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A stylized graphic on a purple background. It features a thick yellow path that starts on the left, curves down, then up, and then down again. The path leads to a white archway with black vertical stripes, which is part of a larger structure that looks like a bridge or a set of stairs.

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Welcome to school—The empire-building business—an affirmation of Bourdieu’s concept of field

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Abstract

Globalisation has transformed and changed people’s lives around the world, with education’s role having undergone a similar metamorphosis. In many countries, educational institutions have transmuted into new types of institutions, with schooling emerging as a competitive product of this globalised economy. The result: a higher education arms race pitting country against country, school against school, and pupil against pupil. The rationale: the nation with the best schooling producing the most successful pupils has the highest chance of securing future growth and progress for its respective society. In order to gauge and compare schools, we now are equipped with globalised measuring tools that calculate school quality within each nation-state. How is the process manifested within schools, and how do we trace the practices, rationalities and other entanglements from separate interests/fields in contemporary schooling? This article offers an expanded notion of Bourdieu’s concept of field that can assist educational researchers in focusing on a particular educational field using a conceptual tool to trace such practices, rationalities, and entanglements across different fields. Bourdieu’s ideas are interwoven with Foucault’s and his historical gaze, through Foucault’s methodology of archaeology. When examining an institution, practice or any other phenomenon in the educational field, we must ask, “Which will wills it?” and which historical conditions allow a particular phenomenon to exhibit contemporary manifestations. This article proposes a framework using the image of quasi-self-similar fractals to highlight entanglements between multiple semi-autonomous fields. This image of thought is constructed to capture the specific role the economic field plays in relation to all other fields and to consider how every field is thus a power field. To exemplify this argument, empirical data from a Danish regional project will be used to show how the above-mentioned methodological encounter between Bourdieu and Foucault and the concept of field can be applied. Equipped with this framework, the example explores and illuminates 1) a specific scientific habitus fostered within the educational field Homo empiricus; 2) the rationality or discursive formation supporting ‘the Man of Science’; and 3) how the two are related to the ‘empire-building business’ or, in other words, how to market and sell certain aspects of schooling.



Key words

Bourdieu, Foucault, Deleuze, Field, Science Education

The business of empire-building in education

This article is an outline to analyse a specific issue regarding the relation between the fields of science and education and thus an investigation of the scientific domains in lieu of frameworks put forth by Pierre Bourdieu (2004) and Michel Foucault (1970). I propose four important conceptualisations or ‘expansions’: 1) the empire-building business in education as a particular aspect of several fields’ influence upon the educational field; 2) the image of a quasi-self-similar fractal as a new image of thought (Deleuze, 1994, pp. 164–208) used to understand field multiplicity and their influence upon each other; 3) Bourdieu’s field concept (1977, 1983, 1984, 1994, 1998b, 2005) encountering Foucault’s discursive field (1972); and 4) the relation between Foucault’s concept of discursive formations (1972) and Bourdieu’s concept of habitus and doxa (1977, 1990b). The article’s structure is thus first an encounter between Bourdieu’s and Foucault’s field concepts that leads us into a fresh image of thought—the quasi-self-similar-fractal—and how this fresh image is drawn into an empirical material analysis. The encounter is meant to be an affirmation, rather than a critique, of both Bourdieu and Foucault through the underlying guidance of Deleuzian thought.

We must examine the causality or relation between education and globalisation before constructing a methodology examining it, with particular interest in science education. This article accords with Dale and Robertson’s (2002) view regarding globalisation as a nonhomogeneous force and views it as an effect of the flows of capitalism (Deleuze & Guattari, 1977, 1987). The goal is to provide a methodological outline examining this nonhomogeneous force in the educational field in all its entangled manifestations. Globalisation demonstrates a characteristic application of force, although situated non-causally, which is self-similar in whichever field it emerges—the features of marketisation and economics, and the specific flows of capitalism and its “smooth spaces” (Deleuze & Guattari, 1987, pp. 490–492). Despite specific forms and manifestations appearing in differing ways, a similar form of economisation or ‘business’ persists in the various fields, to be elaborated upon with the discussion of the quasi-self-similar fractal. At least three businesses, instances of globalisation or influences from multiple fields can thus be examined with the methodology this article attempts to construct: 1) *the learning business* or how psychology, testing, and other knowledge forms regarding learning are commercialised and deployed in the educational field as new interventions teachers can apply, thereby promoting and testing learning among pupils; 2) *the teaching business* or how new forms of didactics, classroom management, and other disciplinary/managerial tools are introduced to both faculty and students, which again appear in a commercialised form, as products or practices school leaders can invest in or guide their teaching staff towards; and 3) *the empire-building business* or how schools are oriented towards producing specific kinds of morality among their charges who will grow up to be citizens engineered for a globalised world’s new markets and economic demands. Value-laden words—innovation, creativity, sustainable development—have manifested internationally across curricula and national educational goals, as well as numerous other places where an emphasis on justifying educational objectives is observed.

What do I mean by the term *empire-building business*? This article is situated within a historical concept of education as a necessary element in constructing the nation-state (Boli, Ramirez, & Meyer, 1985; Foucault, 1995; Meyer, Ramirez, & Soysal, 1992). I present specific reasoning advocating for *empire-building* instead of *nation-state building* or similar terms. Emphasising empire over state is based upon two Foucauldian notions: 1) that schooling appeared in different manifestations before the political nation-state emerged and thus should always be seen in the transformative light of earlier

historical forms (Foucault, 1995, 2009); and 2) the role that Roman culture, *civitas*, and the empire/republic played in transforming conceptualisations of the modern era's nation-states (Foucault, 1990) must be considered. Before the specific form of compulsory schooling arose late in the 18th century in Western civilization, school was the place in which children were trained and where new citizens, soldiers, judges, policemen and politicians were educated. In other words, youth were educated to fulfil vital functions as adults within the empire/state. This aspect of schooling has not disappeared from contemporary society, and my article posits that as globalisation and the higher education arms race has increased in momentum, this specific educational component has come to dominate the educational sphere or field.

An emphasis on the empire-building business aspect of schools and schooling means examining schools' historical structural role in society, and the contribution both schools and curriculum make in creating a specific type of desirable citizen (Bang & Valero, in press; Popkewitz, 2004a, 2004b, 2008). This desirable citizen is moulded to a specific mode of thought and acquiring of a particular kind of knowledge in accordance with the morality and governance of the respective nations. This examination is done from both within and without the educational field, looking at how other fields perceive school and schooling, and how the economics field influences that of education.

The empire-building aspect is perhaps the more hidden part of the triad of businesses noted above. Not in a 'deep sense' but more easily 'overlooked' because of its obviousness unless an educational researcher is equipped with an expanded notion of field. The emphasis of the empire-building aspect results from its specific relation to the scientific field, which will be examined below. These 'three new business' aspects regarding schooling could similarly be understood as neoliberal aspects (Bourdieu & Wacquant, 1999), but this article refrains from going down that avenue. The contemporary conceptualisation of neoliberalism in research is posited in a specific historic condition regarding capitalism's effects but simultaneously invokes a binary and creates a discursive formation, where neoliberalism is at the bad end of the former and often seen as a reaction from a leftist or Marxist perspective. Thus, the concept tends to polarise, invoking a certain politicisation, making neoliberalism dismissible as a mere political concept. Conceptualising the process as an empire-building business is therefore an attempt to fertilise the conceptualisation of neoliberalism extended by Bourdieu and Wacquant (1999) with Foucault's use of the biopolitical concept and his contextualisation of specific neoliberal forms (Foucault, 2010). The empire-building business concept in effect tries to capture and enunciate a specific neoliberal form directed towards morality and *civitas* that is both contemporary and capitalistic yet historic in its roots.

How might educational research analyse schooling's structural role and the empire-building business? First, one needs to establish an encounter of thought between two concepts: Bourdieu's *field* and Foucault's *discursive fields*, thereby expanding Bourdieu's notion of various *doxa* into a virtual field in its own right.

A field by any other name

In the Bourdieuan sense, a field is an epistemological construct supplying the researcher with an abstract yet very material gaze upon various institutions and social spaces: for example, bureaucratic institutions (Bourdieu, 1999), a particular neighbourhood (Bourdieu, 2005), or elite schools (Bourdieu, 1998b). Bourdieu proposes the following relation: [(habitus)(capital)] + field = practice (Bourdieu, 1984), not as an exact equation but as a relation between his key concepts for understanding social spaces. Grasping the concept of field means using a new epistemological relational lens:

Thinking in terms of a field requires a conversion of one's entire usual vision of the social world, a vision which is interested only in those things which are visible: in the individual, the *ens realissimum* to which a sort of fundamental ideological interest

attaches us; in the group, which is only apparently defined by mere relations, temporary or enduring, informal or institutionalized, obtaining between its members; or even in relations understood as *interactions*, that is, as concretely enacted intersubjective relations. (Bourdieu, 1990a, p. 192, italics in the original)

In other words, in employing the concept of field, one must step away from the typical way of representing the real or the milieu. To gaze upon social spaces with a notion of field is to perceive in terms of positional relations. Bourdieu employs various analogies to describe a field: a soccer game (Bourdieu, 1990b), a force field (Bourdieu, 1984, 2005; Bourdieu & Wacquant, 1992) or a field from physics (Bourdieu, 1998a, pp. 19–30). All of them share a relational aspect and the dynamic yet structural view of the positioning of agents within a field, due to its specific laws. A notion of field also entails, however, other critical concepts of Bourdieu without which the concept of field is merely a hollow, structural ‘shell’ housing the concepts of habitus and capital. The combined concepts of habitus and capital form a relational unit describing the positioning, potential, and perception of the field agents and without those two concepts, akin to position and charge in the electrical field, one cannot gauge an agent’s position, practices and strategies within the space.

The Bourdieuan notion of field, however, raises some difficulties, which Thomson articulated as covering at least three issues (Grenfell, 2008): 1) *quantity*—how many fields are there in the social space?; 2) *quality/demarcation*—what distinguish the fields from each other and when does a field ‘end’?; and 3) *correspondence/entanglement*—how are the fields connected, and what happens between them, both from the agents’ perspectives and also regarding the forms of capital and power?

The last challenge to discuss regarding the notion of field is the notion of the *field of power*. We turn to Bourdieu, who offers different descriptions. In one of his clarifying essays, in which he tries to address misunderstandings and critical remarks, he describes the field of power in the following terms, exemplified by the literary field:

For example, if it’s true that the literary field is, like every field, the locus of power relationships (and of struggles aiming to transform or maintain them), the fact remains that the power relations which are imposed on all agents entering the field—and which weigh with a particular brutality on the new entrants—assume a special form. (Bourdieu, 1990a, p. 141)

This reading is crucial for interpreting Bourdieu’s concept of power and for this article’s encounter with Foucault. In short, every field is one of power, operating as a sort of background field. In addition, when considering the economical—also one of power—its nature and impact both fractalise and distort the field of power in lesser fields, which often assume economic or capitalist forms. Thus capitalism, as the superior force of de-territorialization, has *de-territorialised* other fields, recoding them into distorted versions of itself (Deleuze & Guattari, 1977). Bourdieu analysed the educational field in numerous instances (Bourdieu, 1988, 1998b; Bourdieu & Passeron, 1990), and his conclusions indicated the educational field and the institutions therein tend to promote a specific kind of reproduction and inequality in terms of cultural capital (Bourdieu, 1998b; Bourdieu & Passeron, 1990). Foucault enunciated a similar claim regarding governments and the growth of biopolitics, which suddenly saw a new form of measurement arise that transformed other fields (Foucault, 2010).

To examine the three issues raised by Thomson (Grenfell, 2008), this article suggests employing a new image of thought employing quasi-self-similar fractal—an image better suited to clarifying the issues and understanding the transversals and influences among multiple fields. This new image of thought is an attempt to represent the strange universality or ‘universal mechanisms of fields’ one encounters, when investigating both historical and contemporary fields:

Whenever one studies a new field, whether it be the field of philology in the 19th century, contemporary fashion, or religion in the Middle Ages, one discovers specific properties that are peculiar to that field, at the same time as one pushes forward our

knowledge of the universal mechanisms of fields, which are specified in terms of secondary variables. (Bourdieu, 1993, p. 72)

Before we can examine the new image of thought of the quasi-self-similar, however, Bourdieu's concept of field must be fertilised by an encounter with Foucault's concept of discursive fields.

An encounter with Foucault's virtual field

Bourdieu often has iterated that some fields dominate or at the very least exert extensive influence over other related fields: his specific examples are the economic field and the scientific field (Bourdieu, 2000b, 2004, 2005). To trace the influence and domination of fields in the realm of doxa (Bourdieu, 1990b), one benefits from using the Foucauldian methodology of archaeology in an encounter with Bourdieu's concepts, thus supplying Bourdieu's field with a kind of virtual field (Bang, 2014; Deleuze, 1986). In other words, Foucault shows us how doxa are related to the field of power.

A Foucauldian field is not the same as a Bourdieuan field, and Foucault does not present a clearly demarcated sociological concept for the idea as does Bourdieu, who emphasises sociological factors whereas Foucault's emphasis is on discourse and practice (Foucault, 1972, 1995). In the early years of his writing, Foucault focused on discursive and nondiscursive formations in a field of nondiscursive practices (Foucault, 1972, p. 75)—the archaeological part of his methodology. Deleuze's reading of Foucault (1986) enunciates three topographies of Foucault: 1) the archive; 2) the map; and 3) the diagram. The archive and the map are the vertical and horizontal horizons of Foucault's discursive fields and belong to Foucault—the archivist. In this encounter, they are seen as the depth and the spread of discursive and nondiscursive practices in the various fields. The diagram is “the thought from the outside” (Deleuze, 1986, p. 43), an abstract machine, connecting both vertical and horizontal horizons with the notion of power; in this encounter, it is connected to the field of power.

The *diagram* is no longer an auditory or visual archive but a map, a cartography that is coextensive with the whole social field. It is an abstract machine. It is defined by its informal functions and matter, and in terms of form, makes no distinction between content and expression, a discursive formation and a nondiscursive formation. It is a machine that is almost blind and mute, even though it makes others see and speak. (Deleuze, 1986, p. 34)

How shall we approach these discursive fields, and how can they be applied to the Bourdieuan concept of field? Both Foucault and Bourdieu agree that language is a form of practice (Bourdieu, 1977, 1990a, 1990b; Foucault, 1972, 1995), and such practices ‘do’ something both different and alike across fields. By establishing an encounter of thought of the Foucauldian terms *discursive* and *nondiscursive* formations as a concept for explaining discursive field structures, together with the Bourdieuan notion of fields, we derive an additional discursive dimension of fields, the mechanics of an abstract machine, but one crucial to an epistemology able to trace the correspondence and entanglements across fields. The final missing piece of the Foucauldian encounter, and the epistemology constructed to investigate the relation between the scientific and educational fields, is a specification of the Foucauldian term *discursive families* (Deleuze, 1986; Foucault, 1970, 1972), which are part of conceptualising discursive formations. In investigating correspondence, entanglement, or transversal transformed practices, and discursive formations, this article proposes the relation rationality ∫ irrationality as a construct to help us trace those ‘movements’ in the scientific field, in so far as the term is constructed for this occasion and specifically relates to the fields this article explores. In analysing specific historical families of discourse in the scientific field, there seemed to be ‘emerging’ clusters of particular intersecting discourses, containing notions of causality and a specific ‘inner logic’ (scientific doxa). The rationalities’ birthplace is arbitrary. They do not

share *one* point of origin but are instead the products of specific, historically contingent discursive possibilities; this could also be seen as a specific expansion of Bourdieu and Wacquant's notion of 'carriers' (1999). The moment a discursive formation manifests itself or is born into, for instance, the scientific field, it is sedimented or manifested in practices and nondiscursive formations within the field; simultaneously, an opportunity arises in other fields to pick up and transform both practice and discursive formations.

The encounter of thought now established, we can move forward into this new image of thought employing quasi-self-similar fractals to understand the influence multiple fields exert upon each other and how such images fertilise Bourdieu's and Foucault's conceptualisations.

Overlapping fields—learning from fractals

What is a fractal, and why is it appropriate as an image of thought for a Bourdieuan and Foucauldian understanding of multiple fields?

Figure 1 shows a fractal image. If you 'zoom' in and out of the image, you will see exact self-similarity, meaning that all the small, closed geometric shapes are similar to the larger ones. Fractals can be found in nature's leaves, snow crystals, and other instances of reproduction. Fractals are continuous but cannot be mathematically differentiated (Mandelbrot, 1983).

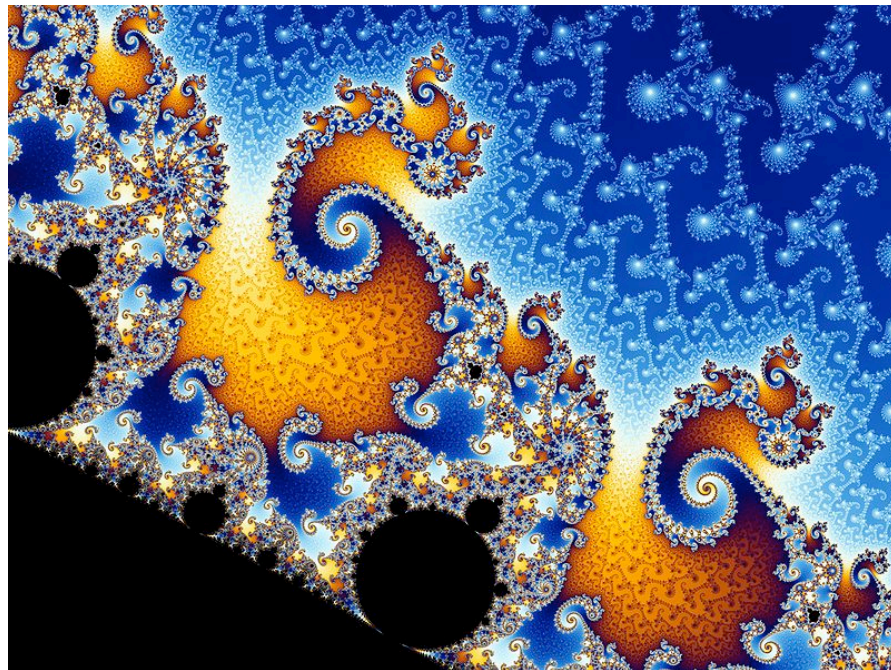


Figure 1. A Mandelbrot exact self-similar-fractal

The specific fractals most similar to Bourdieu's and Foucault's notions of field are, from my perspective, *quasi-self-similar fractals*, which are *almost* analogous in their reproduction and endless enumeration; small differences of distortion manifest in each geometric instance within the fractal's different levels and result from the manifestation on the plane of immanence, and thus are not in a plane of transcendence or 'pure thought'. Deleuze and Guattari (1987), producing a similar line of thought, noted the exact-self-similar fractal image as one of a smooth space and there is always a multiplicity and movement between smooth space and striated space. Smooth space is mentioned here because it belongs to manifestations (de-territorialisation) of the decoded flows of late capitalism

(smooth capital). Quasi-self-similar fractals can serve as images of thought regarding fields in several productive ways and thus clarify the three issues raised by Thomson:

1. In a clear image, they depict the role the economic field plays in connection to all other fields and how it is shaping and recoding the ‘lesser’ fields according to its own inner logic, which is in line with Bourdieu’s perspective on the economic field’s overarching role (Bourdieu, 1990a, 2005); meaning, in even the smallest fields, an economy of sorts occurs naturally due to the smooth space of capitalism mentioned above and its territorialisation/de-territorialisation;
2. The quasi-self-similar fractals show how every field is different and yet similar to some extent, and how each field’s scale can be very different and embedded within one another’s—yet characterised by an embeddedness demarcated by the specific topology of the field in question and the rules therein. The infinite continuity of the fractal’s reproduction thus clearly solves the issue of field quantity—there is an infinite or perhaps an infinitesimal amount of both fields and subfields!;
3. Regarding the notion of the field of power: the similarity between the geometric figures’ shapes reveals that in the image of thought, every field demarcation is one of a specific locus of power—thus, every field is one of power, with its own specific rationalities, practices and dispositions to establish a power-relational structure within the field or subfield itself.

This also helps us understand where the field’s demarcation line is located; although being always a continuous, immeasurable fractal image and barrier, it is precisely where the exercise and practice of power changes form and appearance. In other words, when the forms and ‘value’ of capital change, one has entered a new field or subfield. This demarcation can be found on both a large scale with particular fields (e.g., entering a successful old-law firm) but similarly on a very small and intimate scale (e.g., entering a specific club in the workplace, belonging to a specific part of an underground political movement, and so forth). The similarity and endless enumeration, or differentiation without differentiation, can also be seen as a contemporary effect of economisation or capitalism, akin to the special hegemony proposed by Laclau and Mouffe (2001), a hegemony of capitalism operationalising a special kind of differentiation;

4. The last problem this figure tries to address is the role of correspondence and how an agent can travel between fields, akin to ‘carriers’ (Bourdieu & Wacquant, 1999 , p. 50), and how specific fields are connected and exert an entangling influence over each other.

Take, for example, the ‘travelling agent’ and how it can be seen in the quasi-self-similar fractal image: An agent entering a new field and exerting influence in that space is, in a way, a change in the fractal equation, and its habitus/capital can be shown in the factor’s scale or the ‘zoom’, which should be added to the overall field enumeration. Thus, if a major agent with considerable economic, symbolic and cultural capital enters a specific field, its different forms of capital will be transferred therein, according to the rules and regulations within the specific field. The impact on the field’s shape/fractal will therefore be extensive and will alter the field’s geometric shape (zooming up or down). An agent entering a field is thus always a factor of quantity and intensity, akin to the charge of its capital and habitus. It is almost as if the agent, in this image of thought, is a smooth space or fractal him/herself, which posits itself relationally in a new quasi-self-similar fractal (or the fractal boundary of one), which again changes/distorts due to the newly inserted agent/fractal.

One must constantly keep in mind a certain unique historicity specific to the connected fields when analysing fields and transversals, and in accord with both Bourdieu’s and Foucault’s notion of history:

I believe indeed that there are no transhistoric laws of the relations between fields, that we must investigate each historical case separately. Obviously, in advanced capitalist societies, it would be difficult to maintain that the economic field does not exercise

especially powerful determinations. But should we for that reason admit the postulate of its (universal) “determination in the last instance”? (Bourdieu & Wacquant, 1992, p. 109)

The expansion of the notion of multiple fields thus should be observed in the above ‘cautionary’ words from Bourdieu. This image of thought of the quasi-self-similar fractal is an attempt to expand Bourdieu’s and Wacquant’s notion of transposition (Bourdieu, 1998b; Bourdieu & Wacquant, 1999) and to move it into an encounter with a Foucauldian understanding of discursive fields (1972) to show how different discursive fields exert influence upon each other. The above image of the quasi-self-similar fractals is not meant to introduce a systemic view regarding fields or assert that an agent is simply ‘a particle’ or enumeration. Every field is one of struggle, and the image of the fractals should be understood as an attempt to represent the multiplicity among multiple fields, not to reduce it to systemic notions. To show how the new image of thought of quasi-self-similar fractals is meant to aid our understanding of fields, allow a demonstration of an example of such a transformation of a rationality and how it discursively manifests in the educational field’s institutional practices; accordingly, we are now ready to embark on investigating the empire-building business or the historical conditions of possibility for specific practices within schools through the discursive field.

A practice transformation and a discursive field manifestation—*homo empiricus*/the man of science

A sample taken from an interview:

LB: I have had some other students talking about the x’s and y’s (the students following the science subjects or scientific subject courses) ... do you think they are much different from you? (*I have had other students explain that difference and was trying to explore that discourse*).

Cathrine, Megan, and Julie: Yes (in unison, they laugh).

LB: Yes? How are they different?

Megan: Well ... they think it is fun to sit and do math in the breaks ... and find some equation or ... (Megan sighs deeply) ... but come on ...

Cathrine: It is in fact ... it is more on a human level. I think ... I can get really irritated at them sometimes ...

Julie: They are so nerdy ...

Cathrine: Yes ... and they are just ... I don’t think they are as ... I think they have pulled down their blinds (specific Danish saying: *skyklapper på*, meaning they have closed their minds) ... also, I don’t think they are as tolerant towards other people ...

LB: No?

Cathrine: Where I think that we ... have [learned] some human values, who, like, make us ... tolerate more people and accept people ... and ... like ... understand ...

Megan: But there is also that issue ... that we get to see things ... from more perspectives ...

Cathrine: Yes.

Megan: And that is what we are trained in ...

Cathrine: Yes.

Megan: They just need to find that specific equivalence (mathematical equal sign) (specific Danish term: *facit der*) ... so if there is anyone ... that's how I think it fits together ... so if there is anyone they don't like (makes a sound indicating a no ... or a bullying gesture) ... where we ... I mean ...

LB: Do you also think they are like that at the university?

Megan: Yes ... I think I maybe am just generalising a bit ...

LB: Yes?

Megan: Because ... I don't know.

The above excerpt exemplifies how the scientific field influences the educational field through a specific rationality and practice, being a portion drawn from a larger study of empirical material gathered during spring 2013 via a series of interviews I conducted with students aged 17–19 years in upper secondary education, dubbed Gymnasium or Den almene studentereksamen (STX) in Denmark (equivalent to the final three years of high school in other countries). It was conducted as a group interview in which I explored the young women's general opinions, the surface of discourse, the topic of natural science, and how they perceived other students who followed a course of study in the natural sciences.

Our conversation focused on the educational field's discursive level and exemplifies discourses the students 'evoke' or manifest when discussing fellow students studying science at school. The view on practices thus comes from the discursive formations and rationalities, not from practicum observations, in this specific case. The science students (the x's and y's) also were interviewed as part of the larger study, and they give a similar account, but from a different position, regarding the specific scientific habitus and discursive formation analysed in the excerpt above.

Two findings from the interview are crucial in explaining why an entangled framework based on Bourdieu and Foucault supports analysing discursive fields in educational studies. First, the students described their positions taken towards the science students, including how they seem somehow different on a 'human level', and how they (the nonscientists or humanists) perceive themselves as trained to be more humane and to view things from multiple perspectives. This provides, indirectly, insight into both the discourse formations related to the general scientist and what kind of person s/he is—that is, highlighting the scientific mindset's rationality. The first finding regarding the rationality or discourse formation is constructed as 'the Man of Science' (and thus implying a specific construction between gender and science), which should be seen directly linked to the Foucauldian methodological part. The epistemological gaze does not regard students' opinions as their 'own', but rather as being part of a discursive formation. In this specific instance, it relates to the rationality and specific discursive family regarding the notion of the Man of Science, and what kind of person 'he' is and his characteristics (basically stereotypes regarding scientists).

The second finding concerns the humanities students' descriptions of the science students' practices or habitus, allowing for an indirect glimpse at what a science 'nerd' is 'required' to possess or show, when they practise a specific scientific habitus. Doing 'math in the breaks' or 'thinking there is an equivalence [equal sign] to everything' are the elements these students recall as being major behavioural differences between themselves and the science students. In other words, through the discursive positioning of one habitus, we glimpse another through the discursive formations drawn in to rationalise a field position. Via these discourse formations, we indirectly get a general understanding of how the educational field creates and fosters specific scientific habitus (Bourdieu, 2004) required in the scientific field. The special adaptation of habitus is here dubbed *Homo empiricus*, threading together with Bourdieu's notions of *Homo economicus* (Bourdieu, 2005) and *Homo academicus* (Bourdieu, 1988), and Foucault's *Homo oeconomicus* (Foucault, 2010, p. 268).

The label *Homo empiricus* was not constructed arbitrarily but rather to emphasise two points. First, concerning the relation between science and the empire-building business, we note the field of science is perceived as one of progress and growth, a ‘sacred field’ of pure knowledge, with its nurturing crucial for nation-states’ progress, although other fields may generate greater profit or ‘market-value’. Progress in engineering, medicine, physics and so forth all contribute to the scientific field; the discursive formations of the ‘serious sciences’ dominate and transform both pseudo-science and religion, and even create a special rational form of biopolitics (Foucault, 2010). Thus, the scientific habitus is of special interest in promoting or educating society in fields extending beyond science. Second, *Homo empiricus* emphasises how the scientific habitus brings with it specific, correct methods in data collection and rational measurement, and objectification, which accords with Daston and Galison’s research regarding the history of objectivation (2007). The empirical part of the scientific habitus takes on a doxa of its own and is intrinsic in understanding the scientist, and how s/he is positioned vis-à-vis other academic fields. The habitus *Homo empiricus*, constructed and ‘born’ in the scientific field, undergoes a different yet similar birth and manifestation in the educational field.

We must keep three things in mind regarding the notion of *Homo empiricus* and its entanglement with the Man of Science: 1) *Homo empiricus*, in a way, is itself a manifestation of the Man of Science’s rational nature and vice versa. The scientific habitus *Homo empiricus* and the discursive formations surrounding it mean the Man of Science is thus entangled in a relation, in which one is the manifestation and precondition of the other; 2) its connection with the Man of Science entangles the notion in both educational and scientific fields. The Man of Science’s rationality becomes a goal or discourse for people to either strive towards or position against. Science education’s quality moves in degrees of purity towards the Man of Science, and it aims to produce subjects according to that rationality and subsequent habitus; 3) this scientific habitus is purposely constructed through curricula and intentions directed from outside the educational field—in short, schooling’s empire-building business aspect. When the Man of Science’s rationality and its subsequent habitus *Homo empiricus* manifests simultaneously in fields outside scientific and educational ones, it is incorporated into policies and similar nondiscursive formations and practices, where it acts as a benchmark by which to measure science education. This is exemplified in the project’s frame, from which the above-referenced interview excerpt was taken.

The methodology and the fractal image of entangled, multiple, semi-autonomous fields, the notion of scientific habitus or *Homo empiricus*, and the rationality of the Man of Science are thus constructed and extended in this article as a means to examine the empire-building business in the education field, with special emphasis on the natural sciences. The analysis should be understood as a timely and contextual conceptualisation in that regard.

The empire strikes back?

The empire-building business is a historical yet also a contemporary phenomenon, and only through employing a contemporary methodology can educational researchers investigate such an entity. The encounter of thought forwarded in this article should be seen as both an act of *timely resistance* and a modern examination of the empire-building business in education. Foucault’s conceptualisations help Bourdieu and vice versa, both theorists having resistance at the centre of their writings (Bourdieu, 2000a; Foucault, 2003). The French marriage is not arbitrary but a movement of thought between two thinkers who expressed great concern regarding the matter of the state and the subject, and how capitalism changes the way our society governs its people. The methodology proposed is thus an attempt to strike back at the empire-building business in the educational field with a fresh image of thought, a new diagram offering researchers a unique way to examine fractal pockets of resistance and the nature of distortion within particular fields. Deleuze describes this opportunity of struggle:

Thus there is no diagram that does not also include, besides the points which it connects up, certain relatively free or unbound points, points of creativity, change and resistance, and it is perhaps with these that we ought to begin in order to understand the whole picture.

It is on the basis of the “struggles” of each age, and the style of these struggles, that we can understand the succession of diagrams or the way in which they become linked up again above and beyond the discontinuities. (Deleuze, 1986, p. 44)

As such, this contribution to the Bourdieu special issue is an attempt to create a new diagram, through the powerful image of thought by employing the application of fractals. It is my hope that other educational researchers will change it, modify it and expose its limitations and flaws, so that our collective methodologies can improve on and better illustrate capitalism’s effects on society in general, and in particular, on the empire-building business that remains hard at work in the field of education.

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