Academic achievements and homeschooling—It all depends on the goals

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ABSTRACT

This article discusses assessment of academic achievement in the context of home schooling or elective home education (EHE). It presents the argument that although academic achievement is used to compare between homeschooling and school learning, in many cases this comparison is misguided.

The achievements of homeschooled children have been examined extensively, but the questions to be considered is whether or not the evaluation methods used were suited to the teaching and education taking place in the homeschooling context, and in particular whether these evaluation methods are compatible with the educational objectives of this framework. This question is fundamental to understanding the homeschooling phenomenon and also to the attempt to compare the achievements of students studying in schools with those of students learning in a homeschooling environment.

The article opens with a brief description of the homeschooling phenomenon, introduces a short review of studies comparing academic achievement in this context, presents a number of basic concepts in the field of evaluation as well as an evaluation model relevant to the questions that form the basis of this study, and examines whether, and under what conditions, a comparison can be made between children attending school and those studying in the homeschooling framework.

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1. Academic achievements and homeschooling—it all depends on the goals

This article discusses a question commonly asked in the field of homeschooling (or elective home education—EHE) studies, that compares the achievements of children studying in schools and those of children learning in a homeschool environment. This comparison is usually made in order to examine the effectiveness of these methods of study.

The achievements of homeschooled children have been examined extensively, but the questions to be considered is whether or not the evaluation methods used were suited to the teaching and education taking place in the homeschooling context, and in particular, whether these methods are compatible with the educational objectives of this framework? These questions are fundamental to understanding the homeschooling phenomenon and also to the attempt to compare the achievements of students studying in schools with those of students learning in a homeschooling environment.

The article opens with a brief description of the homeschooling phenomenon introduces a short review of studies comparing academic achievement, explains a number of basic concepts in the field of evaluation, presents an evaluation model relevant to the questions that form the basis of this study, and examines whether, and under what conditions, a comparison can be made between children attending school and those studying in the homeschooling framework.

Thus this current article attempts to create a bridge between the study that examines homeschooling and the study dealing with academic achievement.

1.1. School learning, structured homeschooling and unstructured homeschooling

Homeschooling is a general term in the literature describing a phenomenon in which children (of all ages) do not attend school, usually because of their parents' beliefs. Thus for these children education is conducted mainly at home, according to curricular directives determined first and foremost by the parents (Neuman and Aviram, 2003, 2008; Harding & Farrell, 2003; Lyman, 1998). In

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recent decades, homeschooling has been gaining momentum in various Western countries, among them the United States, where an estimated two million children are educated in a home-schooling setting (Blok & Karsten, 2011; Davis, 2006; Ray, 2011).

As a result, the last few decades have seen numerous studies that examine homeschooling from a variety of viewpoints, among them reasons for choosing to educate children at home and the processes that occur while practicing homeschooling (Neuman & Aviram, 2003; Bates, 1991; Marchant & MacDonald, 1994; Rothermel, 2005) But one of the most researched aspects of homeschooling is the results of the process.

The results of homeschooling may pertain to family, livelihood, social relations, etc., but because homeschooling is usually perceived as an alternative to school education, the results of homeschooling are most often examined in light of the outcomes of school education. The results of school education are usually measured in terms of academic achievements, and consequently, this same yardstick is used to measure homeschooling results.

Many studies compare the academic achievements of home-schooled children to those of their school-learning peers. These studies are usually based on standardized achievement tests that examine the various content areas that are taught in schools and in particular the core curriculum subjects (i.e. reading and writing, mathematics, the sciences, etc.). Because the approaches to education of homeschooling and traditional schooling are often contradictory, and because homeschooling is often perceived as a substitute for traditional schooling, the test results provide researchers with a tool for comparing the effectiveness of the two approaches, and can thus allegedly help to answer the questions: Which educational strategy is better and in which subjects?

There are different types of homeschooling in different countries and different laws regarding homeschooling, but many questions regarding homeschooling can be examined on an international level. Hundreds of studies and meta-analyses have been conducted in recent decades (for example: Bagwell, 2010; Blok, 2004; Galloway, 1995; Kunzman & Gaither, 2013; Meighan, 1997; Ray & Wartes, 1991; Ray, 2010; Ray, 2013; Rothermel, 2002; Rothermel, 2004; Rudner, 1999). Internet sites also provide references or links to hundreds of such studies (for example: http://www.indiana.edu/~homeeduc/topic_academic.html; http://www.hslda.org/docs/nche/000010/200410250.asp).

The majority of studies clearly indicate that the academic achievements of children who are homeschooled exceed those of peers attending schools.

This plethora of findings is seemingly indicative of an answer to the simplistic question "Which educational strategy is better?" However, much of the research has suffered methodological flaws (such as nonrandom volunteer samples), which limit the ability to generalize them (Kunzman & Gaither, 2013). In addition, this examination of educational achievements alone raises a number of fundamental problems, as presented later in this article.

To understand the difficulties involved due to the methods of evaluation customarily used in these studies, it is important to consider the following division often used in studies examining homeschooling: structured homeschooling on one hand, and unstructured homeschooling (also referred to as unschooling or autonomous learning) on the other.

In structured homeschooling, teaching and learning processes take place within a home framework according to a defined curriculum, while in the unschooling approach teaching and learning processes are not orderly or defined, and structured learning, if it exists, is carried out during random windows of opportunity as part of the daily schedule that is not devoted to learning or teaching (Aurini & Davies, 2005; Kunzman & Gaither, 2013; Neuman & Guterman, 2016; Ray, 2010; Rothermel, 2011).

When examining the results of homeschooling in terms of academic achievements as defined by traditional schooling, this division is significant because the structured homeschooling approach is actually closer in concept to traditional school learning – in terms of learning framework – than it is to the unschooling approach. Both structured homeschooling and school learning maintain that the purpose of learning is to acquire knowledge based on a curriculum, using structured tools, in defined units of time devoted to this process. However, structured homeschooling does not necessarily follow the same curriculum and objectives as institutional schooling systems do, and furthermore, some families, of course, practice a combination of approaches.

In contrast to these two groups, the unschooling group, with its unstructured approach, forgoes a set curriculum and does not allocate separate units of time to the process. In the unschooling group view, learning should be spontaneous and occur mainly as a part of daily life.

The consequence of these differences is that in subjects included in standardized achievement tests, children in the unstructured, unschooling approach will have difficulty producing a level of academic achievement similar to that of peers in school for the simple reason that they do not learn according to a systematic curriculum and therefore have not been exposed to some of the specific knowledge acquired by their peers in school—i.e., the material being tested in standardized assessments.

It is important to note that the opposite situation is also possible—that some of the knowledge acquired by children from the unschooling approach has not been accessed by children in the structured approaches, whether at school or at home, but usually this is material not tested by standardized assessments.

Many studies examining homeschooling achievements in comparison to the achievements of school learned children do not consider the division between structured homeschooling and unstructured homeschooling or unschooling (see for example, Blok, 2004; Ray, 2010; Rothermel, 2002; Rothermel, 2004; Rudner, 1999).

In contrast to the abovementioned papers, a recent study by Martin-Chang, Gould, and Meuse (2011) does refer to the two types of homeschooling (structured and unstructured). This study compares three groups (school learning, structured homeschool-ing, and unschooling) and shows that while the achievements of the structured homeschooling group were higher than those of the school learning group, the achievements of the unschooling group were lower than those of both the other groups.

In other words, based on the above-mentioned research, and keeping in mind that this was a small-scale research, it appears that the strategy used in structured homeschooling is more successful in terms of academic achievement than the educational strategy used in schools. In other words, when homeschooled children are taught in a structured way, their academic achieve-ments are higher than those of children who attend schools. However, the educational strategy used in schools is better, in terms of academic achievement, than unschooling (that is, when homeschooled children are taught in an unstructured way, their academic achievements are lower than those of children who attend school). However, this conclusion also has, in fact, a number of key shortcomings.

It is important to understand that there is a fundamental problem in this type of study—the assessment of academic achievement is actually an examination of the degree to which the goals of the teaching and learning process have been achieved. However, it is not possible to assess achievement in this manner without examining the goals of the educational process. Conse-quently, studies that examine the academic achievements without first examining the goals of the process are actually overlooking a critical aspect of the process. The assessment must examine the

nature of the goals of the learning and teaching process that has taken place. The study cannot examine academic achievements in isolation from the learning and teaching process which in its turn sets out to achieve the teaching goals. In the framework of school-based education, the goals of the process are usually clear and can be deduced from the curriculum but in the homeschooling context it is necessary to examine, together with the parents, the nature of their educational goals, and only after this stage, to examine the degree to which these goals are achieved.

In the recent study by Martin-Chang et al., 2011 the authors, in contrast to many others, took a step in the right direction by differentiating between the two homeschooling groups. However, the abovementioned study also overlooks the fact that it is essential to check what the goals of the process are before checking the achievements. It is reasonable to assume that the two groups differ from each other also in the educational goals that they set themselves.

Given that the comparison between the groups in the Martin-Chang et al., 2011 study and in many of other studies (as noted previously) is based on the assessment of academic achievement, we will devote a section to the clarification of a few points relating to this concept.

1.2. Assessing academic achievements

The process of assessing academic achievement applies various methods of gathering information about the learning processes of students and especially the results of learning, and then interprets and judges this information (Brookhart, 1999).

Academic assessment can have several different goals, for example, formative and/or summative goals. The terms formative assessment and summative assessment were coined by Scriven (1967). When the information gathered about learning processes is used to help shape these processes it can be said that formative assessment is taking place. If the information gathered about the results of learning helps to understand what has changed as a result of the learning, this is summative evaluation or summative assessment. One way to conduct a summative evaluation is to examine the expected results (or the extent to which the goals were achieved); for this purpose, it is essential to understand the goals of the evaluated process.

In general, assessment of achievements is not an end in itself – it is a means and in most cases it has one supreme goal – to assist in the integrated processes of learning and teaching. Given that this is the purpose, it is important that the goals of the assessment process and the goals of the learning and teaching processes correspond. The assessment should examine the change caused by the learning process – because the nature of learning is to engender change. Assessment is supposed to measure this change.

If we accept this assumption, it is first necessary to focus on the change-inducing process before thinking about measuring this change. In other words, we should first study the learning-teaching process and only then apply tools to examine the results of this process, i.e., assess achievements.

Learning-teaching, like many other processes, can exist on a continuum of actions which may also be found in models from different domains. For example, the rational decision making model which includes sensing a difficulty or problem, defining it, proposing solutions, applying the desired solution and assessing the solution (Gordon, 1984); the CIPP (Context, Input, Process, and Product) model for assessment (Stufflebeam, 1971), and the logical model which refers to needs, input, activity and output (Russ-Eft & Preskill, 2003).

To be sure, these models are not identical but they have a common denominator—a rational order of activities: defining goals, building a program (intended to achieve those goals),

applying the program and examining the results of the application. This order of action, in the context of the education system, is illustrated in Fig. 1.

Ideally, if the goals are defined clearly and are achievable (a), and a suitable program is built based on these goals (b) and properly implemented (c), then the goals of the process should be attained (d).

A simple example of this could be in the field of teaching life sciences. If there is a specific goal for the students to learn the main plant and animal classifications and if a suitable curriculum is developed which relates to each one of these main groups, and also to the most effective methods of teaching; and if the curriculum is properly implemented, in other words, if everything that was planned is applied in the best possible manner, we would expect that after implementation of this curriculum, the students would know which are the main groups of plants and animals. In other words, we would have achieved our goal.

It is obvious from this example that the crucial stage in this process is that of defining the goals; It is from this stage that the process, implementation and results are derived.

Assessment, which accompanies this process, can theoretically examine each of these stages individually, how the various stages are connected as well as viewing all the stages as one unit. However, for the most part, assessment examines the final stage, that is the pupils' academic achievements.

As noted, the achievements that are assessed are an outgrowth of the goals of the teaching-learning process!

This link between goals (a) and achievements (d), or between expected results (goals) and actual results (achievements), is the key to understanding the problem of comparing homeschooling and traditional schooling.

This link is so fundamental that some assessment models completely ignore the program (b) and the process (c), and assess only the goals and results—for example, the 'black box' model described in Fig. 2 (Patton, 2011; Shadish, Cook, & Leviton, 1995; Stufflebeam, Madaus, & Kellaghan, 2000).

To summarize this brief discussion of achievement assessment, it can be said that in order to assess achievements in education it is necessary to be familiar with the teaching-learning process – especially the goals but also the program and the manner of its implementation – and to adapt the assessment process to them.

Now that the importance of defining goals in the teaching-learning process and the subsequent assessment process is better understood, it is possible to discuss learning and the assessment of achievement in the homeschooling framework, but this time with special reference to the goals.

1.3. Assessing homeschooling achievements

As noted, goals define the expected results. Achievement assessment, which examines the extent to which the expected results were achieved, must correspond to the expected results (or for that matter, the goals). Well-constructed achievement assessment tools will do this – in other words, they will test whether the goals were achieved.

a) Goals of the learning-teaching process
b) Curriculum & teaching strategies
c) Teaching and learning processes
d) Student's achievements
   → Assessing Student's achievements
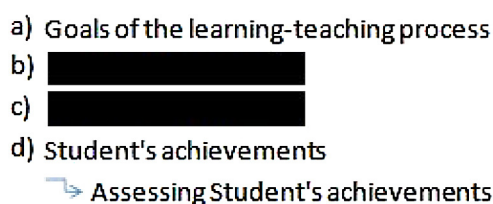
Fig. 1. Goals, program, implementation and results.

Fig. 2. Goals and results—the "black box" model.

By analyzing school achievement tests it is possible to trace back to their goals, in other words, we can deduce the goals (or the expected results) of the teaching-learning process from the test. These goals are usually knowledge and understanding. In the biology example cited earlier, basic goals can be learning the main classifications of plants and animals, and at a higher level, understanding the mechanisms of evolution.

Extensive research has been conducted about the various goals of home educators, although frequently, the researchers do not define their research as one focusing on goals. In many cases, the aim of this extensive research has been to examine "types" of homeschooling (for example, Neuman & Aviram, 2003, 2015; Morton, 2010; Rothermel, 2005; Van Galen, 1988), but the various types of homeschooling derive from the different goals, and therefore the goals can be deduced from the types.

Certain groups of homeschoolers, mainly from the structured approach, base themselves on the goals of understanding and knowledge (although some structured homeschooling might focus on different content to that taught in schools). For the purpose of this discussion we will call this Type 1. The difference between this group (Type 1) and school education centers mainly on the teaching process. These home educators believe that achieving the defined goals of school education is worthwhile but they contend that homeschooling can achieve these goals better than school can.

Despite their different learning processes, these structured groups can use the same instruments of measure, assessment tools and processes for assessing achievements as schools do because both groups subscribe to the same goals (see Table 1).

In other words, it is possible to say that structured homeschooling and school education differ in their teaching-learning processes but not in their goals or expected results.

But many groups of home educators, especially among those who adhere to the unstructured homeschooling (or unschooling) approach do not advocate these goals. We can call them Type 2.

Type 2 home education differs from school education not only in the process but even more basically in the goal-setting – or the expected results stage. For this reason, the instruments of measure, evaluation tools and assessment processes used in schools are not suitable for Type 2 education (see Ray, 1997), and why comparing the outcomes of Type 2 education to those of school education using school-based assessment processes is misguided (see Table 1). To assess Type 2 education, instruments of measure and assessment tools suited to Type 2 education goals must be developed and they would evaluate the degree to which these

goals have been achieved (see also Cizek, 1993; Hardenbergh, 2015).

Thus, for example, if the goal of the process is to develop curiosity and enthusiasm for learning, this goal leads to a different curriculum than if the goal is to promote familiarity with the main plant and animal classifications, and certainly requires different instruments of measure and assessment tools.

Some such instruments of measure and tools have already been developed, especially in constructivist learning and inquiry-based learning (see, for example, Brooks & Brooks, 1993; Holmes & Leitzel, 1993; DeLay, 1996) and alternative assessment (see Perkins & Blythe, 1994; Birenbaum, Tatsuoka, & Gutvirtz, 1992; Birenbaum et al., 2006), and in regard to proximal achievement outcomes (Ice & Hoover-Dempsey, 2010). However, their use and prestige are unfortunately much lower than traditional achievement assessment means. Consequently, when achievements are compared between school and homeschooling, conventional assessment measures are most often used.

To summarize, as mentioned before, Type 1 homeschoolers can use the same instruments of measure, assessment tools and processes for assessing achievements as schools do.

However, it can be said that for a considerable segment of homeschoolers (those in Type 2 settings), the goals of education differ from those of school education and it is therefore not logical to assess their achievements in the same way. Moreover, like a great majority of home educators, many educational philosophers adhere to constructivist learning goals for homeschooling (Neuman & Aviram, 2003, 2008).

These parents object to the goals of the educational process in the school and define different goals for this process. However, many studies ignore these differences and nonetheless examine the achievements of these parents' children on the basis of the school's stated goals.

There are probably parents that combine between what we call "type 1" and "type 2" (i.e. adhere to goals of understanding and knowledge as well as to constructivist learning and inquiry-based learning goals). It is therefore important not to think about these two types described here only as two separate option, but rather as a continuum, as a axis that runs from type 1 on one side to type 2 on the other. Homeschooling parents can position themselves in different positions on this axis according to their pedagogical beliefs. Their position on this axis may vary in time, as their pedagogical beliefs develop and change.

For these parents it is equally important to make the distinction between these two types of homeschooling in order for them to be very clear regarding the expected achievement from type 1 learning processes and type 2 learning processes.

What emerges from this paper is that any assessment, comparison or examination of homeschooling vs. school-based education should be based on a model that first determines the goals of the teaching-learning process, then develops appropriate instruments of measure and assessment tools for them and only afterwards compares the results of the two approaches according to these goals, because different goals generate different processes

Table 1
Similarities and differences between Type 1 and Type 2 homeschooling and school-based education.

Stage	Similarities and differences between Type 1 homeschooling and school education	Similarities and differences between Type 2 homeschooling and school education
Teaching-learning goals	+	−
Curriculum & teaching strategies	−	−
Teaching and learning processes	−	−
Student's achievements	+	−
Achievement assessment—measures, tools, process	+	−

and different results. Of course, this is true not only for home-schooling!

As noted above, these assessment tools are, subject to the educational goals of these parents Assessment tool for type 2 homeschooling will be based on the constructivist approach and can examine broader aspects of the achievements generated by the educational process that is taking place in the context of homeschooling.

These aspects would include self-confidence, self-efficacy, ability to self-direct, ability to reflect, social skills, self-learning and more.

Furthermore, quantitative assessment tools are not always suited to examining achievements such as those mentioned above. Consequently, there is room to consider using qualitative research tools, or a combination of quantitative and qualitative tools, or in other words to adopt a mixed method approach.

The combination of the CIPP evaluation model, as described in this article, with the views and assessment methods of home-schoolers make it necessary to evaluate the achievements of homeschooled children with instruments adapted to their parents' goals and teaching methods. Furthermore, some homeschoolers believe that it is their right and duty to educate their children according to their own views and values (Ray, 2013).

This view may undermine the focus on core programs, the approach that assumes certain fields and skills must be taught, regardless of the institution or method by which children are educated. Such an assumption suggests that the state should supervise children, regarding of whether they study at home or at school, to ensure that their education meets the basic criteria for acquisition of knowledge and skills according to the core curriculum. This involves examining the achievements of the children using instruments that do not take the learning process or goals defined by the homeschooling parents into account.

The contradiction between the idea of examining children's achievements according to their parents' goals and the concept of a uniform core curriculum is a fundamental contradiction and a difficult one to resolve. It actually stems from a dilemma between personal values and societal values: should the goals and processes of education and, correspondingly, the measures of evaluation, be based on goals of the individual or of society?

As in any dilemma on matters of principle, there is no single correct answer that applies universally; there are different answers, depending on the worldview of those being asked. However, we would like to suggest a middle road that acknowl-edges the legitimacy of both worldviews and enables a combina-tion of both approaches. On the hand, parents have the right to determine the goals of their children's education, and on the other hand, society has a duty to examine the progress of the children. This approach combines assessment of several core subjects with assessment of goals that parents determine by a variety of constructivist means. Such an integrative approach could deter-mine a variety of goals of the educational process, based on those agreed upon by society and those specific to the families. It would then examine the achievements of the students according to both groups of goals.

Adoption of an integrative approach of this type could help bridge the gap between the different goals and needs of the education system and of homeschooling parents. As a result, it may strengthen the relationship between the two groups.

It is hoped that an assessment of the homeschooling phenomenon that is linked to a better understanding of the nature of those involved in the field and their goals will form a stronger foundation for understanding the phenomenon and its outcome. Such an in-depth understanding is likely to lead to a deeper theoretical understanding of the field of homeschooling which is becoming more widespread. It is also likely to improve the ability to give clearer and more suitable direction to parents and professionals in the field.

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