

# The End/s of Education. Complexity and the Conundrum of the Inclusive Educational Curriculum

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Published in

*International Journal of Inclusive Education*, 14(6), 2010, pp. 593-607

(final accepted document before copy editing)

## Abstract:

The conundrum of the inclusive educational curriculum is that the more inclusive a curriculum becomes in practice, the less inclusive it becomes in principle. In this paper we explain the conundrum and argue that its appearance is a product of what could be called “object-based” logic which is underpinned by a deterministic understanding of causality. As long as we employ object-based logic to think about the curriculum we cannot avoid asking what a curriculum is *for*. Whoever answers this question necessarily excludes other possibilities.. We argue that a relational or “complex” understanding of causality, which is shared by complexity theories, poststructural theories, deconstruction and Deweyan pragmatism, offers a way out of the conundrum by offering a different understanding of process and hence *the guiding role* of the curriculum in the educational process. In allowing the possibility of a guiding role for the curriculum, while dispensing with the need for a curricular “end,” complex logic can inform an understanding of curriculum which succeeds where humanistic education in its various forms has failed.

**Key words:** Complexity, curriculum, inclusive education, schooling, relational-logic, emergence

“Inclusive education is an ambitious project given that we seem to be commencing with an oxymoron as our organising concept. Schools were never really meant for everyone. The more they have been called upon to include the masses, the more they have developed the technologies of exclusion and containment.” (Slee 2001, p.172)

## Introduction

Prevailing views of inclusive education as being primarily for the purpose of broadening access to education so that all people regardless of race, culture, religion, gender, aspiration, ability and so on can benefit from the opportunities afforded by it, have been strongly challenged in the last decade (see, e.g., Allan 1999, 2003, 2005, Ballard 1995, Biesta 2006, 2007, Slee 2001, 2006, Slee and Allan 2001, Ware 1995, 2004). It is argued that inclusive education is far more than a technical problem, to be addressed through policies which aim at bringing those who have been excluded in the past into the framework and culture of regular schooling. Such an understanding implies that people can only be included into a set of norms defined in advance by those who are already “on the inside” who have decided what it is that is “normal” (see Biesta 2007a, Slee 2001, Slee and Allan 2001). In this sense “inclusive

education” becomes a method of annihilating difference and diversity in the interests of inclusion into a one-dimensional society.

This critique of inclusive education presents us with a conundrum. To put it in very plain terms, the more difference and diversity regular education is able to bring within its realm (the more inclusive it is in practice) the more it perpetuates the cultural exclusions of the existing order (the less inclusive it is in principle). While those researching the cultural politics of inclusive education struggle towards a new language of inclusion, the conundrum remains unresolved. We shall therefore address it again in this paper and we shall do so primarily with regard to the *curriculum* (understood in the broad sense, as comprising both the content taught and the pedagogy supporting it, in both its “official” and “hidden” versions) which we believe is the primary culprit in the appearance of the conundrum.

We believe the educational curriculum is the primary culprit because its main function is to be a guide in the educational process. This, however, is not to say that the curriculum is a problem because of its guiding role *per se*. It is a problem, rather, because of the linear way in which we understand this role. When the curriculum is understood to guide people towards a hypothetical “educated state” (that has been defined in advance by those who are already “on the inside” who have decided what it is that constitutes that state) it becomes an obstacle to “inclusive education” because there is no longer a place for those who do not or cannot conform to its specifications. In this regard the notion of an educational curriculum is incompatible with the idea of inclusion..

In this paper we re-address the issue of whether it is possible to understand the inclusive educational curriculum as anything other than a tool for normalisation and assimilation – one which serves the interests of the existing order. We say *re-address* for the idea of a fully inclusive curriculum (i.e., inclusive in practice and in principle) has already been taken up by humanistic educators of various stripes. We are re-addressing the issue because (i) there are a number of problems with the “solutions” provided by various forms of humanistic education and (ii) we believe that an alternative solution which is capable of addressing these problems is provided by complexity theory.

### **Humanistic “solutions” and their problems**

Drawing inspiration from the philosophy of humanism, which affirms the dignity and worth of all people based on a commonality of “human nature,” humanistic educators have long argued that education is not exclusively the servant of the existing order, but is also the vehicle by means of which an individual’s humanity can be cultivated. Since it is necessary to have an idea of what it means to be human before we can “cultivate humanity,” particular definitions of what it means to be human become the rationale for humanistic education. In most cases the essence of “humanity” has (at least partially) been pinned on the notion of human freedom. For example with liberal humanism, the criterion for being human is *freedom to decide for oneself* (rational autonomy). In contrast, what is important for Romantic humanism is *freedom to be the best we can be* (self-actualisation) while Marxist/critical humanism focuses on *freedom from oppression* (agency and empowerment). Each of these definitions of

what it means to be human have their expression in a particular form of education, e.g., modern liberal education in the case of liberal humanism, child-centred and alternative education in the case of Romantic humanism, and critical pedagogy in the case of Marxist/critical humanism. We believe, however, that none of these pedagogies is able to adequately address the conundrum of the inclusive curriculum.

The problem with modern liberal education is that it allows for only one definition of what it means to be human – the human as a rationally autonomous agent – and then uses this definition as the foundation for curriculum planning. Curricula are developed that are supposed to release peoples’ “inherent potential” to become “fully autonomous and capable of exercising their individual and intentional agency” (Usher and Edwards 1994, pp.24-25). In so doing liberal education specifies in advance what a person should become, which means it is hostile to those who cannot live up to the norm of rational autonomy, hostile to those whose humanity is not represented by this definition (e.g. children, the “mentally ill,” the “mentally handicapped”) and who, moreover, lack a voice to protest against their own exclusion because they are deemed to be irrational or pre-rational and hence not fully human (Biesta 1998, 2006, 2007b). Since it posits a norm of what it means to be human which it then imposes on everyone, liberal education is unable to resolve the conundrum of the inclusive curriculum.

Approaching the conundrum from a different angle, humanistic educators in the Romantic tradition<sup>1</sup> have argued against the imposition of a normalising and dehumanising “one-size-fits-all” curriculum and developed “child-centered” and “alternative” pedagogical approaches (see, e.g., Montessori 1912, Neill 1962, Rogers 1969; see also Oelkers 2005). These approaches constitute an anti-authoritarian form of schooling in which teachers become “facilitators” of learning, *allowing* it rather than *guiding* it, as their knowledge is dismissed in favour of the knowledge that students bring to the class. This unguided approach, so the argument goes, provides an education in which the curricular end can emerge from the learning process itself, making it possible for each and every individual to become “what they are” and hence realise their full human potential. Because it claims to attend to the humanity of individuals, Romantic humanistic educators appear to support a form of education that is genuinely hospitable to difference and diversity, i.e., an education that is truly inclusive. However, as Margonis points out, there is no reason to believe that “children have a discernible direction other than the forms of life and traditions they have become a part of. And, there is little reason to assume the ways of living a particular child is reared in are good” (Margonis 1992, online). In this regard, it can be argued that allowing children to learn whatever they please, is just another way of perpetuating the existing order. In addition, questions have also been raised about the educational status of the child-centred approach (Dewey 1938/1997, Oelkers 1989). It is argued that downplaying the role of the teacher puts people in the position of having to “reinvent the wheel” before they can get anywhere and doing away with testing allows for anything goes inventionalism where people can simply “make things up” rather than deal with the “reality” of the world. Here there is no way

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<sup>1</sup> “Romantic” because drawing on the educational philosophy of authors of the Romantic era (1750-1860) such as Jean-Jacques Rousseau, Johann Heinrich Pestalozzi and Friedrich Froebel who held that education should follow the “natural development” of the child rather than the contrived experiences, demanded by society.

of dismissing knowledge that is misinformed, faulty, biased or “just plain wrong.” Such complaints against child-centred education suggest it is undesirable as a solution as it is a form of educational neglect (Oelkers 1989).

Yet another problem – this time with the goals of both modern liberal education and child-centred education – is that these educational practices pay insufficient attention to the political status of knowledge. Provided students are learning *something* (in the case of child-centred education) or exercising their individual and intentional rational agency (in the case of liberal education), it does not matter *what* is learned, i.e., all (rational) knowledge is deemed equally acceptable and hence politically neutral. It is argued by humanistic educators in the Marxist/critical tradition that since knowledge is always caught up in specific social interests and as such serves the development of an unjust society this apolitical (or “uncritical”) attitude towards the product of education (knowledge) is unacceptable because it opens the door to another Auschwitz (Giroux 1983).

To safeguard against such a possibility, humanistic educators in the Marxist/critical tradition (critical pedagogy) call upon teachers to develop a curriculum in which every aspect of the formal educational process is brought into an active and “popular” clash with the hegemonic order of society with the purpose of revealing the structures of cultural oppression in the interests of a more egalitarian society (Giroux 1988, p.37). However, one problem with critical pedagogy, as Gur-Ze’ev and others have pointed out, is that it is simply a “sophisticated version of normalising education” (Gur-Ze’Ev 2005, p.160). Critical pedagogy itself introduces a curricular agenda in which *everyone* is led to conform to *someone’s* idea of the “good” society. By imposing certain values at the expense of others in the interests of inclusion into a one-dimensional (more egalitarian) society, we are returned to the original conundrum. A question that arises from all this is: if none of the solutions posited by humanistic education in its various forms can adequately resolve the conundrum of the inclusive curriculum, *then what kind of educational reality can?*

The argument we wish to put forward in this paper is that the conundrum of the inclusive curriculum is a product of a particular logical form – shared by all the curricular approaches mentioned so far – which affects our understanding of process, and hence our understanding of the guiding role of the curriculum in the educational process. This logical form can be described as an “object-based” or deterministic understanding of causality. An alternative “relational” or “complex” understanding of causality, shared by complexity theories, poststructural theories, deconstruction and Deweyan pragmatism (amongst other theoretical forms), so we shall suggest, offers a way out of the conundrum by offering a different understanding of process and hence the guiding role of the curriculum in the educational process.

We shall begin by offering an account of both “object-based” and “complex” understandings of causality and process to show how they differ. We shall then explain how “object-based” and “complex” understandings of process enable different understandings of the guiding role of the curriculum in the educational process. We conclude that a complex understanding of curriculum is more appropriate for culturally diverse educational realities because it provides an adequate resolution to the conundrum of the inclusive curriculum.

## **Two understandings of causality and process**

The problem of causality is an area of philosophical inquiry that has an extremely long history dating back to the dawn of Western philosophy itself (see Atmanspacher and Bishop 2002 for an interdisciplinary collection of works dealing with causality and determinism in some depth). Our intention in this section is to engage with this concept in a very narrow sense. We intend simply to outline a difference we perceive between what could be termed “object-based” and “complex” understandings of causality. Our criterion for differentiation is the notion of boundaries. We wish to show how this difference impacts on the way in which we understand process.

An “object-based” understanding of causality is linked with the deterministic assumption that the states of any given process are all logically derivable from each other. We call it an “object-based” understanding of causality because for this understanding to hold, the various states that a system can be in must be understood as discrete, separated not only from other things in space, but also from each other in time. Henri Bergson (1911) called this a “cinematographical” view of temporality (p.301) where processes are understood as a series of static single frames, as in a film reel. When the static frames of a film reel are projected they are reconstituted as movement and process, but each frame of the film strip is itself devoid of movement and process. When the various states of a process are understood in this “cinematographical” way – as discrete and static objects separated in time – it is possible to calculate the most logical relationship between earlier and later states of the system. In this way one can work out the logical rules or “laws” which explain the movement of a process from one state to another, either forwards or backwards in time. Since every stage of the process is in principle logically determinable, it is possible to understand the process itself as a discrete whole, an object, with a distinct beginning and end point and a fixed (determined) trajectory. The situation is quite different with a relational or complex understanding of causality and process.

The “complex” understanding of causality and process is a critique of determinism coming from complexity science (Osberg and Biesta 2007). What makes this critique from complexity most valuable for the current analysis is the way in which it brings into view an important difference in the causal mechanics of deterministic and non-deterministic processes. It is for this reason we choose to label this alternative understanding “complex” rather than poststructuralist, deconstructionist, or pragmatist. Although it could be argued that these other theoretical frameworks adopt similar views of causality and process, they do not explicitly deal with the mechanics of determinism and so the problem with determinism remains obscure. We believe it is only when the mechanics of deterministic and complex understandings of causality and process can be viewed side by side that it becomes possible to fully appreciate the shift in logic, for educational and curriculum theorising, that a complex understanding of causality and process entails.

One way of approaching this complex shift in logic is to appreciate the nature of “complex systems” these being systems that show an increasing level of order over time, as is the case with certain physical systems as well as all living systems (e.g., knowledge systems, economic systems, ecosystems and so on). First, it should be mentioned that the name “system” is misleading as it implies the existence of a

discrete entity when in fact none exists. Complex “systems” have no distinct boundaries, they exist only because of the fluxes that feed them and disappear in the absence of such fluxes. Tropical cyclones are a good example; it is difficult to place limits on such phenomena, as they are inseparable from other complex systems (e.g., sea and air currents) which sustain them (for example tropical cyclones usually weaken when they hit land, because they are no longer being “fed” by the energy from the warm ocean waters). We could therefore say that a complex system is dynamic rather than static, it exists only in the interaction *between* things and is therefore not *itself* a thing. Furthermore, complex processes are recursive, with feedback loops facilitating interaction between “prior” and “subsequent” stages of the “system.” Since these feedback loops are an integral part of the system “itself,” it is not possible to separate such systems into distinct “before” and “after” stages. For this reason the issue of boundaries – *both spatial and temporal* – is a real problem for the concept of complexity. It is this boundary problem that leads us to a different understanding of causality and process.

Since complex systems are always already in a state of dynamic interaction with other complex systems that are themselves in a state of dynamic interaction *ad infinitum* we find that in trying to understand such systems there is no place to begin, no foundation or point of origin that is not already in interaction with something else. Because the states of a complex system cannot be precisely delineated (because they are always already in dynamic interaction), we are faced with the practical difficulty of being unable to calculate the logical relationship between earlier and later states of a complex system. While time does provide a boundary of sorts if we understand temporality in Bergson’s “cinematographical” sense as a series of “frozen moments” (Bergson 1911, p.301), we have seen that this understanding of time and process becomes difficult (if not impossible) with complex processes due to the recursivity of the system. This spatial as well as temporal boundary problem means that in practice we are unable to formulate “laws” which fully explain the movement of the system, or complex process, from one state to another. As mentioned earlier (in our description of deterministic causality), it is possible to calculate such laws only if we can delineate the boundaries of various states of the process. This practical difficulty does not mean that we should give up the attempt to understand complex processes. Nor does it mean our only alternative is to artificially frame the system we wish to understand, although this is the approach the majority of complexity scientists have taken (see, e.g., Poundstone 1985). It means, rather, that we should *not* try to understand complex processes as if they are objects. Since complex processes do not have a discrete origin, end point or linear trajectory from which it is possible to calculate the logical rules or laws that drive them, it is necessary to understand such processes in terms of a non-object-based (or non-linear) form of logic.

Prigogine (Prigogine 1997, Prigogine and Stengers 1984) approaches such an understanding of complex processes by beginning his analysis in a different place. Instead of trying to delineate discrete stages in order then to calculate the laws which connect them, he focuses on the passage between stages. This leads him to understand complex processes in terms of a series of “jumps” which represent new levels of order. For example when water in a container is warmed from below it will begin to form convection currents which represent a new level of order. Each jump to a new level of order, so he claims, puts the system at a crossroads or “bifurcation point”–

which presents the system with two or more equally suitable alternatives. This means a choice or symmetry break must always occur when the system jumps to a new level of order (in the case of the warming water, at the micro level the convection currents can be either clockwise or anticlockwise). It is in terms of this concept of bifurcation that Prigogine's work begins to challenge determinism, for he suggests that in adopting a particular symmetrical alternative from those that are logically (deterministically) possible at a bifurcation point "there is nothing in the macroscopic equations that justifies the preference" (Prigogine, 1997, p.68). The symmetrical alternative adopted by the system, according to Prigogine, is purely a matter of chance. Chance is therefore included as a causal factor, an operator, in complex processes. Because chance has no "essence" and is therefore not something that can be known, its inclusion into the causal mechanics of complex processes means it is no longer only *practically* impossible (due to the impossibility of delineating the boundaries of various stages of the complex process) to logically derive the laws which fully explain the movement of the complex process from one state to another. Since the inclusion of chance means there will always be something missing from the equations, Prigogine's work implies that the logical derivation of such laws is also impossible *in principle*. In other words complex processes are not just deterministic processes which, for practical reasons are difficult to describe. They are in principle different from deterministic processes and call for a different understanding of causality. Instead of deterministic causality in which everything can be fully (and logically) calculated and known, we are faced with probabilistic causality in which an essential component of the process is the unknown (chance). While the principles of determinism still operate to a certain extent, there is always a fundamental absence of something, which forever disrupts strict determinism, precluding the possibility of a full logical explanation. This difference does not mean, simply, that some causal processes can be fully understood while others cannot. It calls for a different understanding of causality. Prigogine understands this difference in terms of reversibility and irreversibility.

With conventional understandings of causality the trajectory that is traversed by a process is fully determined and therefore unchanging regardless of whether the process is running in a forwards or backwards direction. For this reason Prigogine calls such processes reversible. The rules driving such processes can be understood as timeless and immutable. Since everything about the deterministic process can in principle be known, it becomes possible to assume that given a system at particular starting point at "time 1" we can in principle determine the conditions necessary to make it reach a particular end point at "time 2." In other words, with deterministic causality, a means-ends understanding of process is possible. Essentially, this kind of process can be understood as linear (Figure 1).

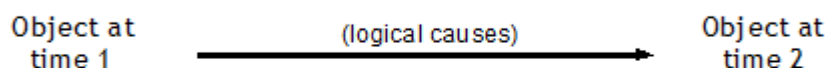
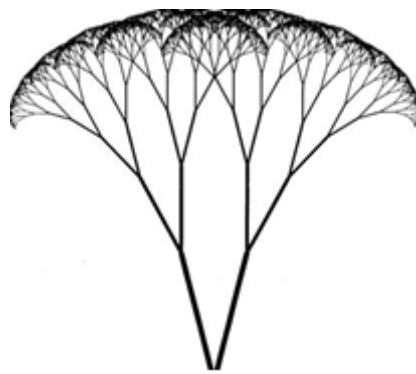


Figure 1

Deterministic causality. A deterministic or linear process in which the logical causes connecting two given events are calculable such that everything about the process can be known. In a sense, the "future" of such processes already exists (as a rational fact)

Probabilistic causality disrupts this understanding of process. When chance (which is by definition unknowable because its outcome cannot be logically derived) is included in the causal mechanics of a process – and bearing in mind that (i) chance is included at each and every bifurcation and (ii) the (chance) decision made at each bifurcation affects the subsequent trajectory of the system and (iii) it takes very few bifurcations to produce an inordinate number of options (Figure 2) – the trajectory of the process becomes radically indeterminate despite the past states of the system partially determining what emerges at each bifurcation.

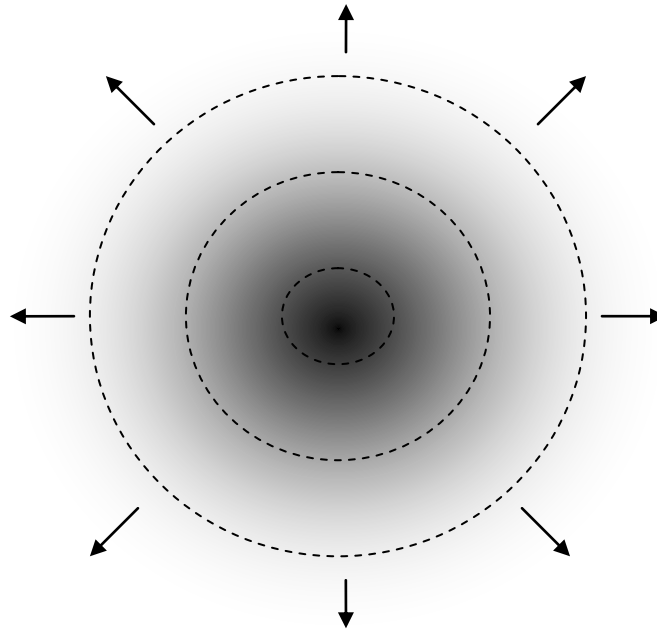


**Figure 2**

Probabilistic causality. Fractal tree showing how simple binary branching can quickly lead to a large number of outcomes

For Prigogine, the inclusion of chance at each bifurcation means the system must be understood as creating its own trajectory. In other words with each new level of order a new set of creative possibilities opens up, these being possibilities which do not, in any *logical* sense, exist beforehand. The “space of the possible” is renewed. Since new levels of order introduce forms of organisation which cannot be predicted from the most exhaustive analyses of the preceding stages, any rules or laws which may have accounted for preceding stages are no longer useful for explaining the new level of order. While preceding levels of order limit what is possible at subsequent levels, the logic of prior levels is insufficient to explain new levels of order. Each new level introduces a different (renewed) order of logic. For this reason Prigogine considers probabilistic processes to be strictly irreversible: the “logic” governing their passage through time is not timeless and immutable, but changes (in the sense of being renewed) as the process matures. Since logic can no longer describe the passage of a complex process through time, it is futile to think about such processes in terms of means and ends. A more productive way of thinking about such processes is in terms of a movement into *that which cannot be calculated* (see Biesta 2001). Since logic can no longer connect two states of a system, such processes can also no longer be understood as linear. One could perhaps think of them, instead, as centrifugal: forever “expanding” into the unknown (Figure 3). However, this is not an expansion in the sense that something unknown is added to what is already present, which remains the same. It is an expansion in the sense that what is already present is reordered or renewed in a way that opens incalculable (and wider) possibilities.





**Figure 3**

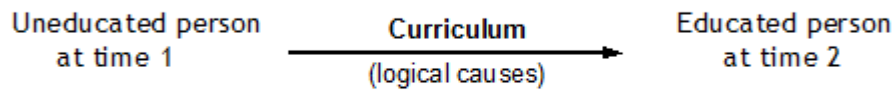
Moving into the incalculable. A complex or centrifugal process in which the “space of the possible” (the spheres within the dotted lines in the illustration) is continually expanded into that which is incalculable through “renewal” of what came before (larger spheres subsume and transcend smaller spheres). The “future” of such processes does not in any rational (calculable) sense already exist

In sum, deterministic processes can be understood in terms of the immutable laws that drive them. Probabilistic processes cannot. With the former it is useful to understand subsequent states of the system in terms of their logical prior causes (what made them possible). With the latter it is more productive to think in terms of a movement into the incalculable. The logic of the former is retrospective (oriented towards the past and what is already known), the latter prospective (oriented towards a future that cannot yet be foreseen). In the next section we shall explain how this affects our understanding of curriculum.

### **Two understandings of the guiding role of the curriculum**

It could be argued that education is different from “mere” learning in that it is presumed to guide people to learn the “right” things or learn in ways that are deemed good, or right or healthy or proper. In the absence of such guidance it is thought that people may inadvertently learn the “wrong” things or learn in ways that are damaging, incorrect, and so on. Education can thus be defined as a practice of intentional guidance. Since the curriculum in a broad sense (i.e., the content to be taught as well as the pedagogy and ideology supporting it) is the primary tool by means of which the human subject is guided in their learning, one could say the curriculum is the “mechanism” for the process of education. Our assumptions about what kind of process education is are therefore inextricably caught up with our assumptions about how the curriculum *intentionally guides learning*.

If we hold a linear understanding of process, in which given events are understood to be connected by logical causes, then it becomes possible to understand the educational process as a trajectory connecting the human subject in an uneducated state to the human subject in an educated state, with the curriculum being instrumental in this conversion from one state to another (Figure 4).



**Figure 4**

Deterministic education. A linear understanding of the educational process where the curriculum is understood as the means to a pre-given end

Of course, if we understand the curriculum in this ends-orientated way, then it becomes crucial that we be able to define what we mean by an “educated state.” Once this is defined – and only once it is defined – then a curriculum can be developed which will be instrumental in achieving the desired educational end. This is the case regardless of the educational end that is chosen. For example curricula that are designed to produce skilled workers are not the same as curricula designed to produce “self-actualized” individuals or “self-directed learners” or “critical thinkers” or “democratic citizens,” and so on. Our point is that it is the idea of a pre-given educational end (i.e. an “educated” person, however this is defined) that qualifies a curriculum as *educational*. Without such an end, we do not have a way to distinguish education from other kinds of learning. We believe this ends-orientated understanding of the educational curriculum (made possible by a linear understanding of process) underpins every form of education where the end or intention of the educational intervention is pre-defined.

While such forms of education may differ widely from each other they are all founded on the idea that for education to be educational, it has to be for something and that something must be defined before education can take place. One consequence of this understanding is that whatever the end that is chosen – and we must be clear here that the choice for such a trajectory is indeed a choice which has to be made by *someone* – it will always reflect particular interests and values. In this regard we have to concede that a linear understanding of process triggers an understanding of education that is indistinguishable from socialisation (Biesta 2007b). But we believe there is another way to understand the process of education, one which releases education from this socialising role (see Biesta in press/2009). While practices of socialisation are not unimportant, since they equip newcomers with the tools they need to participate in particular forms of life, it is highly problematic when we try to think about the issue of educational inclusion. This is the case because whoever is “included” through socialisation is always included into a framework of values already defined by those on the “inside” which means it is inevitable (and unavoidable) that certain interests are promoted at the expense of others. When this is the case, questions about which or whose interests should be promoted through such socialisation (and why) become critically important for curriculum theorists and need to be rethought again and again. However, while we do not wish to argue against the importance of rethinking the

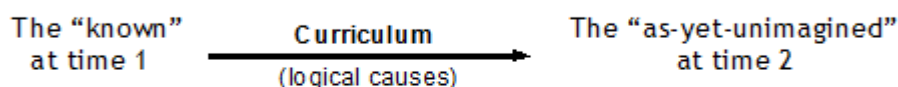
purposes of socialising curricula, we also believe the importance placed on this activity in curriculum and educational theory obscures another kind of curriculum question: the question about whether a linear understanding of the educational process and hence an ends-orientated understanding of education (i.e., education-as-socialisation) *is the only understanding of education that is possible* (see Biesta in press/2009).

The work of Prigogine suggests that a linear understanding of process is at least not the only understanding of process available to us. While a linear understanding of process is useful for understanding “closed” systems (those which do not interact with anything outside themselves and which can therefore be considered “static”) it is problematic when we attempt to understand “open” or “complex” systems (which are always in dynamic interaction and which show an increasing level of order over time). As Prigogine’s work demonstrates, a centrifugal and open ended understanding of process (based on the principles of probabilistic causality) is more useful for understanding complex systems.

With a complex and open ended (centrifugal) understanding of process, it becomes possible to conceive of the educational process as an exploration or movement into that which cannot currently be conceived as a possibility. In this case the curriculum could then be understood to guide learning by “expanding the space of the possible and creating the conditions for the emergence of the as-yet unimagined” (Davis 2004, p.184). Michel Serres puts it like this:

The goal of instruction is the end of instruction, that is to say invention. Invention is the only true intellectual act, the only act of intelligence. The rest? Copying, cheating, reproduction, laziness, convention, battle, sleep. Only discovery awakens. Only invention proves that one truly thinks what one thinks, whatever that may be. (Serres 1997, pp.92-93)

It could be argued, however, that such a conception of the curriculum, as being instrumental in producing the “as-yet unimagined” still has a preconceived purpose (the production of novelty, invention or creativity). As such it is still education with an end in mind: an end which closes off other possibilities for education. If, like Serres, educators hold that “[i]nvention is the only true intellectual act, the only act of intelligence” and further, if they design a curriculum to facilitate such creative acts of intelligence, then it follows that those who cannot or will not creatively invent cannot call themselves “educated” and therefore cannot fit into the social framework which defines educated persons as creative inventors. Indeed, such persons could be considered to have failed to become educated (despite the opportunity provided by the curriculum). While a shift to a complex understanding of process may have taken place (the need to incorporate openness into our understanding of education), the guiding role of the curriculum is itself still understood in terms of a linear, means-ends framework (Figure 5) and the openness itself becomes an end. Since the curriculum is still designed with a specific end in mind, the process of education still has a socialising function.



**Figure 5**

Open linear education. A linear understanding of the educational process where the curriculum is designed specifically to produce the "as-yet unimagined" (novelty)

The challenge, therefore, is to rethink the guiding role of the curriculum itself in terms of a non-linear or complex (centrifugal) understanding of process for we believe it is only at this fundamental level that that we will be able to think of education as something other than socialisation. The question, then, is how to get away from this linear educational logic *without giving up the idea that the curriculum has some kind of guiding role* which distinguishes education from other kinds of learning. There are a number of steps in understanding this.

First, it is necessary to acknowledge that if the educational process is complex it is not just that the educational end is not there in advance, but that that the process lacks an end altogether – it is fundamentally open ended. If the curriculum is what drives the educational process, then this means that as long as the curriculum exists, education will continuously take place, it cannot come to an end, cannot reach a point of closure. This is very different from saying that the end can be arrived at in some other way (e.g., that the end is a function of the process itself, or that the end is arbitrary) which, at a fundamental level, would still leave us with an understanding of education as orientated towards closure. With a complex understanding of process education is not about closures but about openings. There can never be a point at which we can say someone is now "educated" because education is no longer something to be "acquired." It is, rather, an unending process. This does not mean we should no longer make judgements about what emerges from the educational process (which would imply that students should be allowed to learn anything they please) only that we should not try to judge what emerges before it has taken place or specify what should arrive before it arrives. We should let it arrive first, and then engage in judgement so as not to foreclose the possibilities for anything worthwhile to emerge that could not have been foreseen (see Biesta 2007b, p.31). Moreover, engagement in such judgements should not be seen as something that is done from the 'outside' – teachers judging students; parents judging children – but should rather be seen as a collaborative process, as something that all who are engaged in the activity should take part in and should do so continuously. It is this continual engagement in judgement (not the arrival at an end point) that makes the educational process educational.

The next thing to acknowledge, which is closely related to the first, is that if the educational process is complex (dynamically relational) then it lacks not only an end, but also a beginning because there is no foundation or point of origin that is not already in interaction with something else. This means we can no longer say that education begins with the student, or with the teacher (or even with the curriculum).

We have to understand all these “elements” of the educational process as always already in dynamic interaction with each other and with elements “outside” the system. Without a concrete start (or end) point we can now only describe the educational process as taking place in space of dynamic relationality (see Biesta 2004b). Because this is the space where education takes place, it is, in effect, a curricular space. We have therefore moved from the idea of a curriculum as something to be followed before we can get to education, to the idea of the curriculum as a space where education is already taking place.

The third thing to acknowledge is that this complex curricular space where education is already taking place is, by definition, a space of responsiveness. This is the case because responsiveness does not come after relation, it is a necessary condition of relationality. Without response, nothing can be “in relation.” But it is also important to distinguish between (i) *mechanical responsiveness* in which everything is predetermined and there is only a single way for the process to “unfold” and (ii) *complex responsiveness* in which there are always a number of symmetrically equivalent possibilities for the continuation of the process. If we understand the curricular space as a space of *complex responsiveness* then it must also be understood as a political or ethical space in which critical judgements between symmetrically equivalent possibilities have to be made. We could therefore say that the complex curricular space is a space which presents multiple possibilities for the student to critically assess and choose between. It is the opening of possibilities by the teacher (through the presentation of that which is different, strange, or other) in response to the student’s attempts at closure and the making of choices by the student in response to the possibilities opened by the teacher, and then again by the teacher in response to the choices of the student, that constitutes the “taking place” of education in the complex curricular space (see Biesta 2001).

Last, we need to acknowledge that it is this opening of possibilities and making of critical choices that makes a complex process radically indeterminate. Since the trajectory of a complex process is partially a product of non-mechanical choices (which entail a degree of uncertainty) made through countless openings of possibility, we have to understand the future of complex educational processes as centrifugal; forever moving “outwards” to occupy spaces that are incalculable from the perspective of the present. Since what could be opened through such educational processes is incalculable from the perspective of where we are now, such processes can no longer be understood as linear, motivated towards a future that is already known and pre-defined. The curriculum no longer guides by intentionally leading towards a closure. It guides through the presentation of alternatives which complicate the scene, unsettling the doings and understandings of others and demanding the exercise of critical choice, in other words, it guides by intentionally opening closures.

This understanding of the guiding role of the curriculum offers a way out of the conundrum of the inclusive curriculum for it not only succeeds (where humanistic education failed) in not imposing a normalising framework, but does so in a way that cannot be judged to be politically neutral (this being the main criticism brought against liberal and child-centred education by Critical theorists). Because the complex curriculum is a space of complex relationality which calls for the exercise of critical judgement again and again at all levels it is also a political space in which it becomes

possible to continuously renew our ways of being-in-the-world-with-others and rethink everything about our world. In this sense education ceases to be about socialising people into a way of thinking/being/doing decided in advance, where those who do not manage to socialise or become socialised in the approved way are considered educational failures. It becomes, rather, a practice which is intimately connected to the question of democracy. Here, democracy is understood not as a practice or mechanism leading to one desirable outcome, but as a space where it is possible to choose between symmetrical alternatives. In a world where there is no choice between equally suitable alternatives (because there is always only one “correct” or “best” alternative) there is no possibility for political and ethical judgement, and hence no possibility for democracy. When education is understood in a *complex* sense it therefore creates a curricular space in which democracy can take place. (see also Biesta 2004a, 2006).

### **Concluding remarks**

As the process of economic, cultural and political globalisation produces local communities with an ever increasing degree of diversity (Torres 1998, p.439), educational inclusion, at least according to Mel Ainscow, is coming to be seen as one of “the major challenge(s) facing educational systems around the world” (Ainscow 2005, p.109). To deal with the challenge we believe it is crucial that the idea of inclusive education is not rendered meaningless by a conundrum. A number of authors have argued that for inclusive education to move forward, what is required is a new language of inclusive education, a language which takes seriously the question of difference and which sees difference as ordinary – part of the human condition – rather than something pathological. We believe that by making possible an understanding of education that is something other than socialisation into an existing order, inclusive education’s “pathological gaze” (Slee 2001, p.171) is averted and the conundrum of the inclusive curriculum ceases to exist. The conundrum ceases to exist because a complex understanding of education is not at odds with the concept of inclusion. By creating a space in which it is possible to choose between symmetrically equivalent options, and hence possible to exercise critical choice, complex education holds open a democratic space – a space of equality – in which that which is different, strange and other still has a place and can still be taken seriously.

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