

DOSSIÊ: *Homeschooling* e o Direito à Educação

## A Review of research on Homeschooling and what might educators learn?<sup>1</sup>

Brian Ray <sup>Ⓓ</sup>

<sup>Ⓓ</sup> National Home Education Research Institute, Salem, Oregon, United States. bray@nheri.org

**Abstract:** This article reviews research on homeschool learner outcomes and then focuses on one study and one conceptual theme related to both home education and schooling in general. It synthesizes research on learner outcomes related to homeschooling in areas of students' academic achievement, children's social, emotional, and psychological development, and the success of adults who were home educated. The summary finds generally that positive outcomes on a variety of variables are associated with homeschooling. The first special focus is one study on African American homeschooling families that explores the parents' reasons for homeschooling and their Black children's academic achievement. The second particular focus is the issue of whether compulsory school attendance laws are necessary in light of the findings of research on teacher preparation and certification in state/public schools and three decades of research on modern homeschooling.

**Keywords:** homeschooling, home education, academic achievement, socialization, motivations, compulsory schooling

Parent-led home-based education was the norm around the globe for thousands of years. That changed drastically in many nations during the late nineteenth century. In the United States of America, for example, government-compelled education did not take hold until the late 1800s. It was not until 1900 that the majority of school-age children attended institutional schools: “72 percent of 5- to 17-year-olds were enrolled in public schools, but their average attendance was still only 99 days per year” (Ray, 2012). Similar changes occurred around the world until home-based education was nearly extinct in most developed nations.

Times have changed, however, and homeschooling (parent-led home-based education) is experiencing a renaissance in many nations. For example, it exploded from a population of

<sup>1</sup> Copy editor: José Pereira Queiroz, São Paulo, SP, Brazil. ze.pereira.queiroz@gmail.com

about 13,000 students in the 1970s to about 2.2 million in 2015 in the United States (Ray, 2013, 2015c). Homeschooling changed from being a practice of families that some observers opined were the fringe of society to being commonly considered a viable educational option by mainstream American families. It was comprised of close to 100 percent White families two decades ago to now 32 percent Black, Asian, Hispanic, and others (not White, non-Hispanic) (Noel, Stark, & Redford, 2013). As of 2012, there were more students in grades Kindergarten through 12 in this form of education than in Roman Catholic schools (National Catholic Educational Association, 2014) and almost as many as in public charter schools (United States Department of Education, 2014).

There is solid evidence that homeschooling has made notable gains in absolute numbers and percent of the school-age population in nations as diverse as Australia, Brazil, Canada, England, Japan, Mexico, South Africa, South Korea, Scotland, and Russia (Rothermel, 2015). Home education's rebirth after about a century of quiescence has surprised many educators, sociologists, political scientists, historians, and theologians, and has captured the imagination and engagement of hundreds of thousands of families.

This article provides a review of research on homeschool learner outcomes and focuses on one study and one conceptual theme related to both home education and schooling in general. It offers a synthesis of studies on learner outcomes related to homeschooling in areas of students' academic achievement and children's social, emotional, and psychological development and the success of adults who were home educated. Generally positive outcomes are found on a variety of variables associated with homeschooling. One special focus is a study on homeschooling African American families in the United States that explores the parents' reasons for homeschooling and their Black children's academic achievement. The second special focus is the issue of whether compulsory school attendance laws are necessary in light of the findings of three decades of research on modern homeschooling.

## Home-based Education and learner outcomes

Homeschooling is a form of private education that is parent led and home based. Because of this, homeschooling does not rely on either state-run public schooling or

institutional private schooling for a child's education. What, then, are the learner outcomes related to this form of schooling that is often not at all regulated by the state?

## **Academic achievement**

One of the most common and widely accepted ways to assess the learning of students and the effectiveness of their educational environments is via academic achievement as measured by standardized tests. Many policymakers, educators, school administrators, and parents, who are interested in test scores, wonder whether ordinary mothers and fathers, who are not government-certified teachers, are capable of continuing the teaching of their children after age 5 via what is called homeschooling. Because of this central question, policymakers, researchers, and even parents wonder whether it is possible for adults without specialized, university-level training in teaching to instruct children in an effective manner with respect to academics.

Numerous studies by many researchers have been completed during the past more than 30 years examining the academic achievement of the home-educated population (see other reviews, Murphy, 2012; Ray, 2000, 2005, 2013). Examples of these studies range from a multiyear study in Washington State to three nationwide studies across the United States to two nationwide studies in Canada (Ray, 1990, 1994, 1997, 2000, 2010; Rudner, 1999; Van Pelt, 2004; Wartes, 1990, 1991). The homeschooled have consistently scored in these studies, on average, at the 65th to 80th percentile on standardized academic achievement tests in the United States and Canada, compared to the public school average of the 50th percentile.

I conducted the most recent nationwide study (Ray, 2010). It involved a sample of 11,739 home-educated students from various testing services around the United States. Compared to scores in previous studies, the scores remained high and, if anything, a bit higher than in past studies. The mean z scores (and percentiles) for home-educated students on the Reading Total, Language Total, Mathematics Total (with computation), Science, Social Studies, Core (with computation), and Composite (with computation) subtest scores ranged from 0.99 (84th) to 1.22 (89th). By definition, the 50th percentile is the mean for all public and private students nationwide. The homeschool students in this study scored, on average, at or above the 84th percentile in all subtest areas.

More than simple descriptive statistics are available in the studies on test scores. Bivariate and multivariate analyses have examined whether various factors (e.g., parent educational attainment, household income, teacher-certification status of the parent, whether parents knew their children's scores before participating in the study) are related to home-educated students' test scores. For example, I (Ray, 2010) found that there were no statistically significant differences in achievement by whether the student was enrolled in a full-service curriculum, whether the parents knew their student's test scores before participating in the study, and the degree of state regulation of homeschooling (in three different analyses on the subject). Also, the scores of all students (both participants and nonparticipants in the study for whom test scores were obtained) were only 2 to 4 percentile points (i.e., 0.10 to 0.16 z score) lower than the scores of only the homeschooled students who participated in the study. Further, there were statistically significant differences in achievement among homeschooled students when classified by gender, amount of money spent on education, family income, whether either parent had ever been a certified teacher (i.e., students of noncertified parents scored higher), number of children living at home, degree of structure in the homeschooling, amount of time student spends in structured learning, and age at which formal instruction of the student began. However, of these variables, only parent education level explained a noticeable or practically significant amount of variance, 2.5%, in student scores; the other variables explained 0.5% or less of the variance. Finally, essentially all subgroups of students (e.g., low vs. high income) scored above public school averages.

Some observers have wondered about the representativeness of the samples in the studies and whether, for example, only the best-performing homeschooled students are included in the studies. Data from states that have legally required homeschooled students to be tested shed some light on the question. For example, several years of data from Oregon (Oregon Department of Education, 1999) consistently reveal homeschooled student scores to be above average, with medians at about the 71st to 80th percentile (Williams, 2014). Washington data (Wartes, 1990, 1991; Washington State Superintendent of Public Instruction, 1985) regularly reveal scores above average, at about the 66th percentile. In a program that is public school at home (i.e., like but not the same as private homeschooling), Alaskan students in a state-run school-at-home program consistently scored above average (e.g., about the 78th percentile one of the years reported; Alaska Department of Education, 1993). Alabama homeschooled students

also scored comparably to public school students in their academic achievement (Rakestraw, 1988). In other words, even when all legally homeschool school students are tested, their scores are the same or higher than those in public schools.

Various scholars (Lubienski, Puckett, & Brewer, 2013; Ray, 1997, 2013; Rudner, 1999) have discussed the methodological limitations of studies on homeschooling. Some (Lubienski, Puckett, & Brewer, 2013) of those who evaluate the limitations either become overly focused on what the research cannot tell us, or fail to include all of the research and data available on homeschooling that has been presented in this article and in other places (Ray, 2013). On this note, in addition to cross-sectional and descriptive studies, some research that is causal-comparative or explanatory (Johnson, 2001) in design have been conducted. For example, Martin-Chang, Gould and Meuse (2011) used a matched-pair design and concluded that the “evidence presented here is in line with the assumption that homeschooling offers benefits over and above those experienced in public school” (p. 200). In a similar vein, but with older students who were home educated, Cogan (2010) used multivariate analysis to conclude that homeschooled college students outperformed their peers in terms of their 1st-year and 4th-year grade point averages (GPAs).

To date, no studies have found home-educated students to have lower achievement test scores, on average, than public school students. Further, the overall research base and state-provided data suggest the following three main things about home-educated students’ academic achievement:

1. The homeschooled consistently score well above the public school national average. Most studies find them scoring in the range of the 65<sup>th</sup> to 80<sup>th</sup> percentile.
2. Most demographic and other variables studied explain very little variance in the achievement scores of the home educated.
3. Parent formal educational attainment consistently explains statistically significant differences in achievement but, practically speaking, small amounts of variance, and the amount of variance explained is typically less than what this variable explains within the public school student population.

## **Social, emotional, and psychological development of homeschool children**

Around the world, homeschool parents call it the “S question” – “What about socialization?” Such question arises mainly in societies in which the institutionalization of children has been the norm for several generations of children. The first part of the S question usually asks if the child will experience healthy social, emotional, and psychological development. Numerous studies, employing various psychological constructs and measures, show that the home educated are developing at least as well as, and often better than, those who attend institutional schools (Medlin, 2000, 2006; Ray, 2005, Chapter 4; White, Moore, & Squires, 2009; White et al, 2007). No research to date contravenes this conclusion. For example, regarding the aspect of self-concept in the psychological development of children, several studies have revealed that the self-concept of homeschooled students is significantly higher than that of public school students (Medlin, 2006). As another example, Shyers (1992) found that the only significant childhood social-interaction difference between the institutionally schooled and homeschoolers was that the institutionally schooled had higher problem behavior scores.

The extent to which homeschool students and their parents engage in their neighborhoods and communities might explain some of their sound social skills. Research time and again finds that homeschooled students and their parents are very engaged in their communities, including activities such as sports teams, cooperative classes, church activities, and community service. Further, homeschooled children typically interact with a broader range of ages (of children and adults) than do most institutional school children (Smedley, 1992). Medlin (2013) wrote the following in his in-depth review of research:

Are homeschooled children acquiring the “skills, behavior patterns, values, and motivations” they need to function competently as members of society ...? And the answer to that question, based on three decades of research on homeschooling, is clearly yes. Recent research, like that reviewed earlier ..., gives every indication that the socialization experiences homeschooled children receive are more than adequate. In fact, some indicators – quality of friendships during childhood, infrequency of behavior problems during adolescence, openness to new experiences in college, civic involvement in adulthood – suggest that the kind of socialization experiences homeschooled children receive may be more advantageous than those of children who attend conventional schools. (p. 293)

## Adults who were home educated

The follow-up question regards college academic performance scores. Medlin (2013) found that home-educated students possessed higher ACT scores, GPAs, and graduation rates when compared to institutionally schooled students. Cogan (2010) further noted,

In addition, multiple regression analysis results reveal that students, at this particular institution, who are homeschooled, earn higher first-year and fourth-year GPAs when controlling for demographic, pre-college, engagement, and first-term academic factors. Further, binary logistic regression results indicate there is no significant difference between homeschooled student's fall-to-fall retention and four-year graduation rates when compared to traditionally-educated students while controlling for these same factors. (p. 24)

In the conclusion of their article on homeschool graduates in college and university, Gloeckner and Jones (2013) noted the following:

This study reveals the tremendous shift, in recent years, in admission officers' attitudes toward and perceptions of the homeschooled graduate. More than 78% of surveyed admission officers indicated that they expect homeschool graduates to perform, overall, as well or better in their 1st year of college than traditional high school graduates. (p. 321)

Some researchers have also examined adults who were home educated without necessarily linking them to the university scene. Knowles and de Olivares (1991) and Knowles and Muchmore (1995) found that these adults tended to be involved in entrepreneurial and professional occupations, were fiercely independent, and strongly emphasized the importance of family. Furthermore, they were glad they had been home educated, would recommend homeschooling to others, and had no grossly negative perceptions of living in a pluralistic society. I (Ray, 2004) studied more than 7,306 adults who had been home educated, 5,254 for 7 or more years during grades K-12. I learned several things about these adults that are particularly relevant to this article. First, a higher percentage of them had taken some college courses than the general U.S. population of a similar age, and a higher percentage of the home educated already had a baccalaureate degree. More of the home educated (98%) read a book in the past 6 months than did the general population (69%). More of the homeschooled (100%) read one or more magazines on a regular basis than the general population (89%). Seventy-one percent of the homeschooled participate in any ongoing community service activity" compared to 37% of the general population. Also, the home educated were more civically and politically engaged

than the general population. For example, for those of age 18 to 24, 76% of the homeschooled voted in the past 5 years, whereas 29% of the same-age general population in the United States voted. Also, of those ages 18 to 24, 14% of the home-educated participated in a protest or boycott during the past 12 months, whereas 7% of the general population did so.

To date, research is consistent that adults who were home educated are faring as well as or better than the general adult population on all constructs considered. To consider some of the most common criticisms of research on homeschooling and an evaluation of those criticisms, one might consider my article (Ray, 2013). Suffice it to say, it appears that most of the negative critics of the positive findings regarding homeschooling have philosophical and political agendas to promote.

## **Nature of studies on learner outcomes**

Different scholars have explained several times that certain limitations adhere to most of the studies to date on the academic achievement; social, emotional, and psychological development; and success (or not) in adulthood of the home educated (Murphy, 2012; Ray, 1990, 2000, 2010, 2013; Rudner, 1999). First, homeschooling families and their students do not appear to be a representative cross-section of all families in the United States. One reason for this is that it is often not possible within the constraints of most studies to confirm whether samples are representative of the population of home-educated students.

The content of the standardized achievement tests used is a second major limitation of the studies. Rudner (1999) aptly noted that

[w]hile home schools teach the basic skill areas of reading, mathematics, social studies, and science, they do not necessarily follow the same scope, sequence, or emphasis as traditional public and private schools. The primary focus of many home schools is on religious and moral values. ... Public and private schools usually select [a standardized test] ... due to its close alignment with their curriculum; home schools select the test primarily out of convenience. (p. 28)

That is to say, homeschool students might be at a disadvantage taking these tests because their parents are not necessarily following institutional school curriculum that would help their children succeed on the tests.



Another possibility is that the affective measures used with homeschooled children are not as valid as they should be with respect to the objectives that homeschooling parents have in education compared to the objectives of state institutional education systems. It is possible, therefore, that homeschooled students are at a disadvantage being measured with instruments that are aimed at the knowledge, values, skills, and behaviors state-school students are supposed to learn, internalize, and exhibit.

On a final note, comparisons between home-educated students and institutional school students nationwide should be interpreted with thoughtfulness and care because most of them have been cross-sectional, descriptive studies (Johnson, 2001). They are not experiments, so statements of causation should be avoided. With that in mind, however, a growing number of studies have employed some controls (e.g., matched-pair designs, multivariate analysis) that allow for more-causal inferences to be considered (Cogan, 2010; Duvall, Ward, Delquadri, & Greenwood, 1997; Francis & Keith, 2004; Kingston & Medlin, 2006; Martin-Chang et al., 2011; Ray, 2015a, 2015b; Shyers, 1992; White et al., 2007). Consistent with the cross-sectional, descriptive projects, these studies have found the home educated to be doing as well as or better than those who were institutionally schooled. It is likely that more sophisticated multivariate and causal-comparative research designs (Campbell & Stanley, 1963; Johnson, 2001) will one day reveal more about home education's effects on academic achievement and children's social, emotional, and psychological development.

Based on research to date, a generalization can be made. Homeschooled students and adults who were home educated are succeeding as well as or better than their peers who attend public and private institutional schools. This is true with respect to academic achievement, social and emotional development, and functioning in university and adulthood in general. With this in mind, I will now address two special topics.

## **Two special foci: what might educators learn?**

A review of research on homeschooling and learner outcomes is valuable for the sake of knowledge, and it can lead to some understanding of home-based education in particular and

education in general. After a simple summary of findings, however, one might ask, "*But does the research lead us to any new insights or issues to be addressed?*" I can think of at least two.

## **Blacks and homeschooling**

The vast majority of research on homeschooling, at least in the United States, involves the majority racial/ethnic group, White/Anglos, and this group has been historically disproportionately represented in the modern homeschool population. Over the past decade, however, many observers have noticed an increase in home education being practiced by African American families. Very little research has been done on Black families who homeschool but the rise in homeschooling among them has piqued the interest of the public and researchers. Black students consistently score the lowest, compared to other racial/ethnic groups in the United States, on achievement tests in public schools and one might wonder whether their achievement would be improved, or worsened, being homeschooled by uncertified, untrained, non-government-certified teachers, their parents.

With this backdrop, I (Ray, 2015a) investigated the motivations of African American parents for choosing homeschooling for their children and the academic achievement of their Black homeschool students. It involved achievement testing of Black homeschool students in Grades 4 to 8 and surveying their parents. I expected to find that the academic achievement of Black homeschool students to be, on average, higher than that of Black public school students (see reviews, e.g. Murphy, 2012; Ray, 2000, 2005, 2013). Further, I hypothesized that Black homeschool students might not perform as well on these tests as do White homeschool students. In addition, I postulated that Black parents' reasons for homeschooling would be similar to those of homeschool parents in general, except that they might mention shielding their children from race-based or racist behaviors in public schools.

I administered a 39-item, paper-and-pencil survey to homeschool parents that was comprised of items on topics such as parent and family demographics, student's demographics and schooling history, approach to homeschooling, and parents' motivations or reasons for homeschooling their children. I was also able to find assistants to administer the standardized academic achievement tests, the ITBS (Form A, levels 10–14, Grades 4 to 8) (Iowa Testing

Programs, 2015), that were designed and developed by University of Iowa professors to measure skills and standards important to growth across the curriculum in the U.S. nation's public and private schools.

My enterprise was a cross-sectional, explanatory nonexperimental study (Johnson, 2001) and controlled for limited background independent variables for the homeschool and public-school students in a way that very few studies (if any) have accomplished using the limited data available to any researcher with the fairly limited resources available. It was not an experimental study designed, in and of itself, to establish causation. It was meant to be a simple, efficient, and hardy study of Black homeschool parents and children. The study was designed to uncover findings that might develop perceptions and increase understanding of fitting policies or outlooks on homeschooling in general, and homeschooling by African Americans in particular.

Parents were asked to mark all the reasons or motivations why they homeschool their child. They chose from a list of 21 reasons, including other/another. The six reasons most commonly selected for homeschooling by these Black parents were (a) the parents “prefer to teach the child at home so that you [parent] can provide religious or moral instruction” (chosen by 96.3% of parents), (b) “for the parents to transmit values, beliefs, and worldview to the child” (95.1%), (c) “develop stronger family relationships between children and parents and among brothers and sisters” (87.7%), (d) “to customize or individualize the education of each child” (80.2%), (e) “accomplish more academically than in conventional schools” (76.5%), and (f) “want to provide religious or moral instruction different from that taught in public schools” (76.5%).

These Black homeschool parents were also asked to list “the three main reasons, from [the] previous [list], for homeschooling this child”. Their responses were then tabulated. The five reasons most often chosen were (a) “prefer to teach the child at home so that you can provide religious or moral instruction” (selected as one of the “three main reasons” by 46.9% of parents); (b) “accomplish more academically than in conventional schools” (38.3%); (c) “for the parents to transmit values, beliefs, and worldview to the child” (34.6%); (d) “to customize or individualize the education of each child” (28.4%); and (e) “want to provide religious or moral instruction different from that taught in public schools” (27.2%).

I compared their reasons to those given by homeschool parents in general in various other studies and found that these African American parents' reasons for homeschooling are similar to those of homeschool parents at large in the United States. In addition, some of them mentioned race/ethnicity-related issues as part of their many reasons for homeschooling. Findings in this study offer no solid evidence that this group of Black homeschoolers chose home-based education primarily to promote anything like Afrocentrism, although it might have been one reason amongst many that they gave.

Now consider academic achievement. The Black homeschool students in this study performed as well as or better than the national average of public school students of all races/ethnicities, while Black students in public schools score, in general, far below average. Furthermore, the scores of these Black homeschool students were far above the scores of the Black public school norm students in this study. Analysis revealed that having been home educated was a consistent, significant predictor of higher achievement while controlling for gender of student and the socioeconomic status of the student's family. Findings showed that being homeschooled was associated with a positive effect size of roughly 42 percentile points in reading, 26 percentile points in language, and 23 percentile points in math.

In addition, I conducted a regression analysis of the independent variables of (a) gender of the student, (b) certification status of the mother, (c) certification status of the father, (d) household income, (e) cost per child, (f) degree of structure, (g) amount of structured time, and (h) age at which formal instruction began on the dependent variables of the homeschool students' reading, language, and math scores. None of these factors explained significant amounts of variance in the Black homeschool students' scores.

## **Why is Homeschooling not supported by the education system?**

The findings of this first-of-a-kind study of Black parent-led home-based education (Ray, 2015) and dozens of other studies on this form of education/schooling over the past 30 years raise many important questions regarding some fundamental educational issues. One that often comes to my mind is the following: Why do so many nations put so much emphasis on compulsory schooling laws and institutional schooling that is operated by professionally trained

and state-certified teachers and administrators and funded by sizable taxation – for example, \$11,732 (National Education Association, 2015) to \$16,894 (Schaeffer, 2010) per student per year in the United States – when there is so much strong evidence that normal, everyday parents with no special educational training are very successful in the education of their children while receiving no tax dollars?

Thirty years of research in the United States, Canada, and other nations consistently shows that, on average, home-educated children perform above average in terms of academic achievement. They have solid social skills and are firmly engaged in their communities' social lives. As adults, they do well, on average, in college/university, are civically engaged, and are respectful and tolerant of those who hold different philosophical and political perspectives. This is all connected to being raised in homes and by parents who range from lower to upper socioeconomic strata and represent a wide variety of philosophical, religious, and political backgrounds (Murphy, 2012; Ray, 2013, 2016). There is no evidence that homeschooling is detrimental to racial/ethnic minority groups or what U.S. educators call at-risk or disadvantaged children. About 90% of homeschooling parents have never been government-certified teachers and studies show that the certification status of the parents is not correlated with their children's academic achievement. Moreover, research shows no correlation between the degree of U.S. state control or regulation of homeschooling and the students' learning.

In addition to all of these research findings related to homeschooling, research continues to find minimal correlations between teacher preparation and/or teacher certification and students' academic achievement in public schools (Center for Public Education, 2009; Richardson, 2001). That is, after 116 years of state/public schools teaching the majority of U.S. schoolchildren and about a century of teacher certification systems, scholars are still finding it difficult to argue that formal or state teacher training and certification is necessary to children in institutional schools' learning well. Further, researchers still have very mixed opinions, based on research, about what makes for an effective teacher, as defined by students' achievement scores and enthusiasm for learning into adulthood.

The above findings from research on homeschooling and empirical studies on teacher certification and effectiveness in public/state schools begs an important question that is relevant to the future of private education in any nation. Before the question, three premises should be laid out. First, after a century of the system of professional education/schooling, university and

think tank scholars who study primary and secondary teaching and learning cannot firmly conclude that teacher certification and state control of public/state schools guarantees successful learning by children and adolescents. Second, parent-led home-based education is a substantively different education paradigm, environment, and practice than institutional public and private schools. Third, the evidence from research on the modern homeschool movement and community shows that it is very successful educationally and socially with children and adults who were educated by homeschooling. With these building blocks in place, why do any persons in the professional education system or policymakers want to limit or prohibit parents and children from accessing and executing homeschooling?

Further, there is weak or no evidence that the state is effective at ensuring that all (or even most) children are well educated in public schools. There are mixed messages from research about whether state certification is worth the trouble and cost regarding children's learning in state schools. There is no evidence that state control over (or prohibition of) homeschooling will enhance children's learning or improve society. There is, however, solid evidence that homeschool students do as well as or better than those in public schools and they do so at a significant financial savings to their fellow citizens and the state which does not need to collect taxes for their education. If the home education of children is good for the children and for a community and a nation, why do not more professional educators and policymakers support or promote private homeschooling? I will not attempt to answer this question in this article but I (Ray, 2013) have explored it in some depth before. I simply submit the question here to engage anyone who seriously takes the fact that all children have always been educated – whether in institutional schools or not, whether by state-certified teachers or not, whether in developing nations or not, whether 2,000 years ago or now, whether in Brazil, Thailand, United States, or any other nation – and whether parents should be free to nurture, train, and educate their children in a parent-led home-based environment in all nations into and through the twenty-first century.

## References

- Alaska Department of Education. (1993). *Centralized Correspondence School: Summary of the school district report card to the public*. Juneau, AK: Author.
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Boston, MA: Houghton Mifflin Co.
- Center for Public Education. (2009, December 17). *Does highly qualified mean highly effective?* Retrieved February 5, 2016 from <http://www.centerforpubliceducation.org/Main-Menu/Staffingstudents/How-good-are-your-teachers-Trying-to-define-teacher-quality/Does-highly-qualified-mean-highly-effective.html>.
- Cogan, M. F. (2010, Summer). Exploring academic outcomes of homeschooled students. *Journal of College Admission*, 18-25. Retrieved December 20, 2010 from [http://findarticles.com/p/articles/mi\\_qa3955/is\\_201007/ai\\_n54718392/](http://findarticles.com/p/articles/mi_qa3955/is_201007/ai_n54718392/)
- Duvall, S. F., Ward, D. L., Delquadri, J. C., & Greenwood, C. R. (1997). An exploratory study of home school instructional environments and their effects on the basic skills of students with learning disabilities. *Education and Treatment of Children*, 20(2), 150-172.
- Francis, D. J., & Keith, T. Z. (2004). Social skills of home schooled and conventionally schooled children: A comparison study. *Home School Researcher*, 16(1), 15-24.
- Gloeckner, G. W., & Jones, P. (2013). Reflections on a decade of changes in homeschooling and homeschooled into higher education. *Peabody Journal of Education*, 88(3), 309-323.
- Iowa Testing Programs. (2015). *ITBS Research Guide*. Iowa City, IA: University of Iowa, College of Education. Retrieved July 31, 2017 from <https://itp.education.uiowa.edu/ia/documents/ITBS-Research-Guide.pdf>
- Johnson, B. (2001). Toward a new classification of nonexperimental quantitative research. *Educational Researcher*, 30(2), 3-13. Retrieved May 30, 2006 from [http://www.aera.net/uploadedFiles/Journals\\_and\\_Publications/Journals/Educational\\_Researcher/3002/AERA3002\\_Johnson.pdf](http://www.aera.net/uploadedFiles/Journals_and_Publications/Journals/Educational_Researcher/3002/AERA3002_Johnson.pdf)
- Kingston, S. T., & Medlin, R. G. (2006). Empathy, altruism, and moral development in home schooled children. *Home School Researcher*, 16(4), 1-10.

- Knowles, J. G., & de Olivares, K. (1991, April). "Now we are adults": Attitudes, beliefs, and status of adults who were home-educated as children. A paper presented at the Annual Meeting of the American Educational Research Association, Chicago, Illinois.
- Knowles, J. G., & Muchmore, J. A. (1995). Yep! We're grown-up home-school kids--and we're doing just fine, thank you. *Journal of Research on Christian Education*, 4(1), 35-56.
- Lubienski, C. C., Puckett, T., & Brewer, T. J. (2013). Does homeschooling "work"? A critique of the empirical claims and agenda of advocacy organizations. *Peabody Journal of Education*, 88(3), 378-392.
- Martin-Chang, S., Gould, O. N., & Meuse, R. E. (2011). The impact of schooling on academic achievement: Evidence from homeschooled and traditionally schooled students. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 1-8.
- Medlin, R. G. (2000). Home schooling and the question of socialization. *Peabody Journal of Education*, 75(1 & 2), 107-123.
- Medlin, R. G. (2006). Homeschooled Children's Social Skills. *Home School Researcher*, 17(1), 1-8.
- Medlin, R. G. (2013). Homeschooling and the question of socialization revisited. *Peabody Journal of Education*, 88(3), 284-297.
- Murphy, J. (2012). *Homeschooling in America: Capturing and assessing the movement*. Thousand Oaks, CA: Corwin, a Sage Company.
- National Catholic Educational Association. (2014). *United States Catholic elementary and secondary schools 2013-2014: The annual statistical report on schools, enrollment, and staffing*. Retrieved February 19, 2015 from <http://www.ncea.org/data-information/catholic-school-data>
- National Education Association. (2015). *Rankings estimates and rankings of the states 2014 and estimates of school statistics 2015*. Retrieved February 5, 2016 from [http://www.nea.org/assets/docs/NEA\\_Rankings\\_And\\_Estimates-2015-03-11a.pdf](http://www.nea.org/assets/docs/NEA_Rankings_And_Estimates-2015-03-11a.pdf)
- Noel, A., Stark, P., & Redford, J. (2013). *Parent and family involvement in education, from the National Household Education Surveys Program of 2012 (NCES 2013-028)*. Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Retrieved August 31, 2013 from <http://nces.ed.gov/pubs2013/2013028.pdf>



- Oregon Department of Education [Office of Student Services]. (1999, May 20). *Annual report of home school statistics [1998-99]*. Salem, OR: Author. Retrieved July 14, 2010 from <http://www.ode.state.or.us/search/page/?id=2081>
- Rakestraw, J. F. (1988). Home schooling in Alabama. *Home School Researcher*, 4(4), 1-6.
- Ray, B. D. (1990). *A nationwide study of home education: Family characteristics, legal matters, and student achievement*. Salem, OR: National Home Education Research Institute. [www.nheri.org](http://www.nheri.org).
- Ray, B. D. (1994). *A nationwide study of home education in Canada: Family characteristics, student achievement, and other topics*. Salem, OR: National Home Education Research Institute. [www.nheri.org](http://www.nheri.org).
- Ray, B. D. (1997). *Strengths of their own—Home schoolers across America: Academic achievement, family characteristics, and longitudinal traits*. Salem, OR: National Home Education Research Institute, [www.nheri.org](http://www.nheri.org).
- Ray, B. D. (2000). Home schooling: The ameliorator of negative influences on learning? *Peabody Journal of Education*, 75(1 & 2), 71-106.
- Ray, B. D. (2004). *Home educated and now adults: Their community and civic involvement, views about homeschooling, and other traits*. Salem, OR: National Home Education Research Institute, [www.nheri.org](http://www.nheri.org).
- Ray, B. D. (2005). A homeschool research story. In Bruce S. Cooper (Ed.), *Home schooling in full view: A reader*, p. 1-19. Greenwich, CT: Information Age Publishing.
- Ray, Brian D. (2010, February 3). Academic achievement and demographic traits of homeschool students: A nationwide study. *Academic Leadership Journal*, 8(1). Retrieved April 19, 2016 from <http://www.nheri.org/AcademicAchievementAndDemographicTraitsOfHomeschoolStudentsRay2010.pdf>
- Ray, B. D. (2012). Evangelical Protestant and other faith-based homeschooling. In James C. Carper & Thomas C. Hunt (Eds.), *Praeger handbook of faith-based schools in the United States, K-12* (chapter 12, pages 123-135). Santa Barbara, CA: Praeger, ABC-CLIO.
- Ray, B. D. (2013). Homeschooling associated with beneficial learner and societal outcomes but educators do not promote it. *Peabody Journal of Education*, 88(3), 324-341.

- Ray, B. D. (2015a). African American homeschool parents' motivations for homeschooling and their Black children's academic achievement. *Journal of School Choice*, 9, 71-96.
- Ray, B. D. (2015b). Gen2 Survey: A spiritual and educational survey on Christian millennials. Retrieved March 12, 2015 from <http://www.nheri.org/research/gen2-survey-a-spiritual-and-educational-survey-on-christian-millennials.html>
- Ray, B. D. (2015c). Research facts on homeschooling. Retrieved March 9, 2015 from <http://www.nheri.org/research/research-facts-on-homeschooling.html>.
- Ray, B. D. (2016). Introduction to recent changes in U.S.A. homeschooling. In Cooper, Bruce S.; Spielhagen, Frances R., & Ricci, Carlo (Eds.), *Homeschooling in New View*. Charlotte, NC: Information Age Publishing.
- Richardson, V. (Ed.). (2001). *Handbook of research on teaching, fourth edition*. Washington, DC: American Educational Research Association.
- Rothermel, P. (Ed.). (2015). *International perspectives on home education: Do we still need schools?* London, United Kingdom: Palgrave Macmillan.
- Rudner, L. M. (1999). Scholastic achievement and demographic characteristics of home school students in 1998. *Educational Policy Analysis Archives*, 7(8). Retrieved January 21, 2010 from <http://epaa.asu.edu/ojs/article/viewFile/543/666>
- Schaeffer, A. (2010, March 10). *They spend what? The real cost of public schools*. *Policy Analysis*, Number 662. Washington, DC: Cato Institute. Retrieved December 10, 2010 from <http://www.cato.org/pubs/pas/pa662.pdf>
- Shyers, L. E. (1992). A comparison of social adjustment between home and traditionally schooled students. *Home School Researcher*, 8(3), 1-8.
- Smedley, T. C. Socialization of home school children. (1992). *Home School Researcher*, 8(3), 9-16.
- United States Department of Education, National Center for Education Statistics. (2014, April). Charter school enrollment. Retrieved March 16, 2015 from [http://nces.ed.gov/programs/coe/indicator\\_cgb.asp](http://nces.ed.gov/programs/coe/indicator_cgb.asp)
- Van Pelt, Deani. (2004, March). The choices families make: Home schooling in Canada comes of age. *Fraser Forum*, 15-17. Retrieved May 29, 2008 from

[http://www.fraserinstitute.org/Commerce.Web/product\\_files/The%20Choices%20Families%20Make~::~%20Home%20Schooling%20in%20Canada%20Comes%20of%20Age-Mar04ffpelt.pdf](http://www.fraserinstitute.org/Commerce.Web/product_files/The%20Choices%20Families%20Make~::~%20Home%20Schooling%20in%20Canada%20Comes%20of%20Age-Mar04ffpelt.pdf)

- Wartes, J. (1990). Recent results from the Washington Homeschool Research Project. *Home School Researcher*, 6(4), 1-7.
- Wartes, J. (1991, December). *Five years of homeschool testing within Washington State*. (Available from the Washington Homeschool Research Project at 16109 N. E. 169 Pl., Woodinville, WA, 98072).
- Washington State Superintendent of Public Instruction. (1985). *Washington State's experimental programs using the parent as tutor under the supervision of a Washington State certificated teacher 1984-1985*. Olympia, WA: Author.
- White, S., Moore, M., & Squires, J. (2009). Examination of previously homeschooled college students with the Big Five model of Personality. *Home School Researcher*, 25(1), 1-7.
- White, S., Williford, E., Brower, J., Collins, T., Merry, R., & Washington, M. (2007). Emotional, social and academic adjustment to college: A comparison between Christian home schooled and traditionally schooled college freshmen. *Home School Researcher*, 17(4), 1-7.
- Williams, R. (2014, July 5). *The Homeschool Effect*. Retrieved February 4, 2016 from <http://thehomeschooleffect.com/the-homeschool-effect.html>

*Submitted on 2016, February 5<sup>th</sup>; accepted on 2016, December 21<sup>th</sup>.*