

Evidence based education and special education: a possible dialogue

Evidence based education e pedagogia speciale: prove di dialogo

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This article presents a critical analysis of the concept of evidence-based practice, promoting a dialogue with special education. It provides a theoretical and methodological framework (Evidence Based Education - EBE) on the research methodologies within the EBE approach, the definition of an EBE model in special education, the research analysis on school integration in Italy in an EBE perspective and the identification of research lines to validate the practices of inclusive education. In conclusion, although there are methodological and practical difficulties in leading an empirical research in the inclusion field, according to EBE parameters, it is possible to consider other models of research, as such as the methodology on the single subject and observation research for further in depth analysis.

Keywords: evidence based education, special education, inclusion, special needs education, effectiveness research, assessment

abstract

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ISSN 2282-5061 (in press)
ISSN 2282-6041 (on line)

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1. Introduction

The discussion on the question of evidence in education, better known as Evidence-Based Education (EBE), is becoming increasingly important, even if the positions that are expressed differ especially with regard to methodological issues. The discussion on the matter was started by a famous intervention by Hargreaves (1996) at the Teacher Training Agency of Cambridge, of followed by several replicas (among which the Hammersley's ones in 1997, 2001, 2005, 2007 and 2007a are particularly relevant) also by the same Hargreaves (1997, 2007, 2007a).

The core of the original question is easily identifiable: educational research should have a greater relevance and impact on the teachers' work than it is now. Hargreaves argues, in fact, that the field of education does not differ much from the medicine one but, compared to the latter, it hardly uses models and appropriate knowledge able to improve teaching practices.

The research on education, in substance, seems to move in a self-referential environment, without focusing on the assessment of the effects of some teaching procedures rather than others; this situation is indeed in contradiction with what happens in the medical field, in which the practices that result being more effective through research gradually substitute all others (Slavin, 2002, 2008).

The problem is indeed very complex and cannot be solved by hoping for a simple transfer of the methodologies adopted in the clinical field into the context of educational research.

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As proposed by Popper (1998), it is necessary to start from the significant problems met in the research field and then direct the research to the formulation of hypotheses suitable for solving problems. A number of studies (Hargreaves, 1996, 1997; Hillage et al., 1998; Tooley, Darby, 1998; Davies, 2000) have shown not only the gap between theory and practice, but also between educational research and those who deal with practices and educational policies (policy makers, providers and users of educational services), showing the self-referring character of the educational research, in terms of policy-making, too (Bennett, 1986; Davies, 1999; Feuer et al., 2002; Slavin, 2002, 2004, Saunders, 2007; Sykes et al., 2009; Davies, Elliott, 2012).

It should also be stressed, however, that there are several critical positions asserted by some proponents of EBE. Some disagree with the same principles at the basis of the "evidence-based theory," while others point out the limitations of some scientific theory proposed by this new orientation, particularly with regard to the possibility of generalizing the results by extending them to different situations and contexts (Atkinson, 2000; Simons, 2003; Burton, Chapman, 2004; Biesta, 2007).

The discussions on the empirical evidence in education, mostly born following the international scientific debate about the parallelism between evidence-based medicine and evidence-based education, can count on the support that some government measures, in particular in the USA, have reserved to evidence as a science-based research. The Obey-Porter Comprehensive School Reform Demonstration, which developed the model of The America's Choice School

1 More information: www.ncee.org/ac/intro.html.

Network¹, promoted by the Consortium for Policy Research in Education (CPRE)², the No Child Left Behind Act - NCLB, 2001 (US Department of Education)³, The Education Sciences Reform Act (ESRA) and The Individuals with Disabilities Education Act (IDEA)⁴ can be mentioned at this subject.

With reference to the previous statements, that is a not uniform theoretical orientation, in our opinion a dialogue with the evidence-based research should be organized, especially in the context of special education in Italy, where there are still few experiences on the matter, but the need to provide education interventions in favour of pupils with special needs for clear scientifically-based research (strategies, assessed, reliable and transferable methods) is evident.

With this article we want to start a discussion in this direction, referring in particular to school inclusion that, in over thirty-five years of implementation, has largely affected the research in pedagogy and special education.

Recognizing the differences, not only concerning the terms of “integration” and “inclusion”, we would like to stress that “integration” is referred to the courageous research that allowed, in Italy, in the Seventies, students with disabilities become part of the regular classes of compulsory school degrees, while “inclusion” refers more generally to contexts and people, considering as inclusive not only the school environment, but also the social one and paying attention not only to disabled, but also to all those who have special educational needs (Cottini, Rosati, 2008). The publication of the Index for Inclusion (Boot, Ainscow, 2002) is to be collocated in this conceptual horizon, with reference not only to the changes in the law governing the tasks of pedagogy and special education, but also to a different and widespread attention towards inclusion.

In particular we will focus on:

1. the research methodologies considered within the EBE approach;
2. the definition of an EBE model that could be applied in special education;
3. an analysis of the researches carried out on school inclusion in Italy in the EBE perspective;
4. the identification of some research methods to assess the practices of inclusive education.

2. EBE methodologies

In numerous studies (Slavin 1986, 2004; Davies 1999; Coe 1999, 2002) the key principles of an EBE approach, as well as any scientific research that aims to have a strong impact of a social nature, have been defined. The evidence-based practices collect an organic corpus of scientific knowledge about treatments, prevention actions, intervention approaches or practices of service, all tested through randomized trials (Randomized Controlled Trial – RCT), using an experimental group (which performs the educational intervention) and a control group (not im-

2 Members of CPRE: University of Pennsylvania, Harvard University, Stanford University, University of Michigan, University of Wisconsin-Madison.

3 More information: <http://www2.ed.gov/policy/elsec/guid/states/index.html>.

4 More information: <http://idea.ed.gov/>.

plementing the educational intervention), resulted equivalent before starting the intervention (two-group experimental design); the extent of the effects produced on them by the proposed intervention will be assessed. Hargreaves (1997) has few doubts about the methodological procedure to be applied: due to its ability to reduce the eventual bias (distortions) to the minimum in the course of the experimentation, the RCT, that is the “gold standard” of the research (What Works Clearinghouse, 2010), is definitely to be preferred over any other study of different nature (Murray, 1998; Borman, 2002; Mosteller, Boruch, 2002; Boruch, 2006).

Systematic Reviews and Meta-analyses are very interesting research tools aiming to accurately and reliably summarize evidences concerning a given subject. They are essentially research methodologies that lead to secondary conclusions on the basis of a primary literature referring to a specific research interest; in other words, each one meets a different summary requirement.


A Systematic Review (SR) is a research tool that combines all empirical evidences corresponding with a set of pre-defined (default) eligibility criteria in order to meet specific research requirements – in a given field of study – from which then to draw appropriate conclusions, make decisions and change working practices. In other words, it summarizes the results of the available (both quantitative and qualitative) studies on a given topic, providing the framework for the reached level of trials/evidences (Mulrow, 1994; Oakley 2003; Green, McDonald, 2005).

In the field of education, including special education, in recent years there have been significant contributions to the progress of the relating knowledge, either through systematic reviews and through meta-analyses, in particular from the English and American literature on the matter.

The *not systematic or narrative revisions* expression means a set of researches of synthesis that simply leads to a review of previous researches relating to the same subject. Compared to the SR, this type of research tool is lacking in the systematic aspect that instead characterizes the other ones, so as to be carried out without a strong methodological strictness.

Another term well known in the field of education and used to describe a summarizing document is *Guidelines* (see two recent examples in Italy: note no. 4274 dated 4 August 2009 – Guidelines for the students with disabilities integration in the school – and the decree no. 5669 dated 12 July 2011 – Guidelines for the right to education of pupils and students with learning specific disorders – LSD). By their nature guidelines are issued in the form of *Recommendations* of behaviours, that is teaching-learning practices, resulting from careful researches and systematic reviews of the literature and the experts’ opinions on that subject. They mean to help those working in the field of education, particularly teachers, perform their own interventions, improving teaching practices.

Meta-analysis is a quantitative collection of data from independent researches, aiming to obtain summary data from which to draw conclusions much significant than those that could be taken from each individual study. The “meta-analysis” term was introduced in the late Seventies by G.V. Glass (1976) to indicate a philosophy, and not a statistical technique, concerning the systematic study and review of the literature on a particular topic, able to interpret the results of a number of researches, with reference both to the characteristics of the study and to random parts (Hunter, Schmidt, 1990).



Some important contributions on the use of meta-analysis in the field of educational research began to be carried out in the Eighties and Nineties (Fitz-Gibbon, 1985; Kulik, Kulik, 1989; Bangert-Drowns, Lawrence, 1991, Hedges, 1992, 2009), revealing the difficulties of researching in education, as the variables that pertain to educational matter are too many and uncontrollable; there are many researchers who study these phenomena by adopting different approaches and just as many are the conclusions they come to, often unsuitable to be summarized quantitatively.

Not always indeed the amount of data available about a given problem is enough to give an exhaustive explanation of this. In this situation two questions arise: the first one is to share languages, principles and theoretical models; the second one is to identify the dimensions that cannot be subject to the evidence criteria (motivations, interests, personal expectations, etc.) but can possibly influence and affect any experimental investigation.

With reference to the difficulty of studying education on the basis of evidence-based assumptions, the different types of approach, particularly the intermediate (Biesta, 2007) and conservative (Olson, 2004; Chatterji, 2004) ones, could be taken into consideration; they indeed moderate the excessive enthusiasm in experimental methodologies, stressing their difficulty in being simply applied to education and the substantial difference from the medical field. The above mentioned authors highlight in particular how the nature of research in education has an inherently qualitative character, since they enhance the subjective dimensions of the actors involved that have to be taken into account; they also stress the presence of a context in itself complex, consisting of a variety of factors that can be known only through participatory and descriptive approaches.

Meta-analyses are highly detailed surveys related to a given topic and the researches that result suitable to be admitted in a meta-analysis should provide quantitative data and comparable methodologies, as well as to be comparable each other through a common parameter that is the *Effect Size* (Cohen, 1988, 1992; Maxwell, Delaney, 1990; Rosenthal et al., 2000). The meta-analysis recently carried out on the effectiveness of some intervention programs in the field of *Social Emotional Learning* (SEL) at school (Durlak et al., 2011) is very relevant. This research shows that the implementation of these educational programs, starting from nursery school, significantly improve the pupils' social and emotional skills, academic achievement and the ability to positively manage the emotional stress; it also reduces problem behaviors and increases the pro-social ones. Therefore these programs can be extremely important for obtaining a real inclusion of pupils with special needs in the school, especially when they are properly applied to the teaching practice (Morganti, 2012).

3. Evidence-based education and special education: a proposal for a model

A model resulting from the major contributions of the literature on the matter, mostly also available online⁵, which seems suitable to combine the principles of evidence-based with the specificity of pedagogy and special education, is shown below (Figure 1).

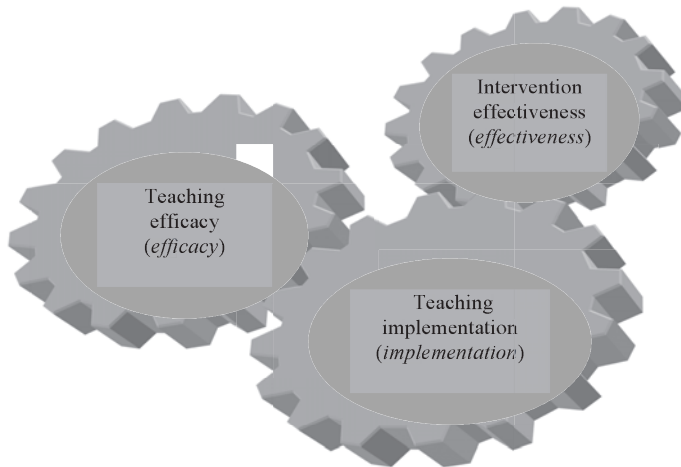


Figure 1: The evidence-based education model

The key principles of this model, which closely influence each other, affect research and teaching through the analysis of the following aspects:

- the efficacy of interventions (efficacy research), that it to determine, through research, the methods suitable to give significant results (“What does it work?”);
- the effectiveness of intervention (effectiveness research), with reference to the results, always experimentally detected, of the use of a particular procedure in the real world, in the daily work in the classroom (“When does it work?”);
- the implementation (implementation), intended both as the variables control in teaching, so that this activity can be successful, and as a systematic monitoring of the intervention evolution (“How can we make it work?”; “Is it working? “).

5 See *What Works Clearinghouse*: - www.whatworks.ed.gov; *Wing Institute* - www.winginstitute.org/Roadmap/Wing-Institute-Roadmap; *International Campbell Collaboration*: - www.campbellcollaboration.org; *Social Programs that Work*: - www.evidencebasedprograms.org; *Child Trends*: - www.childtrends.org

With reference to the traditional model of EBE, aiming mainly at the research of “efficacy” (in other words, detecting whether a particular educational intervention has the desired impact on social or school behavior in controlled settings), the organization of the Roadmap is, on the contrary, necessary; once we know what works, it’s not a simple matter indeed to apply the educational intervention to a real situation.

The innovative aspect of this model concerns dealing with the critical variables necessary to successfully adapt an intervention to a specific context, giving a precise definition of the results considered as useful to give interventions efficacy and effectiveness. The more interesting aspect of this model is a less rigid vision of the EBE, especially if referred to the field of special education.

In order to investigate more deeply the EBE model, an example referring to the recent Italian guidelines on the treatment of autism disorders (National Institute of Health, 2011), which are raising an interesting scientific debate, is reported. It is a series of recommendations on the effectiveness of various pharmacological and psycho-educational interventions formulated on the basis of a systematic review of researches carried out through RCT. These guidelines substantially focus on the first element of the model, referred as efficacy research. They represent a step forward of fundamental importance in order to avoid scientifically weak, or even not recommended, approaches. It should be emphasized, however, that even when we know which intervention methods are most effective, it is difficult to apply the educational intervention in the real world, especially if the generalization must deal with a very special context such as school. The evaluation of the intervention effect (effectiveness), that is the attempt to identify, through research, the minimum conditions for achieving successful actions (characteristics of students and teachers, organization of the environment, available resources, social aspects, etc.), is to be taken into consideration. The program of Applied Behavior Analysis, known as ABA, is analyzed. On the basis of a very detailed survey of the extensive scientific literature on the matter, guidelines even say that:

“[...] Among the intensive behavioral programs the most studied model is the Applied Behavior Analysis (ABA): a number of researches support its effectiveness in improving intellectual ability (IQ), language and adaptive behavior in children affected by autism disorders. The available evidence, though not definitive, allow to recommend the use of the ABA model in the treatment of children affected by autism disorders”.

This assessment at the efficacy research level can not alone provide educator for solid milestones in his/her daily work. The questions teachers usually ask us (Cottini, 2011) concern their difficulty in getting clear guidelines from the survey of the literature on the matter. The most frequent questions are the following ones:

- “The experience carried out in the afternoon, during the rehabilitation activities, is to be replied at school?”;
- “This way, are the activities especially organized for those students only emphasized?”;
- “How to take advantage from the natural environment and the presence of other children?”;

- “I should be guided by an ABA supervisor; but am I not the expert in education?”.

The need for applied research in a specific context (effectiveness research), the only one able to consider a number of variables that may otherwise interact in an uncontrolled way and heavily affect the general character of the results, is evident.

This kind of research is to be closely connected with the teaching practice (implementation), on the one hand supporting and guiding it and, on the other, being conditioned in its evolution. In other words, educational programs based on applied research are the only ones allowing to assess in a real situation the programs that have received a validation, as far as effectiveness is concerned, and to lead additional contributions in order to enrich all elements included in the EBE model.

But how to do that?

Three key actions can be taken into consideration:


- a. sharing *a less restrictive approach* in terms of types of research to be considered;
- b. a *precise definition of the results* considered as useful to give efficacy and effectiveness to the interventions should be adopted;
- c. *special education has to play a leading role*.

a. There are essentially two approaches within the EBE (Calvani, 2012): a very strict one, similar to that adopted in medicine and based mainly on a RCT research model, and a less strict one still supported by validation criteria able to lead to reliable and transferable knowledge systems.

We believe that in the field of special education the second orientation is to be preferred (Morganti, 2012a). To consider as acceptable only RCT investigations is indeed excessive and can lead, paradoxically, to very poor results. On the basis of the already described research on pupils with autism disorders, the difficulty (if not impossibility) related to the selection of homogeneous samples with randomized procedures and ethical issues related to the control groups is to be considered. How could the non-involvement of some pupils in an educational program considered as effective only for research reasons be justified? Besides that, this experimental methodology could hide, in the assessment of the group, the intervention effect on each pupil and, consequently, contribute only partially to the construction of our model of EBE, in relation to the dimensions of *effectiveness* and *implementation*.

Therefore, we believe that further research models should be taken into consideration in order to assess the interventions carried out in the school, with particular reference to the single subject methodology and the observational research.

b. Defining the results to be achieved is an absolutely not secondary question in order to promote an evidence-based model applied to special education. In other words, the need for efficacy must mate with that one relating to effectiveness; therefore, researches not only have to consider specific and particular learning, but also have to assess how these acquisitions substantially improve inclusion and quality of life. If, for example, a project aiming at improving



the pupils' language skills is implemented, the results assessment not only has to deal with the number of words that are properly pronounced in the course of a specific test (i.e. naming images), but also must also consider if the pupil uses this expertise to ask some games, if the interaction with peers improves, if the time spent in class is longer, etc.

c. The last aspect pertaining to the role of special education in this process is not affected by a personal interest. We believe that the actual construction and implementation of an EBE model, having the characteristics described above, must absolutely enhance the teacher specialized in special education, as a researcher able to combine the three dimensions of *efficacy*, *effectiveness* and *implementation*.

On one hand, a role for special education has to be advocated, but on the other and its almost total inaction in this area of research is to be admitted; as a consequence, it has contributed to create an innovative model of inclusive education and social inclusion, but it has not substantially controlled the outcomes through shared reliable methods.

4. A research to assess the efficiency of the Italian model for a total inclusion

Taking into account the model described in the previous section, we now present a brief review of studies carried out on the basis of the EBE principles, which have tried to assess the effectiveness of the inclusion in the Italian schools. For reasons of evidence, this review could be articulated in three main approaches, each one including researches aiming:

1. to record and describe the practice of inclusion in a given time (*How are we working?*);
2. to observe the results of the process of inclusion in the school (*What results were achieved?*);
3. to investigate the strategies that may be more efficacious (*What does it work and when does it work?*).

The research approaches more closely linked with the EBE are surely the last two which, as we will ascertain, are also the less practiced ones.

Descriptive researches on the inclusion practice

These researches are carried out through interviews or questionnaires administered to teachers, school managers and pupils' families, in order to ascertain, at that time, the implemented procedures, the teaching organization, the level of satisfaction, the available resources, the involvement of the different actors, etc. In general, on the basis of a series of quality indicators concerning inclusion previously defined, whether they are met in specific school contexts is assessed.

Some researches are particularly interesting because they have considered large samples (Gherardini, Nocera, Associazione Italiana Persone Down, 2000; Vianello et al., 2006; Canevaro, d'Alonzo, lanes, 2009; Canevaro, d'Alonzo, lanes,

Caldin, 2011; Associazione Treille, Caritas italiana, Fondazione Agnelli, 2011). The results highlight the many positive aspects of inclusion, combined with not negligible negative aspects of it. In general a relevant commitment of resources, a progressive improvement of working methods which eventually all students benefits from, a positive attitude towards diversity by teachers, classmates, parents, etc. have to be remarked. This attitude is assumed as a starting point to build a really inclusive perspective, able to be extended in the social context, too. On the other hand, the attitude to delegate tasks to the support teacher, the difficulty in adequately involving all agencies, a poor assessment of quality and efficacy of processes in comparison with the pursued goals have to be remarked.

The effects of inclusion as directly assessed on students

One of the above mentioned investigations directly deals with the effects of the inclusive education practice on the pupils' learning. This survey was carried out by Gherardini and Nocera in collaboration with the Associazione Italiana Persone Down (Italian Association of Down People) in 2000. It also analyzes the parameter of the quality of the results in the assessment of inclusive education of pupils with Down syndrome. The authors correctly point out that the obtained feedback may be affected by the respondents' subjectivity, the level of quality deriving from the information provided by the same people involved in the inclusion process. The general teachers and the support ones were asked to answer questions related to the acquisition of skills by the pupils as far as autonomy and linguistic, logical-mathematical and socialization abilities were concerned. Good potential for development, some differences among the various areas and some deficiencies mainly concerning linguistic and logical-mathematical skills were recorded. Furthermore, this research highlights that the percentage of children able to learn at school increases with advancing age and the school class.

Vianello and Lanfranchi (2009) studied the *surplus effect*, which is the opposite of deficit and considers how pupils with disabilities can have superior performance in some areas compared to typically developed pupils at the same mental age. The authors state that the *surplus effect* takes place in reading and writing in an Italian sample of pupils with Down syndrome, which proved to be superior to that of other countries. It suggests that the total inclusion policy of pupils in the classrooms is a crucial variable that can justify the result.

Other investigations carried out on the results of the Italian *full inclusion* refer to the individualized research (Cottini, 1996, 2003; Celi, 2003). As mentioned above, it is a procedure in which the want of groups of subjects is counterbalanced by repeated measurements on the same subjects, in order to highlight if the introduction of a specific *independent variable* (an educational intervention) tends to change the pupil's behavior (*dependent variable*) in comparison with the previous situation (*baseline*). Different types of experimental design, in which intervention and observation alternate, while maintaining a continuous monitoring, can be adopted. The results are reported on special graphics and assessed both by visual and statistic methods.

Some researches related to the process of inclusion in the school were carried out in Italy especially by the research groups coordinated by Celi (2007) and Cottini (2006, 2008). Curricular (reading, writing, mathematics) learning, soft skills

(upgrading attention, acquisition of memory strategies) learning, management of behavioral problems (aggression, self-injury, disruptive behavior in class) were taken into consideration. In general terms, these studies show very interesting and significant results, demonstrating the efficacy of the teaching process when properly designed, carried out and monitored. Furthermore, it is evident that carrying out applied research does not interfere, in fact, with the normal learning activities, helping make it even more systematic and controlled.

Effects assessed on the other actors

The descriptive researches provide for a feedback on the changes of attitudes, especially on the parents' (normal and with disabilities pupils) and teachers' ones, with reference to inclusive education. These studies have an approach that some English and American authors define as continuous "re-conceptualization" (Andrews et al., 2000; Begeny, Martens, 2007) and describe as typical of special education. In general terms, the goal of this approach is to promote an inclusive society where differences are not interpreted in a negative, stigmatizing, perspective, but as an element to be enhanced and promoted. It is certainly a milestone of pedagogical research, but when it is taken as an absolute topic, legitimated in terms of human rights, can lower the willing of achieving significant results. In other words, assessing whether the attitudes of the various social actors have towards inclusion are positive.

Effects of inclusion on the teaching improvement

The whole history of education shows that the most significant progresses in education were made when researchers studied how to support pupils with difficulties learn. The tested innovations progressively became authentic milestones for all, encouraging the development of innovative and useful strategies. These considerations come from a longitudinal investigation and are supported, at least in part, by the above mentioned descriptive researches, especially when the teachers' reports highlighted that in the classes where inclusion projects were implemented "cooperation, laboratory and peer learning" strategies were extensively used (Canevaro et al., 2011, p. 71).

However, since an empirical research is lacking, we do not know if this approach has different characteristics from that one adopted in classes where students with disabilities are not included, and especially if the inclusive practice led to an updating of teaching strategies.

In other words, from the descriptive surveys a cause-effect relation, whose a total inclusion approach adopted in Italy could be responsible as independent variable, can not be derived.

Researches on strategies assessing the effectiveness in class

This line of research strongly affects methodologies and teaching and can give very significant contributions from the perspective of the effectiveness and implementation, so crucial in our model. In fact, teachers working in daily contact with pupils with a disability usually ask, before anything else, which educational strategies are more functional to achieve goals relating to inclusion and what conditions are necessary so that they can be maximally effective.

Unfortunately, as already pointed out, the answers to these questions are

unsatisfactory, especially in Italy, due to the objective difficulty connected with the implementation of such studies in integrated contexts as well as a weak orientation to the systematic evaluation of procedures. Often some didactic approaches are considered as effective only when they differ from the traditional ones, with no real control of their outcomes. As an example, the use of ICTs, widely diffused in the school to promote learning in students with functional disabilities, to which different studies tend to give a very limited efficacy (see Slavin et al. , 2010), is to be taken into consideration.

The review carried out so far, referring to studies that have tried to verify the efficacy of the inclusion process in the context of the Italian school, highlighted some strengths connected with mainly descriptive researches and weaknesses attributable to guidelines still barely directed to a systematic evaluation of the procedures and the results obtained, according to the EBE principles.

As stressed by the Index for Inclusion (Booth, Ainscow, 2002), in recent years some Italian researches tried to analyze the evolution of the integration process, but they suffer from a number of limitations. In particular, as highlighted above, they are mainly descriptive rather than empirical researches, also making difficult to carry out comparative analyzes of whatever nature. Furthermore, the methodological aspects are poor and unsuitable for supporting the positivity of the results concerning integration and clearly identifying the most effective educational strategies in this area (Begeny, Martens, 2007).

The activation of a dialogue between special education and evidence-based research, especially in the Italian context, is now essential. There is a need to start new and different research lines that take into account both the need of bridging the gap between theory and practice (still too deep) and of providing the educational actions aimed at people with special education needs with rigor, reliability and control, being the principles of the evidence-based research.

5. Which research in an EBE perspective?

We have shown that there are few studies aimed at validating the organization and teaching models of school inclusion in an EBE perspective. In this field, studies are almost descriptions of good practices, some of which classifiable as research-action experiences. These are certainly significant procedures able to be replicated, but are not able to provide for reliable feedback on the inclusive model effectiveness. From the methodological point of view, in fact, these experiences lack of an experimental design able to distinguish the impact of the different variables involved and to define a shared and validated system to assess results.

On the one hand, this approach in the schools has surely contributed to combine theory and practice through a reflection concerning action and coming from the same action; it has also enhanced educator, stressing his/her role of researcher and innovator.

On the other hand, the risk related to the adoption of this research model, being almost exclusive, is to confine teachers within a limited and self-referential vicious circle, whose result is just to confirm already settled patterns and knowledge (Calvani, 2012): at this subject the Hargreaves' position (2007) is very

significant, since he stated that decades of research-action in the school were not been able to demonstrate a positive impact of the applied guidelines.

Therefore, how to add empirical researches on the outcomes of the inclusion process to the existing studies, to be carried out in conformity with the parameters set by EBE?

There are undoubtedly great difficulties, both methodological and practical difficulties.

From the methodological point of view, the first problem concerns the definition of “successful inclusion”.

The Index for Inclusion (2002) has a three-dimension structure that are affected by the change in the inclusive school: policies, practices and cultures. The three dimensions, divided into six sections, are then transformed into a number of observable and measurable indicators, that identify the information needed to describe the actual implementation of inclusive processes, to show their efficacy and impact and to ensure consistency between objectives and results.

In this regard, the results to be assessed (dependent variable/s) are not easy to be defined. In other words, when the results of the inclusion process could be considered as satisfactory? A list of items which help define a positive outcome is showed:

- levels of personal autonomy;
- curricular learning processes;
- communication and social skills and quality and frequency of interactions;
- support needs;
- outcomes concerning obtain a work and social inclusion;
- the quality of life for students and families;
- the level of learning of the class where inclusion is foreseen;
- the classmates’ social skills;
- the teachers’ and community’s attitude to diversity and inclusion policy;
- the teaching procedures that are adopted in the classes where inclusion is foreseen in comparison to the others.

Some outcomes directly affect the students’ learning and inclusion, other ones the effects on the different actors that come into play (classmates, teachers, families, communities) and others ones the teaching organization, to check if the latter improves as a result of the inclusion practice.

A further problem affecting both planning and carrying out researches which aim to assess the inclusion effects it related to the assessment method that can be adopted. At this level matching the requirements of objectivity and replicability typical of researches with the natural ones and not always a priori defined that characterize the learning process is not always easy. Two opposite risks are to be avoided as they are encountered when this question is dealt without the necessary methodological expertise and flexibility: on the one hand thinking that assessment can only be implemented through standardized tests only, preferably administered by external people to avoid the risk that the educator’s subjectivity could contaminate data; on the other hand, believing that a descriptive direct observation only can provide the assessment process for the necessary accuracy, perhaps discussing it with other colleagues. The substantial lack of research carried out according to the EBE requirements concerning inclusive education

depends to a great extent on the inadequate matching of this dichotomous view of assessment, also affected by the lacking knowledge of tools and methodologies. The school situation and the organization of teaching certainly pose obstacles and problems at this level, but, in our opinion, in many situations the strictness, authenticity and contextuality requirements in assessing the outcomes of the inclusion process can be abridged.

Lastly a practical difficulty in planning research using the traditional group-based methodology is to be stressed. We have already mentioned the substantial impossibility, in most situations, of selecting samples through randomized procedures and identifying control groups, due to the widespread implementation of the inclusion policy. This objective situation forces to orient the research, at least the major part of it, towards a longitudinal approach and the use of almost experimental procedures, first of all the single subject methodology.

Notwithstanding these critical elements, several lines of research can be definitely followed. We conclude this paper by showing some of them, which we intend to take into consideration in further works.

The inclusion effects directly assessed on students

In addition to the single subject methodology, our EBE model, based on not too strict assessment criteria, but still able to lead to reliable and transferable knowledge systems, gives good explanatory opportunities to longitudinal research carried out on large samples, even without control groups.

In this case longitudinal studies in which certain characteristics are controlled over time through assessed tests can be foreseen. The main aspects are related to the availability of standardized assessment systems and a design able to control the main secondary variables. The tests standardization allow to reduce the impact of development, since the results are compared with rules that take the increase of age into consideration. The identification of the main disturbance variables can be carried out through a comparison between colleagues (peer debriefing), who can help develop critical aspects of the investigation otherwise difficult to be identified, and an external analytic control of the entire research process by an expert (preliminary audit trail).

As an example of research at this level, how the adaptation and the need for support by the students with disabilities evolve over time could be checked through periodical assessment. Using Vineland (Sparrow et al., 1984) test on the adaptive behavior and the SIS scales (Thompson, 2004) on the need for support, both available following the Italian standardization, too, a development of these important features can be described and whether they are influenced by some independent variables (types of school, organization, methodologies, etc.) can be checked. Of course, in absence of control groups, possible situational conditions can not be eliminated but, as said above, they can still be controlled through a careful preparation of the experimental design and a rigorous assessment.

The inclusion effects directly assessed on other actors

In addition to the surveys carried out usually through questionnaires or interviews, empirical research may also be provided. An interesting project, for example, could be designed to determine whether the classes where inclusion is promoted show different levels of learning compared to classes where inclusive

programs are not foreseen. Notwithstanding the limitations of the tools they use, the Italian annual surveys promoted by Invalsi are still able to provide significant data at this level, also thanks to the wideness and stratification of the sample that is taken into account. If the results of some international studies were confirmed (Peck, Donaldson, Pezzoli, 1990; Sharpe, York, Knight, 1994; Huber, Rosenfeld, Fiorello, 2001; Dyson et al., 2004; Kalambouka, et al., 2005) – that is, normally developed students attending classes where inclusion processes are implemented do not delay their curricular learning because of the presence of companions with disabilities, but still have advantages from them – there would be a strong evidence of the overall efficacy of the inclusion perspective. In fact, if some social benefits are expected, it is open to question, even if the hypothesis is entirely plausible, if these positive effects also affect the cognitive domain, too, perhaps as a result of an improvement in teaching.

The effects of inclusion on the teaching improvement

In order to achieve this end, as an example, longitudinal studies concerning the work of teachers teaching at school for the first time for several years should be necessary. Some of these teachers should work in classes where there are students with disabilities and others in classes where there aren't students with disabilities. The hypothesis to be tested is that the teaching approach may be similar at the beginning and progressively differentiate with regard to some specific conditions (assessment and observation method, use of strategies to individualize and personalize teaching, promotion of cooperative work and metacognitive reflections, use of technological supports, etc.).

In conclusion, we believe that the creation and implementation of a less rigid model of EBE, as it is presented here, is the future perspective within which pedagogy and special education should be directed, considering the inaction, widely described in this paper, of this specific field of educational research. We hope that the process of school and social inclusion of pupils with special educational needs may use that perspective to monitor, improve and innovate outcomes.

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