

# On the two cultures of educational research, and how we might move ahead: Reconsidering the ontology, axiology and praxeology of education<sup>1</sup>

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**Abstract**

In this paper I focus on a split within the field of educational research between those who approach education as an activity or practice governed by *cause–effect relationships* and those who see education as a human event of communication, meaning making and interpretation. Rather than just arguing against the former and in favour of the latter view, I outline a way forward in which the question of how education works and how it can be made to work better is considered a legitimate question, but where the answer to this question takes into consideration the specific nature of educational processes and practices. In order to do so I explore the *ontology*, the *axiology* and the *praxeology* of education through a discussion of the question of how education actually works (ontology), the question of what education might work *for* (axiology), and the question of what this means for making education work and making it work better in the everyday practice of teaching (praxeology). I preface this discussion with observations about the differing ways in which education as a field of academic scholarship has developed in Europe, in order to highlight that ‘educational research’ exists in at least two distinctively different configurations, and to show how the way in which the field has established itself in the German-speaking world might provide helpful resources for conceiving of educational research in a more educational manner.

**Keywords**

Two cultures, educational research, educational technology, educational ontology, axiology, praxeology, educational judgement, complexity

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## Introduction

In 1959 the English physical chemist and novelist CP Snow published a short book based on a lecture he had given earlier that year at the University of Cambridge. The book was titled *The Two Cultures* (Snow, 1959). In the book Snow lamented the gap between two ‘polar groups’ (Snow, 1963: 4), as he called them, one being ‘the literary intellectuals’ and the other the ‘scientists’ and ‘as the most representative, the physical scientists’ (Snow, 1963). Snow characterised the gap between the two groups as ‘a gulf of mutual incomprehension – sometimes (particularly under the young) hostility and dislike; but most of all a lack of understanding’ (Snow, 1963). Snow not only sought to characterise the gap, but also to identify some of its main causes. With regard to the latter he particularly singled out the idiosyncrasies of the English educational system with its ‘fanatical belief in educational specialisation’ (Snow, 1963: 17), which he saw as quite different from the situation in the US and USSR. Whereas the detail of Snow’s analysis has largely been forgotten – I found it interesting to discover, for example, that Snow’s main concern was not with the gap between the sciences and the humanities itself but with the global gap between the rich and the poor – the idea of ‘two cultures’ has survived, and has come to stand for any situation within academia and culture more generally where there is a strong division between two approaches and where there is a general lack of communication and mutual understanding.

I was thinking of Snow’s idea of the two cultures when reflecting on the past, present and future of educational research in Europe, because I believe – and I do not claim that this observation is in any sense original – that the field of educational research is characterised by quite a number of gaps, splits, divisions, cases of mutual incomprehension, and also, I think, of non-communication. Some of these gaps and splits are shared with other fields of scholarship and research. Think, for example, of the science wars, the paradigm wars, or the ongoing division between qualitative and quantitative research (which may well have been reinforced rather than dampened by the rise of mixed methods approaches). Some gaps and splits are more specific for the field of educational research, including the fact – as I will discuss in more detail below – that this field is not unitary but has developed in quite different ways in different national and linguistic contexts.

The gaps and splits in contemporary educational research are partly of an *intellectual* nature, where they have to do with differences in theoretical orientation and methodological outlook. These are reflected in and also reinforced by the *social* organisation of the field. Think, for example, of the existence of two European societies in the field of educational research, EERA, the European Educational Research Association, and EARLI, the European Association for Research on Learning and Instruction. In addition, there is a clear *political* dimension, in that different schools, approaches and styles of research are based on particular beliefs and normative preferences about what educational research is, what it ought to be and what it ought to achieve (which includes beliefs and preferences about the relationship between research and policy and the relationship between research and practice).

In this paper I wish to focus on one particular split within the field of educational research, namely between those who approach education first and foremost in technological terms – that is, as an activity or practice that is ultimately understood as being governed by *cause–effect relationships* (albeit that the complexities of those relationships may not yet have been completely unravelled) – and those who see education first and foremost as a human event of communication, meaning making and interpretation in which questions of cause and effect actually have no place. Rather than just arguing against the former and in favour of the latter view – which would basically just reinforce the split between the two – I wish to outline a way forward in which the question of how education works and how it can be made work better is considered as a legitimate question, but where the answer to this question takes into consideration the specific nature of educational processes and practices.

In order to do so I explore what I will refer to as the *ontology*, the *axiology* and the *praxeology* of education through a discussion of the question of how education actually works (ontology), the question of what education might work *for* (axiology), and the question of what this means for making education work and making it work better in the everyday practice of teaching (praxeology). I preface this discussion with some observations about the differing ways in which education as a field of academic scholarship has developed in Europe, partly in order to highlight that ‘educational research’ is not one thing but exists in at least two distinctively different configurations, and partly to show how the way in which the field has established itself in the German-speaking world might provide some helpful resources for conceiving of educational research in a more educational manner.

## Technological expectations about education

I have put the distinction between a technological and a non-technological conception of education rather starkly, because I do think that technological expectations about education – that is, expectations that conceive of education in (quasi-)causal terms, that see the main role for research as that of discovering knowledge about the connections between inputs and outcomes, and with the ambition that education itself can ultimately be transformed into a predictable technology – are continuing to trouble research, policy and practice, and have actually been doing so for quite some time (see, for example, Condliffe-Lagemann, 2000; Labaree, 2004; and, for the particular history of educational research in Europe, Lawn and Grek, 2012: chapter 2).<sup>2</sup> Some of the more recent manifestations of the technological mind-set can be found in the call to turn education into an evidence-based endeavour where research has to focus on finding out ‘what works’ (Biesta, 2007). We can also see it in the global measurement industry, which seeks to measure in much detail the numerous connections between inputs, mediating factors and outputs, particularly in order to ‘drive up’ those outputs in the direction of some alleged standard of educational excellence (Biesta, 2010a). Much of this has its precursors in the school effectiveness movement, which, from the 1990s onwards, sought to investigate the connection between educational inputs and outcomes so as to make education more effective in bringing about such outcomes.

I do not wish to demonise the work that has been going on or is going on in these areas. However, I do wish to suggest that the general tendency to conceive of education in technological terms, to have technological expectations about education and to suggest that technological questions are the only legitimate questions for research and practice, ultimately amounts to a distortion of what education *is* ‘about’ and of what it *ought to be* ‘about – as many who find themselves at the receiving end of such expectations, be it as researchers, be it as teachers, can attest and do attest (see, for example, Kneyber and Evers, 2013).

Despite my critique of the idea of evidence-based education (see Biesta, 2007, 2010b), I also do not wish to discredit the ‘what works’ question as such, because I do think that *at the level of educational practice* – but only there and only in a particular way – it is a legitimate question. After all, on a very ‘minimal’ definition we could say that all education aspires to bringing about change. So the question whether educational actions will result in the change that is being sought for is, from this angle, an ‘obvious’ question. Problems arise when practical questions about relationships between actions and consequences morph into research questions about relationships between causes and effects, and into the general belief that when education fails to ‘produce’ such effects, there must be something wrong.

The persistence of technological expectations about education has a lot to do with the legitimacy of the ‘what works’ question as a *practical* question. However, things go wrong when this question is taken out of its context and becomes a general and abstract issue for research and policy in such a way that two other questions that are absolutely crucial – *How* does education actually work? And what should education work *for*? – disappear from sight. These questions, which

concern the *ontology* and the *axiology* of education, are important because having a more informed – and perhaps we can say, using John Dewey's term, a more intelligent – view about these issues can provide a buffer against all too simplistic attempts to put both educational research and educational practice on a technological track. This is not only important in order to counter the technological 'push' in research, policy and practice. It is also important in order to overcome the knee-jerk response to such attempts, one that, by delegitimising certain forms of research, also delegitimises the questions and concerns that motivate such research so that, for example, the question about 'working' is rejected rather than transformed.

While in one respect this paper is therefore a critique of the technological view of education and the technological approach to educational research, a critique of the culture of measurement and of the managerial approach to accountability that has come with it, of the problematic impact of large-scale measuring and comparing and of the methodological monocultures that have established themselves in some European countries and that are being established in others, my ambition with this paper is to identify a way forward. This, as mentioned, stems from a concern that the technological 'mind-set' tends to misconstrue what education is about and ought to be about, and from an ambition to make educational research more properly educational. In order to put this latter ambition in context, I wish to make a few remarks about different ways in which the academic 'field' of education has established itself throughout the 20th century.

## Two constructions of the field

For the sake of brevity I will confine myself to a comparison of two major ways in which the academic study of education has developed and established itself in Europe, albeit that similar developments can be found in other parts of the world, sometimes as a result of developments in Europe and sometimes also influencing developments in Europe. The main difference has to do with the fact that in the English-speaking world the academic study of education generally has taken the form of the multidisciplinary study of educational processes and practices, most often as they happen in and through educational institutions such as schools, colleges and universities, but also in such fields as adult education, vocational and professional education, and lifelong learning. In this constellation education is seen as a 'field' or 'object' of study and it is argued that in order to study this field of object we need input from a range of (proper) academic disciplines, most notably the psychology, history, sociology and philosophy of education. Yet in the German-speaking world and countries influenced by it, education has in the course of the 20th century established itself as an academic discipline in its own right, with its own forms of theory and theorising and its own intellectual and social infrastructure. In German this is known as the discipline of 'Pädagogik' – and similar words can be found in other languages, such as, in Dutch, 'pedagogiek' or, in Norwegian, 'pedagogikk'.

When we look at the historical trajectories behind these different configurations (for more details, see Biesta, 2011, 2012), we can see that in the English-speaking world the academic study of education mainly established itself in the context of teacher education and particularly the incorporation of teacher education into the university (in Britain predominantly after the Second World War; see also Furlong, 2013). This incorporation raised the question of what the intellectual 'resources' for the education of teachers ought to be beyond what could be 'picked up' from engaging in the practice of teaching itself. History and psychology arrived early on the scene – they played a role in the education of teachers from the end of the 19th century onwards – whereas philosophy and sociology became more prominent from the 1950s onwards. This constellation remains the familiar way in which the academic study of education is understood, practised and organised in many English-speaking countries, albeit that the relative 'weight' and prominence of

the disciplines of education has shifted over time (see also Ellis, 2012; Lawn and Furlong, 2009; and for an interesting historical source Tibble, 1966).

The story for the German-speaking world and for countries influenced by it is quite a different one. Here the 'organising principle' for the establishment of the discipline of education was not teacher education but an interest in and concern for education (in German: 'Erziehung') as a 'phenomenon', so to speak. The idea of 'Erziehung' first emerged in the Reformation, where it referred to intentional influences on the human soul aimed at bringing about a virtuous personality. Such a personality was initially conceived in terms of Christian values but over time transformed so as to encompass secular understandings of the virtuous person, including the Enlightenment idea of 'rational autonomy' (see Oelkers, 2001: 31). Perhaps the most important point for the discussion at hand is the presence in the German-speaking context of the idea that there is such a thing as a distinctive *educational* interest, that is, a distinctive educational concern that provides a particular way of looking at and engaging with educational phenomena. This idea played a key role in the establishment of education as an academic discipline in the first decades of the 20th century, where proponents of what became known as 'geisteswissenschaftliche Pädagogik' (see, for example, Nohl, 1970[1935]) established the discipline as what we might call an *interested* discipline (Biesta, 2011), that is, a discipline organised around a certain normative interest. The particular interest that played a central role in the establishment of 'geisteswissenschaftliche Pädagogik' was the interest in the emancipation of the child, which, in the background, also included the idea that such emancipation was best served by an academic discipline that itself was emancipated from normative systems, such as the church and the state.<sup>3</sup>

There is, of course, far more to say about the ways in which education has established itself in the English-speaking and German-speaking world, but let me highlight two things that are relevant for my argument. The first is simply to remind ourselves that when we are talking about 'our field' or even 'the field' and when we are using such phrases as 'educational research' or 'the educational sciences', we should not forget that there are significantly different academic configurations that have emerged out of very different histories. Unlike what may be the case in other areas of academic scholarship, in education 'the field' is therefore not one 'thing'. Being aware of this is particularly important if the main language of academic conversation and discussion in Europe is coming from one of these traditions.

Intellectually the comparison between the two configurations is interesting as well, because when we look at the way in which the field has established itself in the English-speaking world from the perspective of *Pädagogik*, we can see a certain missing dimension.<sup>4</sup> One way to put it, is to say that what is absent in how the field has established itself in the English-speaking world is the idea of a distinctively *educational* perspective on education. When we look at education through the lens of what in the English-speaking world are known as the disciplines of education, we can say that the philosophy of education asks philosophical questions about education, the history of education asks historical questions, the psychology of education asks psychological question and the sociology of education asks sociological questions, which then raises the question 'Who asks the educational questions?'

Whereas some would see this question as superfluous or even as nonsensical (on this see Biesta, 2011), one way in which we might appreciate the relevance of the latter question is when we ask how, in the English-speaking configuration of the field, researchers actually identify the object of their investigations. What, in other words, makes it possible for them to identify (something as) 'education' and make it into an object of research? Put in more everyday terms: when we walk into a school, how do we manage to identify the education that is going on there? For this, so I wish to argue, we actually need a criterion for what 'counts' as education, such as, for example, the idea that education is about those processes and practices that are orientated towards the promotion of

the emancipation of children and young people. I wish to suggest that it is only when we have such a criterion that it becomes possible to identify certain processes and practices as ‘education’ and thus can make them into an object for research, which means that without such a criterion we run the risk that as researchers we have to accept or are accepting given constructions and conceptualisations of education as the object of research, rather than that we can engage in a critical manner with what it is we are conducting our research on.

This shows then in more detail why it is important to engage with questions about the specific ‘nature’ of educational processes and practices, as it is only against such a background that we can judge whether, how and for what reasons the technological view of education may be putting us on the wrong track. For this I turn to the question how education works, what it should work, and how we can make it work better.

## How does education work? The ontology of education

The technological view of education relies on the idea that education can in some sense be conceived as a machinery where there are inputs, mediating variables and outcomes. The technological ambition, as mentioned, is to make the connection between inputs and outputs as secure as possible so that education can begin to operate as a deterministic machine. While I do not want to discredit aspects of the underlying ambition – as mentioned, at a practical level the ‘what works’ question is a legitimate question – I do think that the machine metaphor and the (quasi-)causal assumptions that come with it are really unhelpful in understanding how education actually works. In my own work (see particularly Biesta, 2010c) I have found it helpful to make use of insights from systems theory and complexity theory. When we use the language of systems theory, we can begin by saying that cause–effect relationships actually only occur in very specific systems, namely closed, mechanistic systems, that is, systems where there is no interaction with and interference from the context in which the system works, and where the internal connections between the parts of the system operate in a mechanistic way, so that the system can operate as a deterministic causal machine.

Whereas even in physical nature such systems are the exception rather than the rule, social systems such as education actually operate in a very different way. When we use the language of systems theory to characterise education, we can say that education is an *open*, *semiotic* and *recursive* system. Education is an open system because it is in interaction with its environment rather than being completely disconnected from it. Education is a semiotic system because the interactions within the system are not interactions of physical push and pull, but of communication, meaning making and interpretation. In addition, education is a recursive system because of the way in which the system evolves and feeds back into the further operation of the system – which, in more everyday terms, has to do with the fact that the ‘elements’ in the system, teachers and students, are thinking beings with agency, that is, beings who can draw conclusions and can act upon those conclusions.

The fact that education systems are open, semiotic, recursive systems already begins to show why machine-like expectations about education actually misconstrue the ‘nature’ of education. Yet while one might agree with a description of education as an open, semiotic, recursive system, one could wonder how it is possible that such systems work at all, as there are many unpredictable elements in such systems, particularly when such elements begin to impact upon each other. As I have discussed elsewhere in more detail (Biesta, 2010c), we can reduce the complexity and unpredictability of open, semiotic, recursive systems by reducing the degrees of freedom in each of the dimensions that constitute the system. In more plain language: when we make education less open, when we limit the possibilities for interpretation and when we guide the thinking of the actors in education in particular directions, the system will slowly begin to function in more patterned and predictable ways.

Looking at the ‘working’ of education in this way has, in my view, two advantages. First of all it gives us a language to describe with more precision what we are actually doing when we are trying to make education ‘work’. We know, for example, that it is very difficult to do education ‘on the street’ where there is total openness towards the environment, which is the reason why we have school buildings, classrooms, curricula, setting and streaming, and so on. By reducing the openness of education we can begin to make things ‘work’. Similarly we make education ‘work’ by reducing semiosis, that is, by reducing the opportunities for interpretation. Again we have good reasons for doing this, because in education we are not just after any creative interpretation on behalf of the student, but – to put it simply – we are after the ‘right’ interpretation (albeit that what counts as right is quite a different thing in different subjects areas). Feedback and assessment are important ways in which we try to influence and reduce educational semiosis. Thirdly, we can make education ‘work’ by reducing the diversity of the ways in which the actors think, judge and act – and on the side of the teacher we do this, for example, through teacher education, where we engage student teachers with professional traditions of thought and judgement so that they begin to see, think, judge and act as teachers. By looking at education in these terms we can, therefore, say in a much more precise way how we can make education ‘work’, not least because it gives us a very different understanding of what the ‘drivers’ are that make education ‘work’.

What is also helpful about this way of looking at education is that we can identify what it would take to ‘push’ education towards a machine-like way of operating. For that we would, ultimately, need to close off education from any contextual interference, we would need to have total control over processes of meaning making and interpretation and we would need to have total control over the thinking and judging of the actors in the process.<sup>5</sup> In this regard we can say that the language of systems theory and complexity theory gives us actually very concrete guidelines for turning education into a technology and turning educational practice into a perfectly operating machine. However, what it also shows is that such an ambition comes at a price and the question, to put it simply, is whether this is the price we are willing to pay. In order to answer that question we need to shift from the question of how education works to the equally important question of what education is supposed to work *for*.

## **What should education work for? The axiology of education**

In several of my publications (particularly Biesta, 2004, 2006, 2009, 2010a) I have discussed the fact that over the past decades the language of learning has become a prominent language in educational research, policy and practice. While there are many good reasons for the rise of the language of learning, I have argued that the language of learning is insufficient as an educational language. We can see this insufficiency when we encounter statements that say that the purpose of the school is to make students learn or that the task of the teacher is to support or facilitate the learning of children and young people. The problem, simply put, is that in education – that is, when we spend time, effort and money to bring teachers and students together – the aim can never be that students just learn. The point of education is rather that students learn *something*, that they learn it for particular *reasons*, and that they learn it *from someone*. Here lies an important difference between the open and process-like language of learning and the more specific language of education, in that in the latter we always need to engage with questions of content, purpose and relationships.<sup>6</sup> Of these three I have suggested that the question of purpose is the most central and most fundamental one, because it is only when we have an idea of what it is that we seek to achieve with our educational endeavours and what we seek our students to achieve, that we can begin to make decisions about relevant content and about the appropriate relationships.

It is impossible to deny that the question what education should work *for* – which is the question of purpose – is a normative question. This means that to answer this question we need to engage with values and preference or, in a more general language, we need to engage with the question of what good education is (rather than, say, the question of what effective education is, which is only a question about the capacity of processes to bring about certain results, but does not say anything about whether and why such results in themselves are desirable). The question of purpose is an inevitable question in education, and some authors (e.g., Carr, 2003) have even gone as far as to say that education is a practice that is *constituted* by its purpose – which in technical language means that education is a *teleological* practice, a practice constituted by its purpose.<sup>7</sup> In relation to the question of purpose in education I have suggested that what makes education both unique and difficult is that it is not orientated towards only one ‘telos’, but to (at least) three different ‘domains of purpose’ (for this term see Biesta, 2009).

The idea is simple because when we look at how education actually functions, that is, what instances of education actually do and what they impact upon, we can see that almost all education is always about the transmission and acquisition of something – knowledge, skills, dispositions – that helps children and young people to become qualified (in the narrow sense of vocational qualifications or the broad sense of becoming qualified to live in complex modern societies). We can call this the qualification function of education. In addition, education is always engaged in the presentation, communication and initiation of traditions, practices, ways of doing and being – such as cultural practices, political practices, religious practices, professional practices, vocational practices, and so on. This is known as the socialisation function of education. Then we can say that education always also impacts on the human person, on the ways in which children and young people can exist as subjects of action and responsibility – which I have therefore suggested to refer to as the subjectification function of education (for the model see Biesta, 2009, 2010a).

If it is the case that education always potentially impacts in these three domains – intentionally but sometimes also unintentionally (think of the idea of the hidden curriculum) – then we can say that educators (from teachers all the way up to curriculum developers, policy makers and politicians) need to take responsibility for what they seek to achieve in each of these domains, and need to provide justifications for their ambitions.

We can refer to this dimension of education as the axiology of education, as it has to do with the values that give direction to education. The reason why it is important to highlight the axiology of education is precisely because it provides us with criteria for judging what we want education to work *for*. If we connect this to what in the previous section I have said about the ontology of education, we can then begin to see how we can make judgements about educational and what we might refer to as non-educational forms of complexity reduction. Educational forms of complexity reduction try to make the system work in such a way that it can contribute to what we hope students will achieve and acquire in each of the three domains, whereas non-educational forms of complexity reduction work against what we seek to achieve. If it is the case that we do not simply want our students to acquire knowledge and skills and become part of traditions, but if we also want to help them to become moral persons with a capacity for critical thinking and moral judgement – to name but one ‘configuration’ of how we might think about what we seek to bring about in the domain of subjectification – then we can immediately see that to create a system that works in a ‘perfect’ manner (by being closed to the environment and exerting total control over meaning making and thought) we end up with a non-educational way of ‘doing’ education. The axiology of education is therefore not just relevant in relation to judgements about purposes, but also about (educational) ways of working towards such purposes.

## Judgement: The praxeology of education

This brings us smoothly to the praxeology of education, which has to do with the question of how education is to be *practised*. Here I wish to suggest, based on the considerations in the previous two sections, that practising education cannot be done without *judgement* (see also Heilbronn, 2008). As many authors before me have emphasised, but what we can now, through the lens of systems theory and complexity theory perhaps see and express with more precision, is that education can never be practised through fixed protocols, because in a very fundamental sense we are always dealing with unique and new situations: new children in our classrooms, new things happening in the families and societies in which they live their lives, new things learned in the past, and so on. Aristotle (1980) has already made the point that practices such as education occur in the domain of the 'variable', not the domain of the 'eternal', and that we therefore are not in the possession of the kind of certain knowledge that we can have of phenomena and processes that always operate in the same way – such as the movement of heavenly bodies – but operate in the field of actions and consequences, where our knowledge is always provisional because the reality we work in is always changing. Our knowledge in this domain thus gives us suggestions about possible connections between actions and consequences – between our teaching and what may follow – but there is never complete certainty that what followed in the past will also follow in the future. Hence there is a need to 'tailor' our knowledge to new and ever-evolving practices – which is a matter of judgement. While Aristotle articulated the difference in terms of different kind of realities, the ontology of education presented above allows us to understand this more as a matter of degree – which means, to make the point one more time, that we can of course push variable systems such as education towards predictability, but this always comes at a price. Hence we also need to judge whether that is the price we are willing to pay.

Judgement is not only needed to tailor the professional knowledge we have to situation that in some degree are always new. Teachers and others involved in the design and enactment of education also need to make judgements about the purposes – and this is both a matter of articulating what it is one seeks to achieve in each of the domains of purpose, and of making judgements about finding a meaningful balance between the three domains, also bearing in mind that the domains do not work in perfect harmony so that there is also judgement needed about the 'trade offs', that is, about the price we are willing to pay for temporary emphasis on one of the domains. Here I will just remark that much contemporary education seem to be significantly out of balance as a result of a strong – and in some cases – excessive emphasis on the domain of qualification, and often only on a small number of measurable 'outcomes'.

The praxeology of education is not only important in order to understand an important dimension of how education 'works' and, more specifically, how it can be practised. A better sense of the praxeology of education is also crucial in order to think about the possible ways in which educational research might inform, support and enhance practice. Again – without claiming that this insight is original – to think that the only thing practice needs is technological knowledge is not only based on a misunderstanding of the ontology and axiology, but also on the praxeology of education. While there is a place for knowledge that provides insights in what we should term *possible* relationships between educational actions and their consequences – which is a much more appropriate way to think about practical knowledge for education than in terms of recipes and protocols – it is important not to forget that research can also be of tremendous practical relevance if it provides practitioners with different ways of seeing and talking about education – something that De Vries (1990) refers to as the cultural role of research as distinguished from the technical (or in the language of this paper, the technological) role of research in relation to educational practice.

## Conclusions

In this paper I have engaged with an important ‘split’ within the field of educational research, namely between a technological and a non-technological understanding of and approach to education and educational research. We can think of these two approaches as two ‘camps’ or, in the language of Snow, as two ‘cultures’, but if we do that, then there is a real risk that we keep moving back and forth, that we keep thinking in terms of ‘for’ or ‘against’ and thus keep the oppositional nature of the situation in place. In this paper I have first of all indicated some of the problems of the technological ‘mind-set’. Against this background I have outlined (the direction of) an alternative approach in which the question that motivates much technological thinking and doing in education – the question of how we can make education ‘work’ – can be taken seriously without ending up in (quasi-)causal ways of thinking about and of ‘doing’ education. In addition, I do wish to emphasise one more time that I see a significant amount of educational policy still wanting to move towards turning education into a predictable machine. Sometimes the reasons for such ambitions are laudable, particularly the social justice argument that all children should have access to good and meaningful education, but the execution is often misguided if it means just ‘turning up the pressure’ or, in terms of the vocabulary I have introduced in this paper, trying to control all aspects of the workings of the education system so that the system becomes entirely closed with no room for meaning making, reflection and judgement. By trying to articulate an ontology, an axiology and a praxeology that is distinctively educational, I have tried to provide a vocabulary and way of thinking in which the question of how we can make education work can be taken up in an educationally meaningful way, taking into consideration the particular nature of human practices such as education, having a clear orientation towards what education is supposed to bring about and acknowledging the indispensable role of judgement in practising education. I do not expect that this paper will solve all the problems that are currently troubling educational practice, but I do hope to have provided some markers towards a different future for educational research.

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1. This paper is based on the invited keynote presentation I gave at the conference of the European Educational Research Association in Porto, Portugal, in September 2014, with the theme ‘The past, present, and future of educational research’. I would like to thank the organisers of the conference for the invitation to present. As the paper is a reflection on the past, present and future of educational research, I integrate ideas that I have been developing in different contexts over the past years.
2. Just to clarify: with ‘technological’ I do not refer to the use of information and communication technology, but to thinking of education itself in technological terms or metaphors, such as the idea that education is basically some kind of (causal) machine or, with the image suggested by Coffield and Williamson (2011), an ‘exam factory’.
3. A not unimportant historical detail is the fact that the emancipation of the child was mainly understood in interpersonal terms – the emancipation of the child through education from its dependency upon adults – and not in political terms. The latter only became an explicit theme after the Second World War in what is known as ‘kritische Pädagogik’.

4. I am aware that what I am about to argue could just be taken as a preference for the German ‘construction’ of the field, but I hope to be able to show that the argument is in itself interesting and important.
5. It is probably not too difficult to recognise this as a description of how indoctrination works.
6. I am not suggesting that if teachers or policy makers speak the language of learning they are engaged in directionless processes. My point rather is that when the language of learning is the only available language, the purpose of the learning is often taken for granted or defined ‘elsewhere’, rather than that educational actors engage with the question of purpose in a conscious and deliberate manner.
7. The Greek word ‘telos’ means purpose or reason, that is, what gives a practice its meaning and sense of direction – which needs to be distinguished from notions such as ‘aims’ and ‘outcomes’.

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### **Author biography**

After having worked at universities in the Netherlands, the UK and Luxembourg, Gert Biesta ([www.gertbiesta.com](http://www.gertbiesta.com)) currently holds a part-time professorship at Brunel University London. His research focuses on the theory and philosophy of education and the theory and philosophy of educational and social research, with a particular interest in the relationships between education and democracy. Recent books include *Good Education in an Age of Measurement* (Paradigm Publishers, 2010) and *The Beautiful Risk of Education* (Paradigm Publishers, 2014), which won the 2014 Outstanding Book Award of Division B (Curriculum Studies) of the American Educational Research Association.