as the imposition of scientific viewpoints constructed by others, as in Popkewitz's account. Of course, to a very large extent, the teaching and learning of mathematics has been *that*. As Piaget put it in a famous book he wrote in 1932, "school still remains the system of monarchical authority" (2004, p. 372). Were he able to come back among us today, he would be terrified to realize that things have changed little. The point, however, is that it does not need to be like that. Mathematics can also be considered a form of knowing and feeling worthy of investigating, improving, criticizing, subverting, etc. What is important in teaching–learning mathematics is not really to become a good problem solver. Although knowing how to solve problems in a technical sense may be an important goal, more important, I think, is the range of possibilities that mathematics offers to our students to live it as a social, historical, cultural, and esthetic experience. But to be truly meaningful, this experience has to occur in the public space of words, deeds and actions—in the *polis*, that is to say, the organized space of the people "as it arises out of acting and speaking together" (Arendt, 1958b, p. 198). From this viewpoint, emancipation is not to be found in the ascetic deeds of the hermit. Nor is it to come to own oneself and be free and independent. Emancipation can only occur in the common world where we come to recognize ourselves as historical and political beings and where we critically labor together to make this collective space better for all.

6 Presence in the common world

The previous ideas are the organizing principles of our classroom research. Our efforts are directed towards the creation of conditions of possibility for the students to become presences in the world. Thus, in ongoing 6-year longitudinal classroom research involving a class of students with which we have been working since when the students were in grade 2, the students, who always work in small groups of two to four, are frequently invited to *care* about the other students. Drawing on Heidegger, *care* (Sorge) is for us a central aspect of our relationship towards others; it entails *concern* (Besorgen) and is part of being as *being-with-others* (Radford, 2008). Although *concern* may become something of a patriarchal attitude, and hence a form of subjection, in genuine care concern appears as a relation of fraternity and solidarity—an authentic human bond. As an example, in grade 3, one of the students, 8-year-old Emma, turned to Martine, her teammate who expressed worries about not being capable of coping with the task at hand, and said: "Don't worry. If you do not understand, I'll help you."

To create conditions of possibility for the students to become presences in the world, the teachers with whom we work invite the students to listen to what other students have to say and to try to understand them. Understanding consists not only of the mathematics ideas that students express in speech and deeds. Understanding is certainly this, but it is much more too. It is the understanding of *another presence*, and as such goes beyond the cognitive realm. The understanding of Others, Heidegger says, "is not an acquaintance derived from knowledge about them, but a primordially existential kind of Being, which, more than anything else, makes such knowledge and acquaintance possible" (1962, p. 161).

During the lessons, our teachers endeavor to make students sensible to the importance of assuming a responsible role in the life of the classroom. We consider *responsibility* as a mode of answering to, and engaging with, the call of the other. While care is directed to the other, responsibility is an ethical act whose fundamental feature is to be dialogical (Bakhtin, 1990). It is an ethical act towards the other that involves answerability. Responsibility is part of a process of subjectification, a process through which one becomes a presence in the world.

To promote relations of production that emphasize non-individualistic or utilitarian forms of interaction we encourage teamwork. Yet, we are aware that teamwork is not enough. Although teamwork may be considered as a means to elicit cooperative forms of interaction and to constitute a primary type of “semiotic means of subjectification” (to borrow Jose Gutierrez’s term; personal communication, June 21, 2011), the creation of a *common world* (Arendt, 1958b) requires going further so that the classroom can become a *critical* cultural encounter of voices and intelligences in the manner of action and speech. To this end, we invite the teams to discuss their work with other teams. This pedagogical action allows the students to interpret in a critical manner the work of others and to see how other classmates consider their own work. The critical appraisal of the work is conducted around three themes: (1) Is the work clear? (2) Do we find the answer to be right? (3) Do we find the solution convincing? The first theme is an invitation to see mathematical texts as directed to someone. It involves taking the perspective of the other. It allows us to address the question of what in the Middle Ages was referred to as *alteritas* (alterity) and considered already as an essential feature of being human—a key feature revived later by thinkers such as Vygotsky, Freud, Lacan, and Bakhtin. The second theme concerns what is thought to be a right answer. Since a text can be clear, in the sense that the reader *understands* it, and the solution correct without being convincing, the third theme addresses this point.

In the first step, the students work in teams to produce a text (see Fig. 1, pics. 1 and 2). In the second step, teams are paired. One text goes to the paired team, and vice versa. Each team proceeds to read and evaluate the other team’s production according to the three aforementioned themes (see Fig. 1, pic. 3). Once they have finished critically studying the other team’s text, the two teams get together (see Fig. 1, pic. 4). They present their results, emphasizing what they like about the text and what they think should be improved and how. The teams react to the critique, and as a last step, they work together in trying to come up with a text that would be an improvement of what was initially submitted.



Pic 1



Pic 2



Pic 3



Pic 4

Fig. 1 In *pic. 1* and *pic. 2*, teams 1 and 4 work towards the production of a mathematics text. In *pic. 3*, team 1 critically examines team 4’s text. In *pic. 4*, the members of teams 1 and 4 meet to discuss their texts

As an example, in one of our lessons, 8–9-year-old grade 3 students worked in teams to produce a text that included: a story of their invention, the translation of the story into an algebraic equation, and the solution of the equation. During the encounter between teams, team 4 (T4) discussed with team 1 (T1). T4 started telling T1 what they liked about their text:

1. Carl (T4): (*Addressing theme 1*) Um, what we liked about your story is that it was clear, it was nice, there was no mistake, we could read it well. That's about your story.
2. Sandra (T4): (*Talking about the solution and addressing theme 2*) Here, here what we liked is that you put "envelope=4."

Then, they pointed out what they did not like:

3. Carl (T4): What we did not like... You did not put the equal sign in the equation.
4. Sandra (T4): And you have to put it.
5. Carl (T4): (*Addressing theme 3*) You did not [remove the equation terms] one at the time. . .

Team 1 agreed with team 4's remarks. When it was team 4's turn, T4 argued that T1's story did not include a question in the story and that without a question one cannot know what one is looking for. When the teacher arrived, she found the students in a vivid and unsettled discussion. They summarize their discussion for her.

6. Teacher: So (*talking to Team 1*), is there a question missing?
7. Christina (T1): There is no question! (*Answering the teacher's question*) Yes!
8. Elisa (T1): Yes, the question is missing!
9. Teacher: Ah! but why do you think that...
10. Carl (T4): (*Interrupting*) Yeah, but...
11. Teacher: (*Talking to Carl*) We'll ask the question here (*meaning T1*)... That's OK, you will be able to defend yourself. (*Talking to T1*). Why do you think that it is important to ask a question?
12. Christina (T1): Because if you don't, what are you going to do?
13. Sandra (T4): You don't need to ask a question!

The discussion continued without agreement for a while before the teacher decided to ask:

14. Teacher: For someone who is reading the story ... do you think that it is important to ask the question?
15. Carl (T4) I would say no...
16. Teacher: I do think that in a story like this, it is important to have a question if ...

In the end, the question remained unsettled. And the goal was not to settle it. The goal, as mentioned previously, was to create the conditions of possibility for the students and the teacher to become presences in the world. To do so, the students have to appear in the common world through actions and speech. Speaking, of course, entails risk. Its reward is coming to inhabit a common world and making it home. As Canadian philosopher John Russon puts it, "It is only through risking ourselves—exposing ourselves, beyond the comfortable terms of familiar life, to a unknown, beckoning alien reality—that we grow, that we come to inhabit a deeper, richer and more substantial home" (2010, p. 5). It is in this social cognitive–affective *joint* venture, in labor, in making our voices heard, in critically

positioning ourselves within the common world that the alien reality may become familiar and alienation may be overcome.

7 Synthesis and concluding remarks

“I am only truly free when the other is also free” (Hegel, 1978, p. 57).

In the first part of this paper I suggested that, to a large extent, directly or indirectly, contemporary concepts of emancipation draw from the Enlightenment idea of emancipation and its correlated notions of freedom and autonomy. These ideas have played a fundamental role in the practical or ideological characterization of the modern subject since its historical inception (Elias, 1991; Horkheimer & Adorno, 2002) and have served to inform education and its concept of the student.² Yet, these concepts of emancipation, freedom and autonomy remain haunted by antinomies that resulted from a fundamental historical *separation* between the individual and its sociocultural world. They cannot be erased: they are part of the modern forms of production—the very same forms that define the modern subject. I argued that as education has been progressively shaped in accordance with the parameters of the neoliberal expansionist market, there has been an increased emphasis on subjectivism, expressed through concerns with freedom and autonomy. Although laudable in principle, these concerns are nonetheless flawed by the individualist stance that they convey. Indeed, it would be naïve to think of these ideas as purely humanistic. They responded to the needs of the evolving seventeenth and eighteenth century liberal economy. They were formulated within the power struggle of capitalist entrepreneurs who, seeking to open up spaces for free trade, wanted to overcome the constraints of monarchic power. Capitalism sought to liberate its agents from monarchic rules and to endow them with “the principle of free participation in the competitive market” (Russon, 2010, p. 10), a principle that was formulated as free individuality, “the idea that all individuals have a right—a universal human right—to direct themselves and to dispose of themselves according to their own values” (p. 10). The search for enlightened freedom and universal human rights was in fact a search of bourgeois interest. This is why “for all its liberatory potential this principle of ‘universal human rights’ has in fact functioned as a principle of oppression and cultural imperialism, both in fact and in principle” (Russon, 2010, p. 12). It is hence not surprising that it was precisely in the eighteenth century—the century of the Enlightenment, the century that strived for equality and freedom—that the pillaging and the exploitation of the colonies intensified and that “millions of Africans were torn away from their countries and their lands through violence and barter” (Beaud, 2004, p. 45). It is ironic, to say the least, that the ideas of freedom and equality of the enlightened subject that have informed contemporary education are rooted in slavery, exploitation, and pillage. This article, in fact, is an attempt to call into question the individualist concepts of freedom and autonomy that have come to afflict our educational systems and that have led us not to emancipation but to its mourning.

The Enlightenment concepts of freedom and autonomy influence mathematics education theories in many subtly different ways. For instance, the emphasis on the subjective pole is prominent in constructivism. The emphasis on knowledge is prominent in the theory of didactic situation. The emphasis that they put on each pole does not mean, however, that the

² For an account of postmodern emancipation and its ubiquitous link to the project of the Enlightenment, see, for instance, Rancière (1987) and Bingham and Biesta (2010).

other pole is absent. They weigh differently those poles and end up with different educational lenses through which to read the educational phenomena. Since the antinomies can only be revealed in the concrete realm of practice, they appear in all resplendence in the manner in which the teachers' and the students' work is expected to be carried out. One of the greatest merits of constructivism and the theory of didactic situations is its illustration of how these antinomies lead vividly to tensions in the teachers' deeds—for example, in terms of “paradoxes,” as they are called in the theory of didactic situations. These “paradoxes,” however, are not unavoidable junctures to which teachers and students have to surrender in the teaching–learning processes, as Brousseau (1997) suggests, but effects of the antinomies that actively work in the subbasement of explicit and implicit epistemological and ontological assumptions.

Recent educational research (see, e.g., Baldino & Cabral, 1998; Brown, 2008, 2010; Marshall, 1995, 1996; Olssen, 2005; Peters, 2002; Walshaw, 2004) deals in one way or another with these antinomies, even if they are not identified as such. Within this context, a very important strand in contemporary educational research has been quite successful in revealing the workings of oppressive structures and the subtle differential ways in which knowledge and power are unevenly distributed among people. The analysis that they offer shows in particular how the subject is shaped through discursive practices—e.g., assessment (Kanes, 2009). The analysis usually operates on the basis of the antinomies of the modern subject. I referred to Popkewitz's work to illustrate this research trend. This line of research points out the importance of exercising and sustaining a critical attitude. As Ferdie Rivera notes, this critical attitude is what Foucault had in mind towards the end of his life, when he was asserting the importance of a critical ontology of ourselves (personal communication, July 19, 2011). In his reflection about Kant's paper *What is Enlightenment?* Foucault says:

The critical ontology of ourselves has to be considered not, certainly, as a theory, a doctrine, nor even as a permanent body of knowledge that is accumulating; it has to be conceived as an attitude, an *ethos*, a philosophical life in which the critique of what we are is at one and the same time the historical analysis of the limits that are imposed on us and an experiment with the possibility of going beyond them. (Foucault, 1984, p. 50)

Here, Foucault opens up a possibility to experiment, through historical analysis and critical attitude, the overcoming of the present as merely given—much in fact as Marx did in the *German Ideology*.

In the last part of the article, I tackled the question of emancipation from a cultural–historical perspective. Within this perspective, emancipation rests on a redefinition of the relationship between modes of knowledge production and relations of production. A chief feature of the new relationship is the explicit intention to move away from a conception of the student as a private owner to a notion of the student as an ethical being. Our classroom example provides the reader, I hope, with a sense of how this move can be achieved. The ethics-based redefinition of modes and relations of production is a distinctive element at the heart of a cultural–historical theory that we have been developing in the past few years—the theory of knowledge objectification (Radford, 2008, 2009; Radford, Miranda, & Guzmán, 2008; Radford & Roth, 2011; Roth & Radford, 2011). Here, the need for the other appears as *possibility*—more precisely, as *promise*: the promise that it offers to participate in the “primordially existential kind of Being” to which Heidegger refers in *Being and Time*. This is a disinterested self-fulfillment-with-others that, rather than being driven by logical and cognitive urges, is of an ethical–emotional–affective nature. Let me note, however, that the road to emancipation is not driven by the desire to reach a kind of happiness (as one of the reviewers seems to have understood it). Although happiness may not be excluded, the goal is

rather to become a presence in the common world, to take a critical, political, and ethical position, and to responsibly hear the others' voices and make oneself heard within the conflicting views that make cultures what they are: tense loci of difference and opposition.

Within this theory, learning is about both knowing *and* becoming, where the conjunction 'and' is to be understood as linking two inseparable terms (Radford, 2008). To *be* (or rather to *become*) is to become-with-others—that is, to go beyond my self-contained interior and *receive* from the others that which I cannot obtain from within: *I* as relationship, *I* as a dialogical being—in short, *I* as a subject of *praxis*. In this approach emancipation can only make sense in, and be investigated through, praxis or labour.³ It is only through concrete labor with other people that emancipation can occur. To reiterate, emancipation can only occur in the common world, where we come to recognize ourselves as historical and political beings and where we critically labour *together* to make the common world a better place for all. Emancipation is not an individual endeavor aimed at emancipating oneself. Emancipation is a social project. It is our present labour both to prepare a better world for those to come and to honor the dead.

Acknowledgments This article is a result of a research program funded by the Social Sciences and Humanities Research Council of Canada (SSHRC/CRSH). I am most grateful to the three reviewers and the editors for their comments on a previous version of this paper. I would like to thank Steve Lerman for his thoughtful reaction to my paper during the Mathematics Education and Contemporary Theory Manchester Conference. My special thanks to Paola Valero for her suggestions in the final preparation of the article.

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³ Yet, the point is very easy to overlook. Thus, Lather, in her attempt at deconstructing the subject of emancipation, depicts this subject as follows: "she is both victimized and capable of agency; while she has something approximating false consciousness, that consciousness is unified and capable of Freirean conscientization, knowing the world in order to set herself free from it" (1991, p. 141). The point is not to set yourself free from the world. For cultural–historical approaches, emancipation is not about being freed environmentally.

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