Substance Abuse Task Force:
University of Northern British Columbia

Understanding Fetal Alcohol Syndrome
and its Implications for Educators of
Children and Adolescents:
A Social Problems Approach

Jo-Anne Fiske and Jillian Stockburger
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### Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sommarie Exécutif</td>
<td>ii</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td>I Introduction</td>
<td>2</td>
</tr>
<tr>
<td>II FASD as a Medical Construct</td>
<td>8</td>
</tr>
<tr>
<td>III FASD as a Social Construct</td>
<td>16</td>
</tr>
<tr>
<td>IV Social Problems</td>
<td>19</td>
</tr>
<tr>
<td>V FASD and the School Curriculum</td>
<td>30</td>
</tr>
<tr>
<td>VI Conclusion</td>
<td>36</td>
</tr>
<tr>
<td>References</td>
<td>37</td>
</tr>
</tbody>
</table>
Sommarie Exécutif
Executive Summary

Biomedical and neurobehavioral research demonstrates unequivocally a relationship between prenatal alcohol exposure and fetal development. Researchers, however, are still in the process of learning the intricate nature between this relationship and the wide spectrum of disorders popularly categorized as FASD. The certainty of the biochemical relationship between alcohol exposure and fetal development however is insufficient in itself to explain the social construction of FASD as a social problem. Underpinning the social movement, a social movement that seeks to alleviate society of numerous interrelated social issues, including poverty, mental health, sexual abuse, and criminality by addressing maternal causation of mental retardation is the echo of both the eugenics and prohibition movements of the late nineteenth and early twentieth centuries. Professional, paraprofessional and parental acceptance of “social diagnosis” of FASD cannot be accepted without question. The complex intertwining of FASD as a medical condition that impairs cognitive and behavioural abilities and as a social problem with widespread consequences for society places extraordinary burdens on public educators. In recognition of these burdens, this report raises four questions: What claims are made by government agencies, voluntary associations and individuals with respect to FASD as a social problem? What evidence is presented to support their claims? What is the significance of these claims for educators? What educational strategies do provincial educational ministries and school authorities promote for use with children and adolescents labeled FASD?
Introduction

As educators working within public institutions, whether we are serving young children or young adults, our professional practice is imbued with principles of social progress, individual achievement, and the obtainment of common good through sustaining and nurturing literate, numerate and critically thinking citizens.

The value we place on universal education draws us into addressing and proposing to ameliorate social problems through overcoming a diversity of learning barriers ranging from intellectual development through to physical handicaps, social barriers, and mental illnesses. To do so, we rely extensively on the expertise of other professionals, including medical practitioners, clinical researchers, and the “helping professions” such as social workers, nurses, and psychologists, among others. Our reliance on others to formulate diagnostic criteria and to categorize developmental and learning conditions leads us to take up the discourses found in the dialogues (language, labels, and conversations) of medical practitioners and researchers and then apply these insights to our professional practice and relations with the public whom we directly and indirectly serve. Our practice emerges, therefore, within a complex web of professional and non-professional relations complicated by shifting meanings attached to diagnostic categories that are often ambiguous and enigmatic.

This has been the case with respect to eugenics movements of the 1930s onward, to racial practices, and to labeling of children as mentally retarded or as sexual abuse victims, among other labels. It is currently the case with respect to understanding and responding to children and adolescents whose impaired neurological and conceptual development is attributed to prenatal alcohol exposure, students who become known to us as having Fetal Alcohol Spectrum Disorder or FASD. In the past decade, FASD has emerged in the public eye as a leading social problem. Numerous web-sites run by governments, non-profit
groups and educational authorities make a range of claims regarding the economic and social consequences of FASD (see for example the websites of FASlink and Alcohol Related Birth Injury Resource Site). Mental retardation (that is an IQ measurement of 70 or lower), behavioural dysfunction, and a range of secondary disabilities, including criminality, depression, low self-esteem, and disrupted education among other problems, have all been linked to prenatal alcohol exposure (Streissguth & Kanter, 1997). Claims that fetal alcohol exposure is a leading cause of mental handicaps in the western world are repeatedly posted on websites by researchers, social advocates, and nonprofit societies (for examples consult the websites of FASlink, FAS Community Resource Centre, FASworld Canada, National Organization on Fetal Alcohol Syndrome [NOFAS]), while the government of Alberta asserts that its is the “most common reason for a child's development and learning to be affected” (Alberta Children’s Services, 2003, p. 3). The FAS Community Resource Centre, an American organization, goes so far as to claim that most, if not all, incarcerated criminals suffer from prenatal alcohol exposure. Estimates linking FASD to incarceration range from 50% to 80% of American prisoners, a figure used to extrapolate similar rates for Canada (Look who’s in jail, n.d.). The magnitude of public concern is also reflected in the popular media. Stories of FAS have been taken up in soap operas as a public responsibility consequent to daytime broadcasting’s “unique place in the entertainment industry...in peoples' living rooms five days a week telling stories all year round” (Actor Peter Reckell of Days of Our Lives cited in Entertainment Industries Council, n.d., p. 1). In 2001, the soap opera, Days of Our Lives, won the Prism Award for “Outstanding Daytime Drama Series Episode or Storyline for its ‘Fetal Alcohol Syndrome’ story arc” (Entertainment Industries Council, n.d.).

Despite, or perhaps because of, its perceived links to numerous complex and intertwined social conditions, FASD is difficult to define and diagnose. Although medical observation of prenatal alcohol effects began in 1968 and the term fetal alcohol syndrome was coined shortly thereafter, confusions and ambiguities in diagnostic criteria remain problematic. Now
understood as a spectrum of disorders, the scope of the fetal alcohol dysfunctions has been expanded to include at least six categories of impairment and malformation: fetal alcohol syndrome (FAS), fetal alcohol effects (FAE) or partial fetal alcohol syndrome (pFAS), alcohol related birth defects (ARBD), alcohol related neurodevelopmental disorder (ARND), alcohol related birth injury (ARBI) and alcohol related development disabilities (ARDD). In 1996, the Institute of Medicine (IOM) attempted to impose common terminology; however on April 15 2004, The National Organization on Fetal Alcohol Syndrome (NOFAS) in conjunction with American and Canadian health institutes found it necessary to issue a press release announcing a consensual definition regarding terminology for the range of disorders associated with prenatal alcohol exposure. “Fetal Alcohol Spectrum Disorders (FASD) is an umbrella term describing the range of effects that can occur in an individual whose mother drank alcohol during pregnancy. These effects may include physical, mental behavioural, and or learning disabilities with possible lifelong implications. The term FASD is not intended for use as a clinical diagnosis” (NOFAS, 2004, ¶ 5). Current usage of terms remains inconstant: FAE remains popular with educators and non-profit agencies although the IOM has discarded it; ARBI, coined by an Alberta group is found less frequently; ARDD appears in literature of non-specialized volunteer agencies (see the websites of the Alcohol Related Birth Injury FAS/FAE Resource Site; FASworld Canada; The Fetal Alcohol Family Association of Manitoba, among others).

The ambiguities and difficulties of categorizing alcohol related disorders and disabilities are exacerbated by so-called “social diagnosis”-- the retrospective attribution of in utero alcohol exposure in light of behavioural symptoms, which may be pronounced in the absence of material proof of maternal alcohol consumption. Although medical experts might categorize such diagnosis as “tentative” until medically affirmed, in the case of older children living apart from their birth mother, and in the case of adults, such confirmation may be impossible.
Contemporary attention paid to FASD arises from earnest will to improve the lives of children, adolescents, and young adults who have observable learning and behavioural challenges and to prevent the not-as-yet-born from suffering a similar fate. As statistical estimates of the prevalence of FASD rise (as will be discussed below), so do social anxieties, and with them the number and diversity of preventative interventions respecting maternal alcohol consumption. At the same time, as we shall see, rhetoric regarding the social impacts of prenatal alcohol exposure intensifies, bringing with it moral and social discourses that spill over into mother blaming and racialized stigmatization, shifting attention from a medical condition and its educational and social consequences, to an often emotional hyperbole that targets specific cultural and geographic populations as marked by extremes or “epidemics” of FASD.

The complex intertwining of FASD as a medical condition that impairs cognitive and behavioural abilities and as a social problem with widespread consequences for society places extraordinary burdens on public educators. In recognition of these burdens, this report encompasses three sections. First, following a brief definition of what constitutes FASD, a short overview of medical and clinical studies is presented in order to layout the complexities of medical diagnosis. Second, the origins, nature, and implications of viewing FASD as a social problem are addressed. Third, following this critical framework for understanding the social and medical claims regarding the implications of FASD diagnosis, educational strategies are presented.

Research for this report was conducted in three steps. A review of medical and clinical studies published in peer review journals and research institute reports and working papers was conducted to provide a background to understanding FASD and its primary and secondary impacts. Second, a search of internet sites was made using keywords: fetal alcohol syndrome, FAS, FAS/E, and fetal alcohol support networks. This produced numerous listings from around the world. From these three central federal sites located in
Canada and the United States, four provincial sites, and ten sites of voluntary associations, support networks and individuals were scrutinized in order to answer three questions: What claims are made by government agencies, voluntary associations and individuals with respect to FASD? What evidence is presented to support their claims? What is the significance of these claims for educators? This led to a fourth question: What educational strategies do provincial educational ministries and school authorities promote for use with children and adolescents labelled FASD?

To answer the fourth question, a Canada-wide scan for programs and services provided by schools or educational ministries for children with FASD was performed. The methods for performing this scan entailed a combination of four approaches. First, the national Directory of FAS/FAE Information and Support Services in Canada (2003) by the Canadian Centre on Substance Abuse was examined for the existence of school-based1 programs or services. Second, all provincial and territorial “Education” or “Learning” ministry web sites were searched for the keywords “FASD” and “fetal alcohol” (in the case of the French web sites in Quebec, the terms “syndrome d’alcoolisme foetal”, “SAF” and “alcoolisme foetal” were used). Third, a general web search within Canadian web sites was performed using the terms “FASD” & “education” and “fetal alcohol” & “education”.

Finally, a request for information regarding school-based programs and services was sent to at least one contact from each provincial and territorial ministry of education. The contact names were gathered during the search of the ministry web sites. Contacts for special education or FASD and education were used whenever possible; when this information was not available, a general contact name for the ministry was used. In a number of cases ministry contacts were not available and so a general web-based form or general provincial or territorial contact was utilized. The request was sent either by email or by phone or both, depending on which contact information was available.
This paper approaches the issue of FASD from the perspective that interventions by educators (and other professionals) for those prenatally exposed to alcohol will be most effective when the interventions are grounded in an understanding of the complexity of the biomedical cause of the disorders and the social construction of FASD as a leading cause of social problems in the twenty-first century. The purpose of this paper is to demonstrate: (1) that the biomedical causation of Fetal Alcohol Spectrum Disorders is a complex process and not yet fully understood; (2) that FASD has been constructed (by media, popular culture, discourse among FASD advocacy groups, and by society in general) as a “social problem”; and (3) that the “problem” of FASD has been constructed beyond that which can be explained by the existing biomedical and neurobehavioural research. This paper will show that FASD has thus become a social problem that has created anxieties, fear, and moral condemnation regarding women’s reproductive behaviour and women’s alcohol consumption; a fear that somewhat echoes the prohibition and eugenics movements of the late nineteenth and early twentieth centuries. Finally, this paper will provide an overview of the educational strategies of provincial educational ministries and school authorities in Canada.
Physical agents that produce fetal malformations are called teratogens, from teraton, the Greek word for monster. Medical researchers have identified ethanol alcohol as a teratogen causing a wide range of effects on the brain and the central nervous system (Streissguth 1997; Streissguth, Barr, Kogan, & Bookstein, 1996) and have compared their findings to similar studies of fetal effects of narcotics (Miller, 1992; Soby, 1994; Thomas, 2000). These studies have shown that prenatal exposure to both alcohol and narcotics creates physical, neurobehavioral, and developmental effects on the fetus and newborn infant (Kaltenbach & Finnegar, 1992). Extensive research (Clarren, 1988; Frank, Augustyn, Grant-Knight, Pell, & Zuckerman, 2001; Kleinfeld, 2000; Malbin, 1993; Morse, 1997; Singer, Arendt, Minnes, & Wetherington, 2002; Stokol, 1988; Streissguth et al., 1996; Streissguth & Kanter, 1997) and expansive social responses over the past three decades have led to multiple categorising in order to capture the range and nuances of conditions now linked to diverse neurological, physical, cognitive effects of prenatal alcohol exposure and consequent behavioural, emotional and intellectual impairments.

Most commonly, when speaking of impairments and disabilities consequent upon prenatal alcohol exposure, medical diagnosis of fetal alcohol syndrome and fetal alcohol effects are conjoined and represented as FAS/E or FASD. However, because scientific research has yet to clarify the precise relationship between brain sites and functions, and the intervening impacts of fetal alcohol exposure, defining and diagnosing fetal malformations remains at times ambiguous and uncertain. Thus, in an effort to clarify diagnoses and to distinguish within a spectrum of conditions, medical practitioners have identified a number of diagnostic categories of dysfunctions and injuries arising from fetal alcohol exposure. The Alberta FAS-Region 3 Partnership website presents six diagnostic categories, with the following descriptions and definitions of each category.
Fetal alcohol syndrome consists of a characteristic pattern of abnormalities that include growth deficiency, malformations affecting the face, head, heart, urinary tract, and brain abnormalities that lead to various intellectual and behavioural problems in early childhood. FAS symptoms include problems ranging from minor to severe with respect to: intellectual functioning, attention deficit disorder (ADD) and hearing and visual problems; higher than normal pain tolerance, dyslexia, maxilo-facial deformities, dental and heart defects, immune system malfunction and attention deficit hyperactivity disorder (ADHD). Individuals afflicted with FAS may also exhibit difficulty with memory retention, lack of interpersonal empathy, sociopathic behaviour, little or no moral judgment, epilepsy, tremors, cerebral palsy, renal failure, heart failure and death (Region 3 FAS Partnership, 2003).

Not all children affected by fetal alcohol exposure have the full range of symptoms; some may exhibit only two of three major components of FAS: growth retardation, central nervous system impairment and facial distortion. FAE indicates the presence of physical abnormalities and/or cognitive/behavioural disabilities in individuals who do not meet the criteria for FAS. The term is used widely but without clear definition, and is often used to indicate a “suspected” incidence of fetal alcohol exposure. Professional dissatisfaction with the common use of FAE led the Institute of Medicine (IOM) to coin two new terms to separately define disabilities and abnormalities of the central nervous system: alcohol related neurodevelopmental disorder (ARND) and alcohol related birth defects (ARBD) (Region 3 FAS Partnership, 2003).

Finally, pFAS, or partial FAS, identifies individuals with patterns of birth defects that do not include all of the facial features or growth retardation seen in FAS. Although the IOM has discarded use of FAE, many researchers and public agencies continue to use FAE interchangeably with ARND, ARBD, and pFAS. In fact, IOM efforts to standardize terminology and to apply it to clearly bounded diagnostic categories have not been successful. In an effort to further refine categories of impairment, for example, ARDD is
coming into use, (interchangeably with ARBD) under the rationale that “developmental
disabilities” provides a focus on visible physical disabilities, while ARBI has been coined by
an Alberta organization, to lay emphasis on the concept that the fetus is “injured” and this
trauma cannot be repaired; intervention is restricted to support that will mitigate disabilities.
The acronym pFAS has also been used to indicate “possible” FAS as an alternative to partial
FAS (Region 3 FAS Partnership, 2003). While a lack of consensus in definitions may be
confusing, it also is an indicator of the range of meanings and social agendas that have
arisen in consequence of medical research. Categorical labels for the impacts of fetal
alcohol exposure, however they may be labelled, will continue to take on a range of
meanings and with these the impetus for further definitions as public and political responses
to the claimed crises of FASD increase and diversify.

Just as there has been no consensus on the use of categorical labels, there has been no
consensus on how to diagnose fetal effects, particularly in the absence of physical
abnormalities of the face or growth retardation. But even with the presence of one or more
physical signs, diagnosis can be difficult for a number of reasons: FASD is identified as
having a wide range of symptoms which may arise from other causes; maternal drinking
patterns may not be known or may be difficult to reconstruct; the effects of alcohol on the
fetus will vary dramatically depending on frequency, quantity and timing of alcohol exposure,
environmental and genetic factors; and the symptoms most strongly associated with FASD
are not physical but social—poor judgment, absence of moral judgment, poor impulse
control immature or socially inappropriate behaviours, and morally contentious sexual
behaviour. Furthermore, some experts and public advocates suggest that not all affected
individuals will manifest symptoms at birth or even in early childhood, often making
diagnosis of FAE dependent upon memory reconstructions and anecdotal descriptions of
maternal behaviours that cannot be verified.

According to Malbin (1999), a diagnosis of FAS is made when there is a known, significant
prenatal exposure to alcohol. In addition, three characteristics of the child must be observed. These include: delayed prenatal and or postnatal growth, central nervous system impairment, and characteristic facial features. The characteristic facial features of these children include short palpebral fissures (eye slits), elongated mid-face, short upturned nose, smooth or long philtrum (the ridges running between the nose and the lips), thin upper lip and flattened facial bone structure (Conry, 1996; Malbin, 1999; Streissguth, 1997). Malbin (1999) and Conry (1996) note it is more difficult to identify individuals with partial FAS given that they present with fewer or no indicating physical features. Distinct facial appearance is the only feature that is unique to FAS. In 1996, the Fetal Alcohol Syndrome Diagnostic and Prevention Network (FAS DPN), headquartered at the University of Washington, Seattle, developed FAS Facial Photographic Screening/Diagnostic software. The software is used to measure the magnitude of expression of the three facial features of FAS (small eyes, a smooth philtrum and a thin upper lip). The screening software is used to measure standardized digital facial photographs by the FAS DPN Image Analysis Laboratory.

The need for consistency in diagnosis led the FAS DPN to develop a diagnostic tool, The Diagnostic Guide for Fetal Alcohol Syndrome and Related Conditions: The 4- Digit Diagnostic Code, which is now used widely in British Columbia, Alberta, and elsewhere. This diagnostic method is described by Astley and Clarren (2000) as providing more accurate and reproducible diagnoses than the gestalt method of diagnosis due to its use of quantitative, objective measurement scales and specific case-definitions. The four digits in the Code reflect the magnitude of expression of the four key diagnostic features of FAS in the following order: (1) growth deficiency, (2) the FAS facial phenotype, (3) central nervous system damage/dysfunction, and (4) gestational alcohol exposure. The 4-Digit Diagnostic Code is designed to be used by a multidisciplinary team of professionals, which normally includes a physician, psychologist, occupational therapist, speech-language pathologist, and family advocate. While the IOM have defined situations where the diagnosis of ARND, ARBD and pFAS are to be used, the categories are often deployed in a non-standardized
manner in materials produced outside the medical community.

Clinical researchers are making marked progress both in identifying some of the processes by which alcohol impairs the fetus and in pinpointing the quantity and timing of alcohol consumption that leads to specific dysfunctions and malformations. For example, because facial dysmorphism occurs during the first 8 weeks of the first trimester, craniofacial anomalies likely occur when the fetus is exposed to alcohol during the initial stage of pregnancy. Effects on growth appear to be related to exposure later in pregnancy (Coles, 1994). While the effects of timing of alcohol consumption on the effect of the child was once thought to be clear, more recent evidence points simply to a spectrum of severity of the effects that correlates with the scale of alcohol consumed during pregnancy. Astley and Clarren (2001) found that the expression of the FAS facial phenotype was greater with the number of days of maternal drinking per week. Likewise, the greater the number of days of maternal drinking, the more severe and pronounced the neurological deficits.

As indicated above, many children with FAS exhibit low intellectual functioning as determined by IQ tests. Streissguth and colleagues (1989, 1990) have conducted studies that show children exposed to moderate levels of alcohol in utero score between 4 and 7 points below average on IQ tests. Other children moderately exposed in utero appear to have attention deficit hyperactivity disorder, which is characterized by levels of restlessness and distractibility that intrude upon learning and social functioning (Shaywitz et al., 1980; Coles, 2001). As clinical research progresses, finer distinctions are being made between ADHD and FASD and demonstrating the differences in the brain dysfunctions between these disorders and their implications for cognitive and social functions (Coles, 2001).

Many children who were exposed in utero to alcohol also exhibit poor coordination of fine muscular movements. Some of these cognitive deficits and learning disabilities may be related to hippocampal damage whereas some of the movement disorders may result from
damage to the cerebellum. The most common brain abnormalities in FAS are a decrease in the overall size of the brain and a diminution in the thickness of the outer layers of the brain (the cortex). The decrease in size of the cortex is due to decreases in the total numbers of cells. Nerve cells depend on a continuous supply of oxygen and glucose to meet their energy needs. When nerve cells are stressed by decreased oxygen and glucose supplies, as may happen in FAS, the supply is interrupted (Michaelis & Michaelis, 1994).

Clinical researchers have indicated that early, heavy exposure of the fetus to alcohol leads to the most severe outcomes. Early exposure is associated with mental retardation, sensory deficits and motor problems. More moderate and later exposure is linked to more subtle behavioural effects, such as learning disabilities and attention problems. For instance, Streissguth, Barr, and Sampson, (1990) reported that moderate drinking, either before the pregnancy was known or at mid-pregnancy, was associated with relatively mild later deficits on neuropsychological tests. The same researchers reported that preschool children who were exposed to alcohol throughout gestation (with a range of two to nine drinks per day) were more likely to show hyperactivity, language problems, and motor deficits in comparison with those whose mothers stopped drinking by the second trimester, which implies either that these effects result from later exposure or that exposure throughout gestation will result in more severe effects than when a fetus is exposed for only the first two trimesters (see also Coles 1993, 1994). Drinking patterns also influence the degree and nature of developmental effects. Bonthius and West (1990), for example, described the damaging effects of binge alcohol intake on different populations of nerve cells during later stages of development of the brain.

Clinical researchers have identified probable processes that account for fetal alcohol damage. For instance, it is hypothesized that alcohol leads to a state of relative folic acid deficiency, which may account for some of the organ malformations seen in FAS. Several studies with human placental tissue have shown that alcohol directly inhibits the transport of
both amino acids and glucose. Thus, alcohol taken by the mother deprives fetal tissues of the energy sources and materials needed for cell production, growth, and differentiation (Snyder et al., 1986; Schenker et al., 1989, cited in Michaelis & Michaelis, 1994). Alcohol exposure can lead to deficiencies in trace metals, such as zinc, and in Vitamins A and B6 (Michaelis & Michaelis, 1994; Thomas et al., 2000).

Michaels & Michaelis cite several studies demonstrating the impact of fetal alcohol exposure on hormone production and functioning. Hernandez et al. (1992) found thyroid hormone deficiencies in fetuses born to alcoholic mothers. Thyroid deficiencies may have a detrimental effect on the development of some tissues, in particular brain tissues (Hannibal & Bellisario, 1990). Derangements in the maturation and migration of nerve cells in the cerebellum, a region of the brain that controls balance and posture, caused by thyroid hormone deficiencies are similar to those observed when experimental animals are exposed to alcohol at or shortly after birth (Kornguth et al., 1979).

Cell damage and cell death also occur as a result of prenatal alcohol exposure. Rat experiments conducted by an international team of scientists (Ikonomidou, Olney, & Ishimaru, 2000), demonstrated that a single exposure to ethanol can result in significant cell destruction. By following rats with known cell destruction resulting from a single intensive exposure, Ikonomidou and colleagues hope to determine which specific brain damage patterns are associated with specific behavioural, neurological and neuropsychiatric problems that develop later in life. Efforts to identify the specific ways in which fetal alcohol exposure results in brain and central nervous system damages and the manner in which these are linked to learning abilities and behaviours may assist educators and others in developing appropriate prevention and intervention programs. These efforts may also lead to clearer definitions of the range of fetal alcohol impacts and generate more effective intervention strategies, such as nutrition during pregnancy or immediately following birth. The capacity to determine precise processes and chemical impacts during fetal development
will also assist in shaping appropriate models of medical intervention and delivery of social services and educational programs for FASD afflicted children (Gopumadhaven, Jagadeesh, Chauhan & Kulkarni, 1993). However, the ambiguities of diagnosis and uncertainty of the effectiveness of interventions have implications for the way in which FASD is understood as a social problem having large scale economic and social consequences.
FASD as a Social Construct

One way of understanding the social ramifications associated with current responses to prenatal alcohol exposure is to explore how FASD takes on a variety of meanings that carry moral and political consequences. Sociologists call the process by which such meanings are assigned “social construction”. In the case of prenatal alcohol exposure, FASD and its variants, FAS, FAE, pFAS etc., acquire meanings that go beyond the medical diagnosis from which they have arisen. As FASD becomes associated with an ever-widening circle of negative ramifications (learning disabilities, dysfunctional behaviours, incarceration) so do the expressive use of the terms referring to prenatal alcohol exposure, individuals diagnosed as FASD, and the individuals’ families, acquire diverse meanings. As these meanings circulate between professions, for example psychologists and educators, they shape and are shaped by intervention practices.

Disputed estimates of the prevalence of prenatal alcohol exposure indicate not only variance in the ways in which data are collected and interpreted but also variance in the social importance attributed to prenatal alcohol exposure. Conservative estimates reported by Burgess and Streissguth (1992, as cited in Turpin & Schmidt, 1999) on the incidence of FAS/E suggest that up to three children out of every one thousand childbirths in North America result in FAS or FAE. These figures imply that one out of every 225 students in schools will have FAS or FAE. Despite this, and even more conservative estimates offered by medical professionals that the rate is one in 750 live births (American Medical Association cited by Kellerman, T., 2001), since first being identified in 1968 as a cause of brain damage and other abnormalities, fetal alcohol exposure has come to be recognized as a common--if not the most common--cause of learning disabilities and behavioural abnormalities of Canadian children. Claims have been made by a number of individuals and social networks viewing FASD as the leading cause of preventable birth defects and that official estimates of
FASD are improbably low and the “true” incidence cannot be readily estimated (FASlink, n.d.). Larger rate estimates are reported by the US Samhsa FASD Center for Excellence: “Each year, as many as 40,000 babies are born with FASD, costing the Nation about $4 billion” (2004, ¶ 3). Such claims generate anxiety as to the economic consequences of maternal drinking specifically and as to the use of alcohol more generally; in this context claims that FASD is entirely preventable take on moral dimensions that resonate with historic perspectives on prohibition and more broadly with medical and moral efforts to monitor the fetal environment through monitoring women of reproductive age.¹

Public and professional concern for the social and economic consequences of FASD and its attendant maternal alcohol consumption has led to the categorizations of persons as being FASD, that is, the term has taken on the attributes of a social identity rather than a medical condition (Zacharias, 2000). For instance, it is now commonplace to see the phrases “FAS children or FAE students” and by extension to refer to FAS/E “victims” (see for example Faslink at www.acbr.com/fas). Additionally, concern for economic costs and consequences of human impairment leads social advocates to construct pessimistic, often dire, “fact” bites by listing decontextualized and unsupported statistics that reinforce negative images. One website mounted by private consultants, for example, makes the following claims without providing any contextual background or verifying sources: of “FAE Individuals” between the ages of 12 and 51: “95% will have mental health problems; 55% will be confined in prison, drug or alcohol treatment centers or a mental institution; 60% will have ‘interrupted school experience’; 60% will have trouble with the law and 52% will exhibit inappropriate sexual behaviour” (Facts about FAS/FAE, 1999, p.1). Regarding “FAE individuals” between the ages of 21 and 51 they claim: “82% will not be able to live independently; 70% will have problems with employment,” and “more than 50% of males and 70% of females will have

¹ Moralizing is particularly strong in one editorial found on FASLink entitled It’s Drugs, Alcohol and Tobacco, Stupid! (J.A.C., 1996). Among its numerous comments disdaining substance users and their circumstances is the recommendation that the federal US government, “identify parents who abuse their children by their own drug and alcohol abuse and place those children in decent orphanages and foster care until the parents go into treatment and shape up” (¶ 39).
alcohol and drug problems” (Facts about FAS/FAE, 1999, p.1). As texts of this nature proliferate and educational and social intervention become political issues, having FASD or being an FASD individual supplants other identities; a child or young adult cannot just be a girl, boy, woman or man but is qualified by a diagnosis that carries negative social implications. In short, FASD, and with it maternal drinking and the individuals seen to be afflicted, have emerged in the Canadian consciousness as major social problems requiring public action on the part of concerned individuals, professionals and governments.
Social Problems

The idea of social problems provides us with a way to interpret and respond to the world around us. It allows us to identify collective conditions and public actions we find unacceptable and which we feel can be relieved by taking public action (Gusfield, 1989, p. 431). There is a tendency to frame social problems in terms of “troubled” persons; in consequence the concept of a social problem constructs social relations. It allows individuals and social movements to make claims for action by the government and to directly or indirectly judge and monitor individuals’ behaviours, for example, to distinguish between social groups who need assistance and those who do not, or between individuals who need to change in some way and those who would monitor those changes.

Social problems tend to follow a set trajectory of six phases: they are identified by concerned individuals who share views with like-minded persons; they gain media attention; a social movement coalesces around them; public responses swell and attention increases; claims are made against the government for remedial and/or preventive interventions; media attention declines and the problem and its attendant movement is either absorbed back into the community or the issue at question loses its significance. In some cases, public reactions are so strong that they induce a broadly accepted view that the underlying cause is one of rampant moral irresponsibility and the consequences are increasingly grave, as for example resulting in immense economic costs and/or perceived social breakdown. In these cases social problems may become moral panics. That is, the groundswell of claims made that social issues arise from preventable moral conduct may provoke fears that are channelled into political action. With respect to FASD, these actions include the formation of non-profit associations formed to support afflicted individuals and their families, appeals for government funding and programs, and publicity campaigns such as the establishment of the National Alcohol Screening Day and the International FAS Day. The latter is held on September 9, with the ringing of bells at 9:09am (the ninth hour and
minute of the ninth day of the ninth month) in a symbolic gesture “to get out the message that in the nine months of pregnancy, while breastfeeding or planning to conceive, women should not drink alcohol” (FAS Day, n.d., ¶ 22). The use of bells is significant “as there is a purity about bells that reminds us of the innocence of children” and “bells are historically associated with warnings, alarms” (FAS Day, n.d., ¶ 13; see also National Alcohol Screening Day, 2004).

Issues attached to sexuality, including and at times most particularly women's reproductive behaviour, are more likely to arouse fear and moral censure than other social problems (McCormack, 1998; Rutman, Callahan, Lundquist, Jackson & Field, 2000, p.6). Because FASD is linked on the one hand to women's reproductive behaviour and on the other to adolescent and adult sexual misbehaviour, public discussions, such as those on FASD related websites run by individuals and community action groups, frequently express high levels of anxiety regarding the probable behaviours of FASD affected adults and adolescents and moral condemnation of women who drank or are presumed to have drank during pregnancy (see for example the websites of FASlink and FASworld Canada; for examples of media representations see Campbell, 2004; Ouston, 2000; Plynn, 2003).

Over time the troubling conditions that are labelled social problems may acquire multiple meanings and labels, and as a consequence of changing labels, be treated with a range of interventions. Therefore understanding the language that constructs social problems over time is important; sociologists refer to this as “deconstruction” and critical analysis. The emotive and political meanings that are often invisible in taken for granted social use are exposed through revealing how daily practices and collective social action construct particular meanings and reinforce individual beliefs. Since the onset of social sciences in the nineteenth century, and with it the emergence of social and “scientific” theories of evolution, the presence of the “mentally unfit”, formerly categorised as “morons” and “imbeciles” and now as “mentally retarded”, has been identified as a social problem (Allen,
More than a century ago, medical researchers began speculating on the possible effects of alcohol on the developing fetus. However, clinical study of developmental anomalies was hampered for succeeding decades by the popularity of a genetic explanation known as eugenics (meaning good birth) that sought to apply genetic principles to improve humankind. These notions of inherited feeblemindedness dominated genetic science and public health leading governments, public health officials, and educators to institutionalize children and adults diagnosed as “defective” (Jones, 1999; Heritage Community Foundation, n.d.). Interventions to improve society by preventing birth of “defective” children have ranged from what Francis Galton, writing *Hereditary Genius* (1892), labelled “positive eugenics”, whereby he proposed the solution to be withholding social and economic aid from the weak as their ‘natural’ destiny was extinction, through to “negative eugenics”, the planned elimination of the problem through controlled reproduction and even genocide. In Canada, eugenics as a solution to myriad of problems associated with concepts of individual and racial defectiveness was fervently embraced by numerous social groups and eventually led to wide scale sterilization and institutionalization of individuals deemed “unfit” to reproduce. British Columbia and Alberta sustained eugenics policies and practices well into the second half of the twentieth century, and Alberta continues to pay for this in consequence of court judgments that found the province to have violated individuals’ civil rights. Today, the common place use of genetic counselling and prenatal tests to prevent and detect fetal deformities reflects the same social concerns with perfection of society through influencing women’s reproductive decisions (Hubbard & Newman, 2002). Underlying assumptions of the eugenics movement are imbricated in the social movement respecting FASD; both are concerned with identifying and preventing causes of mental and intellectual abnormalities and the social and economic costs of mental retardation and other cognitive, moral, and physical disabilities.
In the past two decades, both physical and sexual abuse have been targeted as the causal factors underlying behaviour dysfunctions leading to conflict with the law and subsequent incarceration. A moral panic arose regarding abuse of children when activists and governments not only sought to protect the innocent but to link childhood trauma with social violence. As with the current assertions that FASD is a leading cause of criminal actions, in the recent past cruelty to children was targeted as the single leading factor underlying male incarceration. For example, Senator Anne Cools, in statements to the Canadian Senate in 1995, asserted that abusive mothers were the primary cause of adult male violence and went so far as to proclaim she “had never met a violent juvenile delinquent who had not been abused as a child” and that “all [sex murderers] come from broken families and suffered cruelty and brutality, usually at the hands of a woman … and if a woman has beat up on you, then you are more likely to become a sex murderer” (cited by Dineen, 2001, p.173).

The issue of sexual abuse is relevant to understanding how FASD is portrayed in the media and treated as a causal factor for other social dysfunctions because the two are similarly cited as leading causes of the same problems. For instance, in the 1980s disclosures of sexual abuse of children shaped a new consciousness of learning, behaviour and social dysfunctions (Watson, 1984; Johnson & Johnson, 1984). As greater and greater numbers of sexual abuses were disclosed, public attention shifted from the criminal nature of the abuse, and punishment of the abuser, to its psychological and cognitive impacts on young victims (Kendrick, 1988). Educators, following the expertise of social workers, psychiatrists, and psychologists, among other professionals, sought to identify abuse victims through behavioural symptoms and to develop individualized learning strategies and therapeutic interventions. As the cases of identified abuse rose, so the list of symptoms deemed indicative of abuse increased. Eventually, the learning challenges and behavioural dysfunctions linked to early childhood abuses became ambiguous, often contradictory and to
some extent indistinguishable from symptoms employed to identify children with Attention Deficit Disorder, FASD, hyperactivity, and a range of other social, cognitive and learning dysfunctions (Hauggard, 2000). With FASD now cited by some authorities and activists as the leading cause of mental retardation and by others as the leading cause of *preventable* mental retardation (Key facts, n.d.), pressures on educators to ameliorate social problems through appropriate learning strategies is shifting from issues of violence to maternal conduct.

Currently, escalating claims are being made regarding the economic and social costs of FASD. A number of activists contributing to popular literature on FASD assert that the life-long direct costs of an FASD child in Canada fall in the range of 5 million dollars and the indirect costs (including projected costs of incarceration) will exceed 35 million. Bonnie Buxton, co-founder of International FAS Awareness Day, states, "just caring for people now alive with fetal alcohol syndrome and fetal alcohol effects will cost us at least $600 billion, which is the approximate size of the national debt. For FAS people inside the justice system, it's costing us $5 billion a year. It's the biggest health issue in the country, and if we're going to save the taxpayer, we've got to tackle it, but people are not paying attention" (McLean, C., 2000, p. 33). Costs in the United States, which are used to extrapolate Canadian costs, are estimated to be 2.1 billion dollars per year for treatment of FASD individuals with 1.2 billion spent on special education and juvenile treatment programs (Kellerman, C., 2000). These costs are based on a number of projected assumptions that place the majority of children labelled with FASD under lifelong professional care, in residential facilities, or in prison. Psychologist Josephine Nanson reported that as many as half of young offenders appearing in provincial court in Saskatchewan are affected by Fetal Alcohol Syndrome (FAS) (Zakreski, 1998/1999). Research by Ann Streissguth presented in 1996 concluded that 60% of American teens with FASD were in trouble with the law before reaching adulthood, while 94% suffered mental illness (Kellerman, T., 2002).
Despite the gravity reflected in these statistics, the impact of maternal alcohol consumption may not be as serious as we are led to believe. A number of factors need to be borne in mind when estimating the social consequences of in-utero alcohol exposure. First, reconstructing maternal alcohol consumption patterns through a process of self-reporting is difficult, even shortly after a pregnancy, let alone years later. Retrospective diagnoses based on behavioural and learning needs cannot be verified. Just as enthusiasm for eugenics drew attention away from studies of teratogens in the past, so a single mindedness about FASD draws attention from other diagnosis. Second, while it is true that clinical studies with mice and rats demonstrate that prenatal alcohol exposure does cause damage to the fetus, it is also true that other teratogens can cause similar damage, and without proof of maternal drinking it is not possible to link neurological or brain damage definitively to prenatal alcohol exposure. Third, behavioural symptoms are difficult to link to the prenatal environment. Studies from a variety of disciplines including psychiatry, medicine, neurology, psychology, and genetics offer varying explanations for adolescent and adult social misbehaviour, as a quick survey of the online journal, *Crime Times: Linking Brain Dysfunction to Disordered/Criminal/Psychopathic Behaviour*, reveals in its quarterly publication of research abstracts. Social and cognitive challenges to learning that have been labelled Attention Deficit Hyperactivity Disorder have recently been linked to television viewing by infants less than twelve months (Alphonso, 2004). Science has yet to unravel the complex interactions of multiple causal factors. Antisocial personality disorder studies, for example, indicate that subjects who lie, act impulsively, lack remorse, are violent and irresponsible may have less gray matter in the prefrontal cortex, but may also exhibit these behaviours due to concomitant presence of drug and alcohol abuse, social influences or birth complications (Raine et al., 2002).

Fourth, as discussed above, estimates of the prevalence of FASD vary widely; it is often asserted that official estimates are extremely low given medical practitioners’ lack of familiarity with the symptoms, the subtle intricacies that the unskilled diagnostian will miss,
differences in data-collection methods, and the involvement of a range of professions whose diagnostic criteria and methods differ. Variability of symptoms further complicates diagnosis and estimates of prevalence, a factor that is unlikely to be resolved easily as new studies of brain dysfunction make alternative claims as to causal factors. While this has led members of FASD support and information networks, such as the BC FAS/E support network, to claim underreporting, the increasing number of categories of fetal alcohol induced impairment and adolescent and adult symptomology based on retrospective studies by non-medical professionals raise a serious possibility of overestimation and perhaps exaggeration. The greater attention paid to diagnosis, the more likely it is that individuals will be so tagged: a “moth to the flames” consequence of an increasing number of diagnostic instruments used by multidisciplinary teams of professionals. Further, given that FASD is not a “reportable” disability, wide variations in statistics are not likely to be resolved easily and statements such as “FASD is the biggest single cause of mental disabilities in most industrialized countries” cannot be confirmed (Key facts, n.d., ¶ 3).

Fifth, remedial and preventive medical treatments may soon become available. In 2001, the American National Institute on Alcohol Abuse and Alcoholism announced that studies by Chen, Wilkemeyer, Sulik, and Charness, point to positive implications for developing pharmacological agents to prevent alcohol induced fetal damage (National Institute on Alcohol Abuse and Alcoholism, 2001; Wilkemeyer, Chen, Menkari, Brenneman, Sulik, et al., 2003). Other studies have found promising results for nutritional interventions during pregnancy and at birth, while pharmacological interventions used to control associated conditions such as ADHD and depression are now being used with reported success (Medications for children, 2002). Advances in the use of biomarkers to identify fetal exposure during pregnancy that may lead to earlier and more effective interventions have been reported by the Center for Disease Control (Identifying alcohol-exposed pregnancy, 2004).
Finally, as remedial strategies develop for treating FASD, costs associated with incarceration and surveillance of adults will likely decline; new measures for responding to unlawful behaviours, such as adult community living, are likely to be not only less costly than incarceration, but they may well help individuals to avoid conflicts with the law.

Unproven perceptions that fetal alcohol exposure is the leading cause of a plethora of social problems creates risks for diagnosed individuals and targeted communities, in particular communities identified on the basis of cultural or ethnic differences, stigmatizing factors such as poverty or geographic isolation. Public awareness campaigns that use strong language to stress that prenatal alcohol exposure is entirely preventable risk stigmatizing mothers and their children; once a child is labelled in this manner, the diagnosis can become a life-long tag of identity for the child and the parent. Links between FASD and socio-pathology may be erroneously generalized, exaggerated, and be applied to individuals who do not evidence such problems. As suggested above, the so-called social diagnosis of older children and adolescents based on efforts to reconstruct maternal drinking is fraught with dangers: other diagnoses may be overlooked and social stigma of mothers and their children may result.

Presently, northern communities, in particular First Nations communities and others with high Aboriginal populations, are associated with higher than average FASD prevalence among young children and adolescents (May & Gossage, 2001). Why this is so is not clear; estimates are not based on publicly available medical studies that include comparative studies of southern communities using the same methods of collecting data but are rather based on individual community case studies (Turpin & Schmidt, 1999; Hart, 1999). This raises several significant questions about how and why data are gathered. Social scientists have long reminded us that believing is seeing. Once specific communities, regions or populations are commonly assumed to be afflicted in a particular manner, this assumption tends to influence both personal observations and the issues researched and recorded. In
the case of FASD, this is likely exacerbated by reliance on “diagnosis” by non medical personnel. Given the general difficulty in obtaining services of medical specialists that is found by those living in northern and rural areas of Canada, it is unlikely that all the tentative or social diagnoses are confirmed by medical diagnosis. Use of electronic communications to establish diagnosis through determining “mother risk”, that is, the probability of a mother having alcohol during pregnancy or through use of photographs to determine facial malformation, increases the possibility of misdiagnosis of children in circumpolar ethnic populations where facial features and standardized growth are not readily distinguished by diagnostic criteria developed in the United States (Roberts & Nanson, 2000, p. 54).

As indicated above, social problems and moral panics emerge when associations are able to persuade media of their case and to obtain media support to their cause. This may lead journalists to report one-sided views uncritically solicited from a social movement’s leadership. Media association of FASD with Aboriginal communities, for example, creates its own dilemmas and potential social distortions (Mertl, 2000; “Urgent Action”, 2001). Journalists’ reports, based on a few studies, that FASD is more prevalent, even reaching “epidemic proportions” in Aboriginal communities, not only foster moral panic and reinforce racialised stereotypes, they distract attention from social legacy of colonial relations and impoverishment. For example, when claims that “nearly one-half the children on the reserve are brain-damaged due to prenatal exposure to alcohol” (McLean, C., 2000, p. 34) are followed by assertions that social stresses consequent from colonization, impoverishment and cultural differences are not contributing factors to social dysfunction and adolescent alienation, responsibility and blame are shifted away from society and back onto individual Aboriginal women under the presumption that single (rather than multiple) causes account for adolescent dysfunction. For instance, in the article cited above, McLean goes on to cite medical geneticist and professor of paediatrics and child health at the University of
Manitoba, Dr. Ab Chudley, “When these teenagers [adopted Aboriginal children] suddenly go absolutely berserk and become uncontrollable, it's not cultural clash, it's the outcome of alcohol exposure prenatally” (McLean, C., 2000, p. 34). Turning to the same sources (Buxton and Chudley) as McLean, Margaret Wente, writing in the Globe and Mail (October 7, 2000) passionately decries the implications of FASD and condemns those who she considers to be primarily at fault. Wente asserts that “high rates of alcohol addiction are the special curse of cultures in crisis. Russia is producing a generation of FAS babies that will create a social nightmare for years to come. So are Canada's native reserves, where fetal brain damage is frequently epidemic” (2000, p. A15). Underlying this declaration is the fear that adopted children are more likely than any others to be afflicted with prenatal alcohol effects and that the practices of international adoption create an undesirable burden on the taxpayers.

Women of low socio-economic status are more likely to be placed on social and/or medical surveillance by the so-called helping professions than those deemed “middle-class”, who according to official statistics consume more alcohol more frequently than poorer women (Nobel, 1997, p.182; May & Gossage, 2001). This disproportionate attention paid to poorer women and their children may distort perceptions of the distribution and frequency of FASD particularly in northern communities which are currently affected by downward spirals in the economy. Although the data are uncertain and incomplete, it is now common to find FASD associated with Aboriginal peoples of North America but not with any other cultural or ethnic group. Why this is so is unclear, but the tendency to do so is a double edged sword. On the one hand, as is discussed below, Aboriginal communities’ responses to FASD has led to culturally-based educational interventions. On the other hand, the link threatens to stereotype an already vulnerable population that is all too often known only through lurid and distorting stereotypes that can have deleterious impacts on individual and community well
being, and in particular negatively affect children’s educational experiences.

Special educational services for adolescents and adults are often linked to diagnostic criteria rather than to discernable levels of special needs or learning dysfunctions. This practice may lead educational authorities and community service agencies to either endorse more rigorous medical diagnosis of FASD or to increased social diagnosis based either on retrospective methods of determining maternal alcohol consumption or application of a broad spectrum of social symptoms. Once the services are in place, their success may well heighten public awareness of the social issue and may in turn play into perceptions of a community having unusual or extraordinarily high rates of FASD. A spiral of exaggeration can ensue whereby communities or regions are marked through inflammatory language, for example labelling northern British Columbia as the site of FASD “epidemic” and “war” (Hay, 1999 cited by Johnson, 2004, p.6). In sum, the current purported crises surrounding FASD may well suffer the same fate as the initially well-placed concerns respecting childhood physical and sexual abuse; claims to the social and economic consequences of in-utero exposure to alcohol may be received without due caution and may place undue emphasis on singular causal factors underlying children and adolescents’ special needs and developmental challenges that either cannot be medically diagnosed or, given the wide variance in alcohol impacts on fetal and child development, may be misleading with respect to appropriate pedagogical strategies. This raises doubts as to the benefits of diagnosing FASD in school children as a basis for building effective teaching practices.
FASD and the School Curriculum

Educators seek diagnosis for a range of reasons. Some evidence indicates that with appropriate diagnosis, improved educational interventions may be employed (Warren & Foudin, 2001). Labels assist in educational planning; similar educational needs can be identified and, on this basis, learning strategies and curricula can be developed. This permits educators to share their “wisdom of practice” grounded on experience, testimonies and personal anecdotes that, without access to medical, psychiatric or psychological diagnoses might otherwise be overlooked (Johnson, 2004). In most public education systems, funding for special needs is tied to diagnosis of the etiology of learning disabilities and special needs rather than to functional levels and/or teaching needs perceived by educators. Therefore, diagnosis is often required to obtain professional and paraprofessional support essential to implement effective teaching practices. Some community advocates and medical professionals argue that diagnosis can be beneficial in shifting teachers’ perceptions from negative judgments regarding children who won’t comply with behavioural standards and classroom guidelines to empathetic support for children who can’t comply by reason of brain damage (Malbin, n.d.). From this perspective, diagnosis offers a new way of viewing children and teaching praxis, which can effectively lead to more positive teaching environments (Malbin, 1993). However, labelling is often found to create contrary situations: FASD can also tag children as having irreparable damage for which there is no remediation, as being morally handicapped, and as being a burden on an overburdened educational system. Particularly where resources are scarce and the children’s mothers face multiple stigmas associated with race, ethnicity, poverty, and moral judgment, FASD diagnosis may serve to replicate stereotypes and work against the child who is now vulnerable to being seen as less worthy of resources than children with conditions viewed as being more likely to benefit from interventions.

Given the very broad spectrum of disabilities that have been causally linked to in-utero
alcohol exposure and the frequent overlapping diagnosis and ambiguous links with other conditions that inhibit learning, the value of FASD diagnosis for teaching practice is debatable. Evidence that prenatal alcohol exposure can affect learning and social development in multiple ways suggests that teaching strategies must be individualized and grounded in multidisciplinary understanding of social, moral and cognitive development. Moreover, teaching environments found to be best suited to children diagnosed as having FASD are also known to be beneficial for children who are diagnosed with some Autistic Spectrum Disorders, Attention Deficit Hyperactivity Disorders, and a range of similar symptoms that afflict social, moral and cognitive development. A combination of individualized strategies with a structured learning environment is the approach favoured by provincial educational ministries and regional educational authorities for all of these conditions, as demonstrated by the following Canada-wide scan of educational programs and services. Further, the extent varies as to how each province’s or territory’s ministry of education or learning specifically addresses students with FASD. For example in British Columbia when a school qualifies for additional funding due to a child with special needs, that school or school district has a reasonable amount of autonomy regarding how the funding is utilized. The funding could be used for any number of things including a special program or classroom, for teacher training, for equipment, and so on (L. Taal, personal communication, February 16, 2004). According to this search, the extent to which each province’s or territory’s ministry of education or learning specifically addresses students with FASD varies. The results of this search have found three general approaches for addressing students with FASD:

1) provision of literature, information, and training manuals for teachers and other school personnel,

2) development of specific practices by way of programs or classrooms catering to the specific needs of students with FASD, and

3) integration of students with FASD into programs and support services available for all students with learning disabilities or special needs in lieu of
developing FASD specific services

These three types are neither exhaustive nor mutually exclusive; a school or school district may simultaneously apply all three approaches.

According to the results of this scan, provincial ministries and school districts most commonly supply teachers with literature regarding teaching strategies and planning for students diagnosed with FASD, and were not often found to fund specific programs for these students. Three provinces had documents to this affect. Manitoba’s provincial ministry of Education, Training and Youth had one such document entitled *Toward Inclusion: Tapping Hidden Strengths: Planning for Students Who Are Alcohol-Affected* (2001). According to their 2001/2002 Annual Report, this document was distributed to schools throughout the province. In 1996 The Special Branch Program of British Columbia’s educational ministry produced *Teaching Students with Fetal Alcohol Syndrome/Effects: A Resource Guide for Teachers*, (Conroy, 1996) which remains in use. In 1997 Alberta Learning published *Teaching Students with Fetal Alcohol Syndrome and Possible Prenatal Alcohol-related Effects*. This document, has been recently been revised and published *Teaching Students with Fetal Alcohol Spectrum Disorder (FASD) Building Strengths, Creating Hope* (2004). In addition, Alberta Learning implemented a province-wide in-servicing for teachers in 1998 “to create an increased awareness of FASD and provide strategies for supporting these children in the classroom” (G. Bishop, personal communication, February 10, 2004). Alberta Learning has also revised its special education definitions in the *Funding Manual for School Authorities* to “include explicit reference to students with FASD” (G. Bishop, personal communication, February 10, 2004). According to G. Bishop of the Learning and Teaching Resources Branch, there will be in-servicing for teachers to support the implementation of *Teaching Students with Fetal Alcohol Spectrum Disorder (FASD) Building Strengths, Creating Hope* (personal communication, February 10, 2004).

The Department of Education, Culture, and Employment of the Northwest Territories is
partnered with other Territorial, Federal and non-governmental organizations to provide an integrated response to FASD. The NWT Department of Education, Culture and Employment, the NWT Department of Health and Social Services and the NWT Foster Family Association are partners in providing programs and services for children and youth with FASD. These include: the Healthy Children’s Initiative, student support funding, rehabilitation support, including speech language pathology, occupational therapy, physical therapy, and audiology, and foster parent training (Keep families strong, 2003).

Only one classroom program was found that catered specifically to the special needs of children affected by alcohol exposure in-utero. David Livingstone Community School in Winnipeg Manitoba has two Bridges programs for children. One program is an Early Childhood Behavioural Treatment program for students from Kindergarten to Grade 2 (Room 22 Bridges, n.d.). The other is the Intermediate Bridges 3 program designed specifically for Alcohol Related Disorder students at grade levels 3-6. (Room 16 Intermediate Bridges 3, n.d.). Both programs incorporate a low-stimulus environment, low student enrolment, structured routines, individualized programs for students, and predictable and consistent expectations (Room 22, n.d.; Room 16, n.d.). The Early Childhood Bridges program also has on-site speech therapy and occupational therapy on a weekly basis (Room 22, n.d.). The Intermediate Bridges program includes real-life experiences through field trips, close contact with parents and the community, and teaches students about their particular disability (Room 16, n.d.).

The Bridges program initially started with a grant from the Manitoba Department of Health as a bridge for children diagnosed with FASD who were entering Kindergarten. The intent of the program is to look at how students with FASD could best be supported in a “regular” class rather than being placed a designated FASD separate class. (L. McLean, personal communication, March 3, 2004). The pilot program is now in its last year. With the emphasis on integration in regular classrooms, The Department of Education, Citizenship
and Youth wrote a support document that was distributed throughout the province called *Toward Inclusion: Tapping Hidden Strengths: Planning for Students Who Are Alcohol-Affected* (2001).

The Joe Duquette High School in Saskatoon Saskatchewan has been identified as a school that has been successful with students who have moderate FASD disabilities. This school does not offer modified programs for students with FASD or other special needs per se; rather it is an “alternate” or “healing” school that operates in a flexible manner that is responsive to the individual needs of Aboriginal adolescents and young adults. The school’s population comprises Aboriginal students from ages 14 to 21. It differs from other schools in its extensive cultural programming and its alternative structure. The school accepts any Aboriginal student including those who may have been out of school for a few years or who wish to transfer from another school. Joe Duquette is an academic school that does not offer any modified programming; therefore if a student is severely affected by prenatal alcohol exposure they would likely be referred to another program or school. What they do offer students with FASD (and all students alike) is the opportunity to complete the courses over an extended period of time if necessary. For example, if a student is not able to complete a course in a semester, they can take two or three semesters to complete it. Joe Duquette also differs from typical schools in the extensive role that traditional Aboriginal cultural plays. Some of the traditional aspects of the school are a daily smudge, traditional fasting, sweats, pow wows, and Elders at the school. The school also has cultural camps whereby the students live off the land and the school holds workshops in the community wherein students become teachers of traditional skills and crafts to the rest of the community. This small school of approximately 150 students receives all of its funding from Saskatchewan Learning and works in partnership with the community Parent Council, Saskatchewan Learning and the Catholic School Board, which provides facilities (S. Laflamme, personal communication, March 23, 2004).
A representative of the Quebec Ministère l'Éducation noted that their approach places stress on the needs of the pupil not on the cause of a disability (S. Proulx, personal communication, February 17, 2004). While some provinces and territories make no specific reference to students afflicted by any of the spectrum of alcohol-related disorders, there is no reason to believe these students are necessarily being deprived of adequate schooling. During this scan the importance of Individual Education Plans (IEPs) in special needs education became apparent. Given that individualized teaching strategies are favoured by authorities who do not stress the causal links between fetal alcohol exposure and special needs, but who rather seek to address appropriate teaching strategies based on cognitive, intellectual, social and behavioural needs, it follows that properly developed IEPs (particularly when developed and implemented by knowledgeable teaching, administrative and support staff) allow students with undiagnosed and/or unrecognized FASD to have an effective and supportive learning environment.
Conclusion

Biomedical and neurobehavioral research demonstrates unequivocally a relationship between prenatal alcohol exposure and fetal development. Researchers, however, are still in the process of learning the intricate nature between this relationship and the wide spectrum of disorders popularly categorized as FASD. The certainty of the biochemical relationship between alcohol exposure and fetal development, however, is insufficient in itself to explain the social construction of FASD as a social problem. Underpinning the social movement that seeks to alleviate society of numerous interrelated social issues—poverty, mental health, sexual abuse, and criminality—by addressing maternal causation of mental retardation are echoes of eugenics and prohibition movements of the late nineteenth and early twentieth centuries. Professional, paraprofessional and parental acceptance of the “social diagnosis” of FASD cannot be accepted without question. Non-medical diagnosis is a chimera: it has the potential to remind educators to foreground the physical and cognitive in responding to children’s learning and behavioural needs and the potential to shift attention from inter-related social determinants of intellectual, mental and moral development. Believing is seeing: alarming rhetoric of cultural or geographic specific “epidemics” of FASD and potentially exaggerated prevalence estimates distort the medical findings and implicate professionals in the social crusades that reinforce old ethnic and gender stereotypes. Professional interventions into the lives of children and adolescents diagnosed as being prenatally exposed to alcohol will be most effective where they are grounded in an understanding of the complexity of biomedical causation and the social construction of FASD as a leading social problem of the twenty-first century.
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Alberta Children's Services, About Alcohol Spectrum Disorder ([www.child.gov.ab.ca/whatwedo/fas](http://www.child.gov.ab.ca/whatwedo/fas))

Alberta Region 3 FAS Partnership ([www.fas-region3.com](http://www.fas-region3.com))

Alcohol Related Birth Injury (FAS/FAE) Resource Site ([www.arbi.org](http://www.arbi.org))

Canadian Centre on Substance Abuse ([www.ccsa.ca](http://www.ccsa.ca))

Center for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)).

Crime Times: Linking Brain Dysfunction to Disordered/Criminal/ Psychopathic Behaviour ([www.crimetimes.org](http://www.crimetimes.org))

Facts about FAS/FAE ([www.taconic.net/seminars/fas-a.html](http://www.taconic.net/seminars/fas-a.html))

FAS Community Resource Centre ([http://www.come-over.to/FASCRC](http://www.come-over.to/FASCRC))

FAS Family Resource Institute ([http://fetalalcoholsyndrome.org](http://fetalalcoholsyndrome.org))
FAS/E Support Network of BC [http://www.fetalcohol.com/]

FASlink: Fetal Alcohol Syndrome Information Support and Communications Link [www.acbr.com/fas/]

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Fetal Alcohol Syndrome Diagnostic and Prevention Network (FAS DPN), [http://depts.washington.edu/fasdpn/screening.html]


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