What is "good" research in education?

What are the criteria for "good" research in the educational sector?
How can research in education be made more "scientific" and more useful to society?
What types of methods and approaches should be adopted to achieve this?

For several years now, these sensitive issues have been heavily debated in the Anglo-Saxon research world, and more specifically by the supporters of "Evidence Based Education". The objective of this concept is to identify the most efficient research approaches and to improve the level of research throughout the education sector.

Although much less regularly discussed or approached from different angles in France, these issues are nevertheless also the subject of various debates. During recent discussions over the most appropriate methods for learning to read, reference was made to several research studies. From a more general perspective, during the recurring controversies concerning the IUFM and educational research, research work has often been accused of being "inefficient" and not sufficiently "scientific".

This *Newsletter* takes a global look at these issues, on the basis of a selection of recent articles and publications that encompass an inseparable combination of researchers, decision-makers and teachers in the educational sector. We will start by presenting the different aspects of the Anglo-Saxon debate on Evidence Based Education and their consequences, before looking at how related issues have been dealt with in France over the last few years.

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Warning to readers

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Evidence Based Education, an alternative to traditional research

In several English-speaking countries "Evidence Based Education" (EBE) has taken central stage in the debate over research methods and objectives in the education sector. A conference, held in Lyon and organised by UMR Éducation & Politique, examined this issue during a session on the theme "evidence-based work and to what is perceived as right", with notably a conference paper focusing on the question of EBE (Normand, 2006).

In addition to discussions between researchers, EBE directly inspires and influences public policies and networks at an national and international level, as illustrated by the American Ministry of Education's initiative *What Works Clearinghouse*, the international network Campbell Collaboration, the EPPI-centre in London, the CERI-OECD studies and even the studies carried out in Canada – see for example the publication *Towards Evidence-Based Policy for Canadian Education* by the John Deutsh Institute (Broucker & Sweetman, 2002).

EBE is applied on its own or in a broader context of an "evidence movement": "Evidence Based Policy", "Evidence Based Practice" or "Evidence Based Research"…

In most cases, the concept encompasses three distinct objectives (despite being closely linked by the supporters of EBE):
– To base educational policies and practices on evidences;
– To improve the scientific quality of research in the education sector in order to achieve this, and more specifically its capacity to generate convincing (and causal) results from educational activities (i.e. a given approach will produce a given effect);
– To favour methodologies that correspond to this objective, and notably experimental approaches and "systematic research reviews" (or meta-analyses).

Different aspects of EBE are favoured depending on the situation, but, overall, these three dimensions are all generally integrated by both the supporters and detractors of EBE (for a global overview see, see notably Gary & Pring, 2004).

Aside from this overall objective (which seems relatively consensual), is it not the aim of all forms of research to help understand and improve social activities in the field in question? By evoking the origins of EBE we will obtain a clearer understanding of its originality and the reasoning adopted by some of its critics.

EBE is indeed a product of a combination of criticism (often virulent), research in traditional education and an aim to reproduce in the education sector the methods adopted in the field of natural sciences, and particularly medicine.

A critical response to the insufficiencies of research in education

The criticisms aimed at the research methods adopted in the education sector are numerous and ultimately fairly similar from one country to the next, although they are much more systematic in the United States and in Great Britain:
- Projects that focus on the issue but are in no way interlinked and do not take existing results into account (lack of accumulation);
- Research that too often resembles the political approach (i.e. ideological);
- Confused and poorly explained approaches vis-à-vis both the questions asked and the research protocols used;
- Methodologies that put the emphasis on qualitative aspects and theory, to the detriment of strict empirical bases;
- Studies that are not widely circulated, little known by those involved in the education sector and somewhat unproductive.

Criticisms of the existing educational research approach are always formulated with regard to its **lack of social utility and scientific discipline** (Whitty, 2006).

In the United States, a rather depressing summary of the state of the American educational system was produced in 1983, with the report *A Nation at Risk.* This report was subsequently used as a reference for various political adjustments. But above all it was the report entitled *No Child Left Behind Act* (NCLBA, signed by G.W. Bush at the beginning of 2002) that unequivocally confirmed the concept of educational policies based on scientific results. This law clearly expressed a move to direct public financing towards research based on "evidence-based strategies" and to encourage all those involved in the education sector to base their initiatives on evidence generated by the most scientific research possible (the NCLBA contains 111 references to "scientifically-based research"!). This illustrates the profound mistrust shown by American politicians vis-à-vis the quality of research carried out in the education sector. Various measures and institutions were subsequently implemented, one of which being The Institute of Education Sciences, which was assigned a very clear objective…i.e. to transform education into a field governed by scientific results.

During the Margaret Thatcher era in the United Kingdom, various criticisms were levelled against the dominant perceptions of the British educational system. With the arrival of New Labour in power and the promoting of the "Third Way", these criticisms became more specific and less liberal. A series of publications at the end of the Nineties indeed provided an almost official stamp of approval with regard to this idea of challenging educational research trends, whilst at the same time dismissing the basic concepts of a policy in favour of Evidence Based Education (annual reading of D.H. Hargreaves at the National Teacher Training Institute (Hargreaves, 1996), the Tooley report for the Education Standards Office (Tooley, 1998) and finally the Hillage report for the English Ministry of Education (Hillage *et al.*, 1998).

Importing medical research methods into the educational sector

The "Evidence movement" was initially developed for medical research and was subsequently imported into other areas of the public sector. The reference international network was in this instance The Cochrane Collaboration, created in 1993, which adopted the name of the British epidemiologist Archie Cochrane (founder of the "evidence based medicine" concept in the Seventies), whose systematic research reviews in the health sector were very well known.

According to a presentation by the university of Liège, Evidence Based Medicine consists of **basing clinical decisions not just on theoretical knowledge, judgement and experience (i.e. the principal components of traditional medicine), but also on scientific "evidence"**. The term "evidence" refers to knowledge generated by systematic clinical research, essentially carried out for the prognosis, diagnosis and treatment of diseases. This evidence is consequently based on valid and applicable results in current medical practice. The clinical studies in question are random controlled trials, meta-analyses and also well-constructed transversal or monitoring studies (when it is a case of evaluating a diagnosis test or forecasting the development of a disease).

During the Nineties, a certain number of researchers and public sector decision-makers wanted to broaden this approach in order to cover the public policies and research implemented in the social sector. They were particularly interested in the areas of overlap, such as prevention policies in the health and social sector for example. The AIDS issue and the question of sexual education became an area for natural dialogue between researchers specialising in different areas, amidst a context of high expectation on the part of the public authorities.

The Campbell Collaboration, implemented in 1999-2000, is consequently an extension of the Cochrane Collaboration in the social sciences field. It's objective is to identify "what works" on the basis of systematic research reviews (Davies, 2004). It covers three main areas: social policies, criminal and judiciary policies and education. The EPPI-centre at the London University Education Institute, launched in 1993, is based around the same approach (Oakley, Gough, Oliver & Thomas, 2005).

A parallel is often drawn between the medical and educational sectors, as there are many similarities between the two professions…. i.e. the reference to a sound body of knowledge, the personal contact and services, their role in public policies, a certain degree of autonomy in their profession… etc. From now on, there should be no profound difference between clinical situations and the social situations in which education professionals operate. Both have to bear the overbearing weight of the social environment and the complexity of social issues.

Conversely, it may well seem incongruous that we expect science to provide solutions to serious illnesses but refuse to apply it to educational problems. In the words of a well-known researcher at the American Educational Research Association's annual meeting "*The scientific revolution that utterly transformed medicine, agriculture, transportation, technology, and other fields early in the 20th century almost completely bypassed the field of education*" (Slavin, 2002).
What are, therefore, the methods adopted in the medical sector and could they be imported into the educational sector?

More "scientific" methods

Since one of the principal criticisms of traditional research in the education sector is its lack of 'accumulation', it is hardly surprising that the Evidence Based Medicine approach initially won such a following through its integration of the accumulation concept and its systematic comparison with empirical research on a given theme in order to identify "Best Practices".

Meta-analyses and "systematic reviews"

As explained by one of its supporters (Davies, 1999), the first level of Evidence Based Education consists of knowing how to use, compare and summarise the existing results generated by research and scientific literature in the education sector, in order to apply a type of "meta-analysis" with regard to the knowledge acquired for a given problem.
It is therefore up to the researchers to:
– ask the right sort of education-related question (in other words one which can be replied to scientifically);
– know where and how to find the right data on a systematic basis (i.e. via traditional publications or by using electronic tools such as search engines, databases etc…);
– critically compare data and trials, by referring to professional scientific standards;
– determine the relevance of research vis-à-vis social requirements in the education sector.

The second level of EBE consists of undertaking research that meets the same requirements when, for a given issue, the available scientific literature or previously conducted trials have gaps or are of poor quality.

In this context, the gathering and selection of existing research, followed by its evaluation, summary and publication, are crucial tasks that are encompassed by the term "systematic reviews". Ann Oakley, the founder of the EPPI-centre, stresses that the systematic review approach is the principal knowledge-management method adopted in evidence-based education, **because it summarises the discoveries made through research in an explicit, transparent, replicable and assessable fashion**, with data that can be regularly updated if necessary (Oakley, 2000).

What is the difference between this and the common narrative or academic reviews that has always existed in traditional educational literature?

For the supporters of "systematic reviews", the academic reviews generally focuses on the convergences and divergences of primary research studies, via a selective, narrative and opportunist approach without there being a clear or explicit route through from the primary research stage to the summary conclusion (Oakley, Gough, Oliver & Thomas, 2005). The traditional academic review gives overwhelming priority to theoretical reasoning (certain research studies have been chosen to illustrate this), whereas the systematic review gives priority to the results generated by primary research, **making the choice and presentation of the research inclusion or exclusion criteria an essential aspect of the work** (see also Evans & Benefield, 2001 ; Bennett *et al.*, 2005).

Gough, director of the EPPI-Centre, even considers that the traditional academic review, for a long time considered as a central aspect of all university work, was never properly explained or organised, and remained one of those implicit skills that all student researchers were supposed to master without ever really having been taught how to go about it. In his view, the absence of procedures and controls consequently led to slants or gaps that could only be detected by experienced researchers with an in-depth knowledge of the field in question. In other words, the fewer the number of indications provided or the longer an issue remains unexplored, the greater the probability of undetected errors. Furthermore, the original decision with regard to concentrating on a specific aspect is never clearly explained (Gough in Gary & Richard, 2004).

In order to better understand the specific nature of systematic reviews, one simply has to look at a few of the free-view examples (EPPI's on-line library for example), where the very detailed architecture frequently devotes more space to the presentation of statistics and the explanation of inclusion or exclusion criteria rather than to the written conclusions themselves.

Examples:

• The impact of networks on pupils, practitioners, organisations and the communities they serve (December 2005);
• The contribution of art education to cultural learning in learners aged 5–16 (April 2006).

Contrariwise, we can rapidly see the difference (even it is only formal) with other scientific literature journals such as *What are the benefits for pupils participating in arts activities?* (Boyes & Reid, 2005).

Nevertheless, in addition to the particularly distinctive forms of the EPPI's systematic reviews, it should be noted here that one can find other works that are inspired by or very close to the approach, such as the research work *Interventions pédagogiques efficaces et réussite scolaire des élèves provenant de milieux défavorisés. Une revue de littérature* (Gauthier *et al.*, 2004).

Qualitative or quantitative – high impact methods

Although systematic reviews are an integral characteristic of EBE, on a broader scale this approach focuses on achieving "scientific quality" in the educational research sector, in which there is a demand for more attention to be paid to certain methods and for a general improvement in the scientific culture within the community of educational researchers.

Some of the most ardent supporters of the application of the medical sector's methods would like to see the trial aspects of the research process used "as much as possible". Robert E. Slavin (2004, op.cit.), notably, underlines the benefits of "randomized controlled trials" in medicine and considers that educational research should be able to move towards this type of experimentation in order to accurately assess the validity of a given educational process.

Although more reserved with regard to the number of methods that could really be used on a trial basis in the education sector, the policies outlined in the report *Scientific Research in Education*, ordered by the American National Research Council, are nevertheless very clear with regard to the need for "scientific" research in the educational sector:

"*At its core, scientific inquiry is the same in all fields. […] We conclude that six guiding principles underlie all scientific inquiry, including education research:*
1- Pose significant questions that can be investigated empirically

2- Link research to relevant theory
3- Use method that permit direct investigation of the question
4- Provide a coherent and explicit chain of reasoning".

For the authors of this report (Feuer, Towne & Chavelson, 2002), this means that although the choice of an appropriate method depends above all on its capacity to answer a given type of question, randomized controlled trials (RCT) should undoubtedly be favoured for verifying causal type hypotheses (i.e. the effects and level of efficiency of a given educational system). However, more qualitative methods should be adopted for taking into account contextual factors and better understanding value issues, which are so important in the analysis of educational systems.

In fact, the problem is not so much choosing the right method, but rather the lack of debate with regard to the methods themselves ("methods matter"), **the lack of a shared scientific culture** and the lack of self-regulation within the education researchers' community: "*it has been difficult to cultivate and build on existing consensus to develop a public character of self-regulation and communal progress*" (Feuer *et al.*, op. cit.). Researchers should no longer be indignant that political decision-makers should be tempted to impose standards "from the outside": it is merely a logical sanction resulting from the community's failure to take responsibility for its own regulation on subjects such as quality and methodological discipline in research in education.

Despite the fact that most of the authors who favour EBE deny giving priority '*a priori'* to quantitative and empirical methods, it is undeniable that most of the criticisms lamenting the lack of relevance of the research carried out in the education sector target the work perceived as "qualitative". One can even note the following comment made in a Canadian report on efficient educational interventions (inspired from EBE methods): "*whereas the Americans have developed a long tradition of experimental studies, the French reports tend to present theoretical research, which unfortunately suffer from an insufficient empirical base*" (Gauthier *et al.*, 2004, p. 17).

Stephen Gorard, an English specialist in methodological questions, and notably quantitative issues, is quick to denounce the **complete ignorance of certain researchers with regard to methods that incorporate the usage (even with varying degrees of sophistication) of measures, indicators, variables, reasoned samples and statistics**. He also claims that in a situation where researchers do not understand the quantitative methods used (e.g. when figures are used to calculate the existing research results), they either accept these research results as they are (without an inventory in this case) as they are unable to discuss them, they ignore them, or they only use the results that correspond to their theoretical or ideological preferences (Gorard, 2001). And he is even concerned to a certain extent about various qualitative methods, which, he says, are only used to stave off the criticism that more formalised research would quickly attract.

He nevertheless refuses to over-rate the quantitative methods, both stressing the need to interlink data ("*words can be counted, and numbers can be descriptive*") and noting that the gaps observed in the research work are less to do with the respective percentage of quantitative and qualitative work, and more a general lack of discipline and methodological skill on the part of the researchers, including those who carry out formally quantitative investigations (Gorard, Rushford & Taylor, 2004).

The limits of the EBE approach and its criticisms

The debate between EBE's partisans and opponents has now been raging for nearly 10 years (Oancea, 2005). Some criticise the principles at the very core of the "Evidence Movement", whilst others underline the limits of a given scientific claim made by the approach. But these criticisms have one thing in common, they all advocate a "pluralism" of research methods.

Can research steer practices and policies?

EBE's primary objective is to base educational reforms and practices on results proven by science. It is consequently postulated that a **causality link** can be established between a given practice or system and its expected effects on a population, whether at the general level of a public education policy or in the daily work of a teacher. The experimental or almost fully experimental "randomized controlled trial" (RCT) approach is obviously underpinned by this pre-requisite. Establishing a causality link not only makes it possible to describe what is happening, but also to test other systems and to prescribe "what works" as part of a positivist approach to research.

Numerous players have disputed this paradigm. The possibility of incorporating recorded scientific results into actual practice is, for example, often challenged, notably in view of the disappointing results delivered by Evidence Based Medicine (Pirrie, 2001; Eraut & Peile in Thomas & Pring, 2004).

M. Hammersley (1997, 2001, 2005), an ethnologist and ongoing opponent of EBE, is also very sceptical with regard to the likelihood of trial situations provoking controlled and standardised changes in the education sector. In his view, research can, at best, keep us informed of the predictable effects of a system, but is certainly not capable, on its own, of suggesting the best route to take, either in general terms or vis-à-vis a specific case. He also refutes the idea of a division and hierarchy between "useful and accurate" knowledge generated by science and the "experience-generated" knowledge of the practitioners, which, by definition, is more related to trial and error and could consequently be considered as irresponsible. **Research cannot provide all the information required by an educational practitioner**. In his view, the advocates of EBE do not understand that, for the practitioners and decision-makers, the "evidence" that can be trusted is not necessarily generated by research, and that the usage of any form of "evidence" necessarily requires a judgement as to its validity and its potential impact in specific contexts. On the contrary, certain inappropriate applications of results considered as "scientific" can, in his view, have a disastrous effect (by misunderstanding human factors such as professional motivation for example). This view would consequently suggest a negative response to the following question: "*Is the evidence-based practice movement doing more good than harm?*" (2005).

Speaking of the "trap of the evidence-based policy", Claude Lessard considers that "*the more one aims to remove ideology from the debate, considering any ideological reference as illegitimate with a view to only subjecting educational policies to "indisputable" scientific policies", the more one links science to a specific ideology, which refuses to be referred to as such. […] In these issues, a reference to values or perceptions of what is desirable cannot be avoided. […] The real trap lies in reducing learning to what is measurable, educational expertise to pure efficiency (perceived as an added value) and the value of education to its implementibility*" (Lessard, 2006).

Although this debate goes further than that of EBE, it should be stressed in fact that the question of results indicators for education is often linked. Can the entire impact of schooling for example be reduced to school results (exams, tests etc…)? Assuming that the role of the school is not just to transmit knowledge but also to sort and to select individuals, even to shape citizens, how can one assess "what works"? And what criteria should be used if an "absolute" global improvement in learning measured via exams co-exists with relatively less good possibilities offered to pupils of the same level? (Yates, 2004).

Can one look at education from both a neutral and objective perspective?

There has often been a concern with the transposition of a methodology generated via medical research into the field of human sciences that these techniques would be incapable of taking into account the context and complexity of social phenomena. The privileged, even exclusive, usage of certain types of empirical data – presumed to be less vulnerable to the risks of subjective or ideological interference – would be incompatible with the acknowledgement of any cultural strata. The quantitative methodologies and the usage of standardised measurement criteria would only make it possible to answer certain types of questions – a long way short of the global scope claimed by the EBE approach.

In this case, it is not simply a question of underlining the importance of the social factor in education (which also exists in the medical sector), but of understanding that the very significance of education depends on the context in which it exists and that value judgements are at the very core of education. The work of both researchers and teachers is constantly **dependent on values, which direct their activities**.
Hammersley concludes (1997) that it is pointless to search out the "objective" or "neutral" aspect of education removed from its ideological dimensions, which can be isolated using various scientific techniques,
The way in which research is perceived, the researchers themselves and the research agenda in education are by no means universal or timeless. It would be a mistake to treat this field in the same way as the experimental sciences or medical research, warns Lynn Yates (2004), former chairwoman of the Australian association for research in education. She is the author of a book which was the inspiration for the title of our newsletter, *What does Good Education Research look like?* (2004), and explains that research in education should be considered as an extension of the practice itself, where judgements concerning the success (or failure) of a particular research work are also the practices of people situated in specific institutional and historic contexts that need to be examined; **Judgements made with regard to research in education involve both judgements on research and judgements on education**.

Maggie McLure (2005) considers that the importance of the role played by judgement is underestimated and that this is impacting the scientific methods recommended by EBE, and primarily the systematic reviews. The multiplication of inclusion or exclusion criteria referred to as "objectives" in research will result, in her view, in a very small number of research studies ultimately being taken into account for in-depth analysis. The official pretext for this would be a concern for quality, but in reality, she argues, it would be more to do with compliance with criteria that are purely formal, and without much relevance to the point of the study itself. With this approach, which she considers to be intellectually weak, the people responsible for carrying out the reviews would be forced to apply selection criteria based on ideological compliance, concealed behind a smokescreen of technical criteria (as numerous as they are unproductive) (MacLure, 2005).

Contrariwise, some researchers advocate greater recognition of the qualitative methods and cultural factors, even in the studies that at first glance seem more related to quantitative type methods. Marylin Osborn attempts to compare educational systems by favouring a combination of methods that make it possible to place educational policies and behaviour in their national and cultural context. This is partly a case of avoiding the temptation to transpose a system from one society to another, without taking into account local conditions and consequently the conditions for success or failure (Osborn & Mc Ness, 2005).

Scientific evidence caught up by politics

Finally, it is only logical that, in a debate where the idea of a transposition of research into politics is central, the question of the usage of results by politicians should be raised.

In England, the government is sometimes accused of applying a 'one rule for one and one rule for another' approach to policies based on research-based evidence. This is, for example, the case with the City academies, a new type of school supposed to illustrate the possibility of improving the situation of establishments located in difficult zones by disregarding standard public rules. S. Gorard in fact reproaches the public authorities for announcing the success of these City academies prior to any disciplined evaluation, whereas in other situations the minister condemns educational systems in the name of research results (Gorard, 2005).

In the United States, teacher training is at the heart of the controversies that exist over the 'one rule for one and one rule for another' approach adopted by the federal administration vis-à-vis the precepts of EBE. Indeed, whilst the official party-line still advocates policies based on scientific evidence, it also favours a shortening of the teacher training period. Furthermore, it suggests that this training should be carried out by the schools themselves, to the detriment of the universities. As the editorial writer of the journal "Science Education" (Brikhouse, 2006) points out, this raises the question as to the improvement in the circulation of knowledge between researchers and practitioners, which this separation between academics and future teachers may favour.

During an Evidence and Policy Research conference held by the CERI-OCDE, Agnès Van Zanten also noted that in the "evidence market", different groups may mobilise different sorts of research work in order to legitimise their decisions, without always cross-referencing this research or paying attention to the cumulative (in varying degrees) nature of these results. In her eyes, the fundamental problem of the relationship between research and the field (in France at least) depends on its degree of acceptability and usage, or, conversely, its rejection, by practitioners, specifically when the research is primarily perceived by teachers as a means of controlling their activities rather than improving them. If one would like to see more efficient and democratic educational policies, one must now create new forms of debate with regard to research results between those who produce them and those likely to use them (whether basic practitioners or managers of educational systems).

G. Whitty observes that given the largely symbolic aspect of politics, public decision-makers must sometimes focus on what "can be done", and preferably what could "make the difference"; thereby really changing things. **It is uncertain what will ultimately influence educational policies**. Not all researchers should be forced to work on research that is explicitly 'use-

ful', he considers, and a diversity of methods is preferable. Room must be left for fundamental research, as is the case in the other sciences, even if it may be wise to make the distinction between "research in education" and 'educational research", which target an immediate improvement in the system (Whitty, 2006).

A few questions specific to the French context

A debate comparable to that of the Evidence Based Education discussion does not really exist in France, even if several similar approaches are sometimes introduced with regard to a given aspect via the international organisations (UE, OCDE…).
The contribution made by French researchers to educational policies is rarely direct, with the exception of a few reports (the success of which varies significantly). It is similarly exceptional for an educational decision-maker to explicitly draw on research results (although this can happen, as was the case with the debate on reading methods).
The relationship between research and educational practitioners, however, is analysed on a much more regular basis (underpinned by a history of educational research) in the specialised world of teacher training rather than in the general-public environment. A genuinely controversial public issue does lie, however, in the training of teachers themselves, the role of the IUFM and the supposedly dominant educational doctrines.
The methodological discussions in the French world of research in education are modest in relation to the amount of English literature on the subject, and the main journals rarely cover them. Indeed, the supporters of different methodological approaches tend to prefer personal contact as opposed to discussions via publications, journals and conferences. We can nevertheless mention certain issues that echo the factors already discussed in this *Newsletter*.

The relationship between science and practice

In July 1995, a conference in Grenoble looked at the possibility of a scientific approach to educational practices. This resulted in a publication released in 1998 (*Recherche et éducation. Vers une nouvelle alliance*), with the following sub-title "**la démarche de preuve en 10 questions"** (*the evidence approach in 10 questions*) (Hadji & Baille, 1998).
M. Crahay notably examined the opposition (traditional since Durkheim) between a descriptive approach vis-à-vis education, assimilated to science and subsequently the sciences of education, and an approach prescribing action, linked to education. In the English-speaking world, one sometimes sees this distinction with the terms "research in education" and "educational research" but the specific French characteristic is perhaps the small role played by 'research in education' within the universities. As a result, M. Crahay considers that when it was a case of basing action in France on scientific results, it was essentially the education sector that was targeted (experimental education, new Education…), with a certain confusion between experimentation and prescription.

Conversely, C. Hadji considers that there is "*no deductibility link between the link of-what-is and of-what-needs-to-be-done"* (op. cit, p. 93). A researcher must pay no heed to the illusion that it will be possible for him to "scientifically" prove the validity of an educational practice. This practice escapes the need for proof or evidence whilst it has no relationship with the 'real' but rather what is useful or efficient. **Research cannot provide scientific answers to practical questions generated by practise.**
In his view, a distinction has to be made between four types of question that require different positions:

1- *What is happening in a given situation?* This is a case of observing and analysing the 'real', with methods that can be almost completely experimental and providing evidence in the scientific sense of the term.

2- *Is a given approach efficient?* The objective here is to evaluate and provide **relative** evidence according to the objectives, indicators and, above all, the definition of efficiency.

3- *What action is the most efficient?* The question is an educational one and has more to do with values than with science.

4- *What is the meaning of what is happening?* The philosophy of education is required here for normative aspects.

Whilst one can clearly see that the scientific form of evidence essentially refers to the primary question, it still remains difficult for research in education to ignore all other social issues, for the simple reason that value issues "pollute' the approach. G. Mialaret even notes (2004) that: "t*he fact that all educational action is guided by a system of objectives sometimes makes it impossible to carry out research that does not refer to the same educational principles"*.

M. Develay considers that educational sciences should not merely be used to explain and understand educational action, but should also be used to "enable personal fulfilment and to ensure that action is efficient" (Develay, 2004, p. 79), considering that one must determine if generating evidence and targeting efficiency whilst at the same time aiming to achieve the 'fair and accurate' result is reconcilable (or not).

With regard to the relationship between research and the educational system, the Prost report (2001) observed that "*the adjustment between research and action involves the existence of an exchange environment, where the practitioners' problems are identified by the researchers whereas they are not immediately responsible for responding to them and where the contributions of researchers are known by the practitioners whereas they don't have direct usage"* (p. 44).
This is a recurring but sometimes badly explained debate, and is the source of many a misunderstanding. As a result, Anne Barrère still recently lamented the "double disappointment" that often marks the relationship between researchers and practitioners, as even if the knowledge generated by research is circulated, its status is rarely directly operational and it needs to be carefully recontextualised on each occasion (Barrère, 2006).

What form should Evidence take with regard to research in education?

The right, specifically scientific conditions for research in education, which could generate forms of evidence other than those produced by experimental sciences, still need to be found.
The implementing of comparative analyses, enabling the isolation of variances between different (but comparable) situations and contexts, is one of these conditions (Duru-Bellat & Mingat, in Hadji & Baille, 1998). These analyses offset the difficulty of carrying our direct trials in the sector, especially considering that one needs to establish a probabilistic link between the facts rather than a causal one.

For M. Develay, one must accept this diversity in the forms of evidence: "*if one accepts that research exists in philosophy, clinical psychology or the history of science, and that, for example, Bergson, Freud or Bachelard are exemplary researchers in*

these areas, then one must also accept that, for the hermeneutic sciences, "research" cannot be synonymous with an evidence approach in the sense of formal or empirico-formal sciences" ([Develay](), 2004, p. 107).

Ultimately, scientific validation is essentially the result of a process that respects a certain number of criteria and stages, in addition to acknowledgement by peers within the scientific community. One should perhaps refer here to the refutability criteria listed by [K. Popper](), which can be applied to human sciences: the first duty of a scientific study is to provide others with the resources that will enable them to be aware of the data used and to understand the path of reasoning adopted so that, if necessary, they can break down the proposed construction. It must be possible to explain and justify all approaches, even when they involve intuition ([Mialaret](), 2004).

The existence of a research community in the contemporary education sector consequently plays a primordial role: "*although one clearly expects an individual researcher to provide evidence of the relevance of his work, it is in fact the environment that validates the importance of the work and approves the administration of the evidence […]. This of course relies on the existence of a sufficiently large and active scientific community; to use a euphemism… one may consider that this is not entirely the case with the educational studies in the French context*" (Duru-Bellat & Mingat in [Hadji & Baille](), 1998, p. 185). At a methodological level, Mialaret attributes particular importance to the implementing of a "review by issue", which each researcher should carry out beforehand: "*he should see himself as nothing more than a tiny link in an immense pre-existing chain and his first task should be to position himself in relation to everything that has been carried out beforehand*" ([Mialaret](), 2004, p. 22.

Given this environment of concern, the "[Prost report]()" drawn up in 2001 offers an overview of the research in education situation and proposes various original ideas. This report undoubtedly represents the most complete study to date on a possible public strategy in France in this sector (although its proposals were subsequently little applied).
The report initially outlines an un-accommodating resume of the research in education situation, observing that although a great deal of research is carried out, it is little used, little known, little evaluated and badly co-ordinated. The lack of co-ordination, notably, considerably hampers the validation process and the accumulation of research results, whilst "*forcing one to question their methods, a difficult question that one prefers to avoid, which in turn does not exactly help science to progress*" (p. 22). The report considers that it is perfectly legitimate to wish for more useful research, and calls for vast and systematic investigations to look at certain important questions that still remain unanswered (e.g. learning in the first degree). It also laments the fact that certain contextualised research work that is well represented in Anglo-Saxon literature, such as the "major analytical surveys" (p. 31) are practically absent in French documentation.

We should also add that literature reviews are not attributed the same level of importance in French research work as they are in other countries, even if some are regularly found in certain journals, such as the "summary memo" that appears in each issue of the [Revue française de pédagogie]() (for other summary works, also see [Forquin](), 2003).

Bibliography

- Barrère Anne. 2006. « Déceptions réciproques, chantiers communs ». *XYZep*, n° 2.

- Bennett Judith, Lubben Fred, Hogarth Sylvia & Campbell Bob. 2005. « Systematic reviews of research in science education: rigour or rigidity? ». *International Journal of Science Education*, vol. 27, n° 4, p. 387–406.

- Björkvist Ole, Westbury Ian, Kansanen Pertti & Hansén Sven-Erik. 2005. « Teacher Education for Research-based Practice in Expanded Roles: Finland's experience ». *Scandinavian Journal or Educational Research*, vol. 49, n° 5, p. 475-485.

- Brickhouse Nancy W. 2006. « Celebrating 90 years of Science Education: Reflections on the Gold Standard and Ways of Promoting Good Research ». *Science Education*, vol. 90, n° 1.

- Davies Philip. 1999. « What is evidence-based education? ». *British Journal of Educational Studies*, vol. 47, n° 2, p. 108-121.

- Develay Michel. 2004. *Propos sur les sciences de l'éducation: réflexions épistémologiques*. Paris : ESF (Pratiques et enjeux pédagogiques).

- Duru-Bellat Marie & Merle Pierre. 2002. « De quelques difficultés à cumuler des savoirs sur les phénomènes éducatifs. L'exemple de la démocratisation de l'enseignement ». *Revue française de pédagogie*, n° 140, p. 65-74.

- Evans Jennifer & Benefield Pauline. 2001. « Systematic Reviews of Educational Research: does the medical model fit? ». *British Educational Research Journal*, vol. 27, n° 5, p. 527-541.

- Feuer Michael J., Towne Lisa & Shavelson Richard J. 2002. « Scientific Culture and Educational Research ». *Educational Researcher*, vol. 31, n° 8, p. 4-14.

- Forquin Jean-Claude. 2003. « Le rôle des travaux de synthèse dans la recherche en éducation: synthétiser quoi et pourquoi ? ». *Perspectives documentaires en éducation*, n° 60, p. 113-119.

- Gauthier Clermont, Mellouki M'hammed, Simard Denis, Bissonnette Steve & Richard Mario. 2004. *Interventions pédagogiques efficaces et réussite scolaire des élèves provenant de milieux défavorisés. Une revue de littérature*. Laval: Chaire de recherche du Canada en formation à l'enseignement.

- Gorard Stephen. 2001. *Quantitative Methods in Educational Research*. London : Continuum.

- Gorard Stephen, Rushforth Katie & Taylor Chris. 2004. « Is there a shortage of quantitative work in education research? ». *Oxford Review of Education*, vol. 30, n° 3, p. 371-395.

- Gorard Stephen. 2005. « Academies as the 'future of schooling': is this an evidence-based policy? ». *Journal of Education Policy*, vol. 20, n° 3, p. 369-377

- Hadji Charle & Baille Jacques (dir.). 1998. *Recherche et éducation. Vers une nouvelle alliance: la démarche de la preuve en 10 questions*. Bruxelles : De Boeck (Pédagogies en développement).

- Hammersley Martyn. 1997. « Educational research and a response to David Hargreaves ». *British Educational Research Journal*, vol. 23, n° 2, p. 141-161.

- Hammersley Martyn. 2005. « Is the evidence-based practice movement doing more good than harm?: Reflections on Iain Chalmers' case for research-based policy making and practice ». *Evidence & Policy*, vol. 1, n° 1, p. 85-100.

- Hargreaves David H. 1996. *Teaching as a research-based profession: possibilities and prospects*. (Annual Lecture). London : Teacher Training Agency.
- Lessard Claude. 2006. « Le débat américain sur la certification des enseignants et le piège d'une politique éducative evidence-based ». *Revue française de pédagogie*, n° 154, p. 1-13.
- MacLure Maggie. 2005. « Clarity bordeing on stupidity': where's the quality in systematic review? ». *Journal of Education Policy*, vol. 20, n° 4, p. 393-416.
- Mialaret Gaston. 2004. *Les méthodes de recherche en sciences de l'éducation*. Paris : PUF (Que Sais-Je ?).
- Normand Romuald. 2006. « Une politique de l'évidence: les nouvelles formes d'administration de la preuve dans la recherche anglo-saxonne ». Disponible sur Internet (consulté le 29 mai 2005) :
  http://ep.inrp.fr/EP/r_a_venir/r_colloque_repenser_justice/communication_romuald_normand/fr/document_view
- Oakley Ann. 2000. *Experiments in Knowing: Gender and method in the social sciences*. Cambridge : Polity Press.
- Oakley Ann, Gough David, Oliver Sandy & Thomas James. 2005. « The politics of evidence and methodology: lessons from the EPPI-Centre ». *Evidence & Policy*, vol. 1, n° 1, p. 5-31
- Oancea Alis. 2005. « Criticism of educational research: key topics and levels of analysis ». *British Educational Research Journal*, vol. 31, n° 2, p. 157-183.
- Osborn Marylin, Mc Ness E. 2005. « Les transformations du travail des enseignants en Angleterre, en France, et au Danemark : contextes culturels et formes d'appropriation des réformes de l'école. In Estelle Brisard et Régis Malet (dir.). *Modernisation de l'école et contextes culturels*. Paris : L'Harmattan.
- Pirrie Anne. 2001. « Evidence-Based Practice in Education: the best medecine? ». *British Journal of Educational Studies*, vol. 49, n° 2, p. 124-136.
- Prost Antoine. 2001. *Pour un programme stratégique de recherche en éducation: rapport du groupe de travail constitué par Antoine Prost*.
- Schuller T, Jochems Wim, Moos Robert & Van Zanten Agnès. 2006. « Evidence and Policy Research ». *European Educational Research Journal*, vol. 5, n° 1, p. 57-70.
- Shavelson Richard J. & Towne Lisa (dir.) 2002. *Scientific Research in Education*. Washington D. C. : The National Academies Press.
- Slavin Robert E. 2002. « Evidence-Based Education Policies: Transforming Educational Practice and Research ». *Educational Researcher*, vol. 31, n° 7, p. 15-21.
- Thomas Gary, Pring Richard (dir.) 2004. *Evidence-Based Practice in Education*. Maidenhead: Open University Press (Conducting Educational Research).
- Tooley James. 1998. *Educational research: A critique*. OFSTED (Office for Standards in Education).
- Whitty Geoff. 2006. « Educational research and education policy making: is conflict inevitable? ». *British Educational Research Journal*, vol. 32, n° 2, p. 159-176.
- Yates Lyn. 2004. *What does Good Education Research look like ?* Maidenhead: Open University Press (Conducting Educational Research).

A list of useful sites

To read systematic reviews and other documents on Evidence Based Education:

- The REEL (Research Evidence in Education Library) at the EPPI-Centre (University of London):
  http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=56
- It is also possible to read the systematic reviews in the CERUK database (Current educational research in UK) by selecting "systematic review": http://195.194.2.38/starweb/ceruk/servlet.starweb
- The web site for the International Conference held in London in July 2006 on "evidence-based" policies and their indicators: http://www.cemcentre.org/eb2006 (summaries of the publications can be accessed at this address: http://www.cemcentre.org/eb2006/speakers.pdf)
- To date, only a few of the educational reviews by the "Campbell Collaboration" network have been made available for free-view, but you can nevertheless read the following ("After-school Program Impact…"):
  http://www.campbellcollaboration.org/frontend2.asp?ID=55