ACHIEVING SCIENCE EDUCATION IN A HOME SCHOOL

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Home schooling is enjoying newfound acceptance and popularity in Canada. It is not a novel approach to education, but rather one with a long history of use. In recent years, home schooling in Canada has begun ‘shedding its image as a social and educational aberration’ (Aurini & Davies, 2005, p.462). It has achieved a new level of legitimacy, and studies have revealed the academic and social successes of its followers. In turn, Canadian home schooling has gained popularity, causing its student population to increase forty times over the last twenty years (Sokoloff, 2002). This paper will present a detailed review of the educational approach, with a specific focus on Science education. Home schooling Science can be a challenge, and parents feeling overwhelmed often turn to various resources for support. Recognizing and implementing these resources effectively is critical to the success of home schooled Science education.

Contrary to popular belief, home schooling is not a radical concept developed by the religious parent with strict moral standards. Rather, it is our society’s earliest form of education. Until compulsory education was introduced in the 1870s, home schooling was widely practiced throughout North America (Basham, 2001). It was the educational means for many notable figures, including Mark Twain, Thomas Edison, and Benjamin Franklin (Ransom, 2001, p.16). After the implementation of compulsory education, home schooling continued, in a limited fashion, for another century. Its later reintroduction was spearheaded by two Americans; Dr. Raymond Moore and John Holt (Basham, 2001). Canadian estimates of home schooling grew from 2,000 in 1979, to 17,500 in 1996, and finally to the current estimate of 80,000 students (Sokoloff, 2002). While still lagging behind the estimated 1.7 million home schooled students in the United States (Basham, 2001), Canadian home schooling has definitely made a grand re-entry.
In the past, many provinces independently reserved the right to inspect their home schoolers and demand curriculum requirements (Davies & Aurini, 2003). However, now that a larger population of Canadian home schoolers exists, new levels of legitimacy have been introduced. Home schooling is legal in all Canadian provinces and territories. This seems appropriate since Canada is among the signing nations of The Universal Declaration of Human Rights, which states in article 26(3) that ‘parents have a prior right to choose the kind of education that shall be given to their children.’ Each Canadian province has its own set of policies regarding the specifics of home schooling. For example, in Ontario, the boards of education deem that children are receiving satisfactory instruction at home once a parent has submitted a letter of notification. This policy resulted from the Ontario Ministry of Education’s 2002 release of Program Memorandum #131. As an extension of this plan, Universities in Ontario began to receive funding for home schooled students and formulated admissions policies for them.

The newfound legitimacy of home schooling in Canada has sparked changes outside the political realm. Today, fewer Canadians associate home schooling with a negative anti-public sentiment (Davies & Aurini, 2003). Instead, it is increasingly viewed as a viable alternative to public schooling. (Arai, 2000). Books on home schooling are lining store shelves and local groups are being formed. The media is becoming interested, and its coverage has been favorable (Davies & Aurini, 2003). It seems that home school supporters have made some significant strides in their pursuit of a more positive image.

This recognized acceptance of home schooling has attracted many families with many different motivations. It is no longer a choice reserved for the parent willing to risk
political and public scrutiny. While in the past, most children were home schooled for religious reasons, a whole new set of motivations has emerged (Sokoloff, 2002). Research currently shows that most families have chosen to home school to provide their children with better education than is offered at public schools (Arai, 2000; Basham, 2001). A child’s special needs, transportation, convenience, social issues, and family reasons are among some of the other reasons that have been noted (Basham, 2001).

No matter what their motivation, all parents who have chosen to home school will be walking the same path. They will quickly realize that choosing to home school was only one of the important decisions they will make. Choosing the most appropriate home schooling approach for their child and family will be their next challenging task. Several choices exist and the most popular ones will be discussed here.

The traditional approach is the most popular approach among home schoolers (Ransom, 2001). Each subject has a textbook or workbook for the child, while the parent has a teacher’s guide. Overall, the home learning environment will simulate institutional learning. It is praised for its organized manner, but criticized for lacking flexibility (Ransom, 2001).

The unit study approach is another popular home schooling option and one that works well for many families. Rather than teaching many subjects separately, a unit study covers all curriculum areas, connecting them in logical way. Research has shown that material learned in a unit study is retained forty percent better than that achieved though the traditional approach (Ransom, 2001). Another benefit of the unit study approach is that it works well when teaching children of different ages. The same unit
(i.e. airplanes or frogs) will be presented to all students; however their specific assignments will vary.

When home schooling reemerged during the 1960s, John Holt introduced a novel approach called ‘unschooling’. (Basham, 2001). This method is based on the belief that children have a desire to learn and should use this desire to explore their personal interests. Parents do not plan structured days, but rather follow their child’s lead, guiding and supporting their self-driven investigations. It is the ‘unschooling’ method which has attracted the most attention in the past few months. Regardless of which approach is chosen, home educators may sometimes want to experiment with different strategies. Occasional deviations from one approach are normal, and may prove fun for both student and teacher.

Choosing a curriculum may seem like a daunting task. A myriad of curriculums are available for purchase from the bookstore, for download from the internet, and for loan from the library. Overall, the right choice will require consideration of the home school approach, the child’s learning style, abilities, and interests, and the overall educational goals (Ransom, 2003). In making this decision, getting advice from fellow home educators may prove extremely helpful. Listening to the first hand experiences of other parents will likely help. There is also nothing wrong with trying out several curriculums, until the parent and the child find one that suits them best. Several internet-based curricula offer trial periods, where a family can ‘test’ the materials before making a purchase.

Home schoolers work hard to find the right Science curricula. Since many parents feel less confident in their scientific abilities, they will likely look for a plan they
can trust (Kober, 1993). A popular elementary Science curriculum is called ‘Real Science 4 Kids’. This was developed by Dr. Keller, a PhD chemist and home schooling mom. The curriculum presents the building blocks of chemistry, biology, and physics, to students in a logical manner. Its comprehensive teacher’s guide is invaluable for parents with limited Science backgrounds.

Families that home school will most likely have access to a television. When used appropriately, this can be an effective tool in Science education. Several channels offer programs intended to intrigue young scientific minds. A family with basic cable can tune in and watch PBS, The Learning Channel, and The Discovery Channel. Specialty channels including Discovery Health, Discovery Kids, and the Science Channel can also be ordered. Although these programs are beneficial, cable television also has a tendency of making the learning process difficult. The forever changing episode schedules and endless commercial breaks are to blame. As a result, some home schoolers may prefer using the television solely to watch videos and DVDs. Here, there is an abundant supply of material. It may be wise for home schooling families to start by borrowing from their public library, where no cost is involved. It is important however, to ensure the material is current because as new scientific discoveries are made, older videos will become less useful.

While the household television may occasionally be used to promote Science education, research shows that home schoolers are certainly not couch potatoes! Studies have shown that home schooled students watch considerably less television than their institutionalized peers. For example, Rudner (1999) found that forty percent of public
school fourth graders watch over three hours of television per day, compared with less than two percent of home schoolers.

It is becoming increasingly common to include the computer in the home school. Computers can be used to reinforce basic skills, coax reluctant learners, and relieve teacher burnout. (Saba & Gattis, 2002) When it comes to Science education, there is one program that has become popular among the home schooling crowd. The Jason Project (www.jasonproject.org) offers a unique experience called Jason-At-Home for home schoolers. Internet technologies bring home schooled students into real-time contact with scientists and researchers working on actual projects. Jason expeditions might take students to the planet Mars, the wetlands of the Louisiana Baylou, or the rainforests of Panama. Students are excited by the hands-on inquiry based approach of the Jason Project that mirrors the work of real scientists.

A good Science education should also allow students their own hands-on experiences. In public and private schools, organized laboratory classes are arranged to facilitate this. One may wonder how a home school student gains practical experience. This can be facilitated in many ways. Depending on financial resources, there is certainly no shortage of Science equipment available for purchase. Several internet-based stores target home schooling families, and supply them with great home learning kits. While a microscope in the home school may be seen as a necessity, owning titration systems or robotic kits would seem less feasible. A home school student can, however, practice Science without owning every piece of equipment. The strategy is knowing where to look.
Home school students may attend some formal classes that offer specific experiences they seek. These may be offered at local high schools, colleges, or community centers. Home school families may also consider forming a Science group. Sharing the purchase of larger equipment and ‘taking turns’ makes some experiences cost-affordable. In fact, this is the principle that underlies the Home School Resource Center at the Johnsburg Public Library in Illinois. They were awarded a $55,000 grant to buy Science equipment for local home schoolers to share.

Other hands-on experiences in Science can also be found in one’s community. For instance, home schoolers in and around Toronto may hire an astronomer from Night Sky Tours. Through this opportunity, students will learn to navigate the sky with some of the latest technology. Special prices are offered for home school groups. Another great experience can be found at the Ontario Science Center. There, Hands-on exhibits will engage the minds of all age groups. Structured trips with a laboratory component can be arranged for groups to explore ‘DNA fingerprinting’ and ‘Chemistry Concepts in Action’. These are only a few suggestions that can help a home schooler develop their individual practical skills. Ultimately, the creativity of both the student and the teacher will help in the discovery of new experiences.

The aforementioned activities are those that require some formal planning. They introduce the home schooler to certain opportunities that might not otherwise be available. However, learning ‘to do’ Science is not limited to such events. In reality, the home schooler does not need to venture further than their own backyard. A child’s natural curiosity can easily guide them through various scientific adventures. Here, all the parent needs to do is support their child’s interests and build upon them.
The home is a very powerful learning environment. Researchers have documented the continuous stream of talking, arguing, and questioning that children display in the home (Cardoso & Solomon, 2002). Such behavior is often contrasted with a more reluctant one seen in schools. Factors contributing to this difference include the fact that a child and parent share a ‘common life’, fewer children are competing for an adult’s attention, and the existence of an emotional relationship (Cardoso & Solomon, 2002). A research project that asked parents to teach their children Science at home found that children responded best when their parents acted informally rather than formally during the exercises (Cardoso & Solomon, 2002). Overall it seems that home-based parental teaching can support a child’s Science education.

One may choose to evaluate home schooling success by looking at the child’s academic and social development in comparison with other children. In Canada’s largest home schooling study to date, Dr. Brain Ray found home schooling children scoring at the 80th percentile in reading, 76th percentile in language, and 79th percentile in math (Basham, 2001). This is significantly higher than the Canadian average for all public and privately educated students (Basham, 2001). It is important to note however, the problems with assessing academic performance in home schooled students. Standardized testing in not compulsory in all Canadian provinces. Currently, only home schoolers in Alberta write such exams. This limits the access to data and the reliability of any that is collected. Nevertheless, “virtually all the available data show that the groups of home-schooled children who are tested, are above average” (Lines, 1995).

While some may worry about the academic achievement of a home schooled child, there is another concern that is more frequently raised. Socialization is an
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important component in raising a well-rounded child, and a concern exists that a home schooled child will be lacking in this area. Children do need to learn how to interact with others, and this is accomplished through both familial and peer interactions (Brady, 2003). Whether or not the home school environment can provide adequate interactions for this learning is a long-debated question. In 1999, the National Education Association, declared they “believe that home schooling cannot provide the student with a comprehensive education experience.” (Basham, 2001, p.13). A 1995 study of public school superintendents found that 92% believed home schooled children did not receive adequate socialization experiences (Medlin, 2000).

Despite such claims, home school parents and advocates insist that their environment is not detrimental, but rather advantageous for the healthy development of a child. Rather than learning behavioral rules and beliefs from peers, home schooled students look to their parental models (Basham, 2001). Studies have shown that children who are home schooled are rarely influenced by their peers and show a greater focus on family (Brady, 2003). This is different from institutionalized students, who are immersed in a peer-dominant culture and are at higher risk for developing social maladjustment issues (Brady, 2003). In the home school, parents have a heightened control, allowing them to choose and supervise each child’s social interactions. They emphasize the importance of age-integrated and family monitored activities (Medlin, 2000).

It is important to realize that monitoring the quality of peer interactions does not mean that the quantity is reduced. One study found that home schooled students are regularly involved in 5.2 social activities outside the home (Basham, 2001). Many of these will involve relations with public schooled children. The successful socialization of
home schooled children is aided by the fact that each province has at least one home school association. In Ontario, the Ontario Federation of Teaching Parents regularly updates their website, which has lists of resources, including local groups for home schoolers to join.

Compared with thirty years ago, home schooling is now flourishing in Canada. It is legal in every province, and new laws are being passed to reflect its new acceptance. Ontario Universities have all been asked by the Ministry of Education to devise acceptance procedures for home schooled students. This is just one new accomplishment of home schoolers, demonstrating the beginnings of a successful integration into society. Home schooled students continue to outperform their public school peers in academic and social abilities. This indisputable success is likely the reason that Canada has seen a dramatic increase in its home schooling population (Sokoloff, 2002). Similar trends are also being seen around the world, with the United Kingdom, Germany, Japan, and Korea showing fast growth (Billups, 2000). With such newfound acceptance and popularity, it is unlikely that home schooling will ever be overshadowed again. Instead, this viable alternative to classroom education will continue shining through; brightening the lives of families on its path.
REFERENCES


