Autism Spectrum Disorder (ASD) in Children and Youth: Information for Families

Summary: Autism Spectrum Disorders (ASDs) refers to a spectrum of disorders where individuals have problems with social communication and interaction as well as restricted and repetitive patterns of behaviour. Some people who are on the spectrum may be very high functioning in some areas (e.g. be very good at school at some subject, sport, skill or hobby), yet at the same time, have problems seeing things from other's perspective, that thus can lead to severe problems interacting socially with other people, leading to problems at school, work and relationships. Previously known as Pervasive Developmental Disorder (PDD NOS) or Asperger's Syndrome.

"Thomas likes trains..."

Thomas is a 10-year-old boy who has always been really interested in trains. He knows so much about trains that he can go on and on with his vast, encyclopedic knowledge. If you wanted to know the train schedule at the local train station, he could tell you. Schoolwork has never been a concern and he has always done well in school with little effort.

Unfortunately, when it comes to anything involving people, he has a lot more difficulties. He just can't seem to relate to others, and has no friends. He doesn't seem to get social cues. He'll talk endlessly about trains without realizing that others are getting bored, and conversations are a monologue not a true dialogue. He tends to come off as being selfish and self-centered, because he just can't seem to see things from other people's point of view. As he gets older, it's becoming apparent that he really is quite different from his peers. One day after school, frustrated he was excluded by other peers at lunch again, he says, 'Sometimes I just wish I could fit in like the others...'

What are Autism Spectrum Disorders (ASD)?

The Autism Spectrum Disorders (ASD) are a group of neurologic conditions that affects a person's ability to communicate, understand, play and relate to others. Individuals with ASDs often also demonstrate unusual behaviours such as repetitive movements (e.g., hand flapping) or they may be unusually preoccupied with a specific interest (e.g. trains, dinosaurs, doors, collectibles such as Pokemon, etc.)

ASD is a "spectrum" as these conditions occur along a continuum.

Past terms to describe these conditions included:
Now we understand that all of these different conditions fall under one umbrella term: Autism Spectrum Disorder (ASD).

**Common Features of Autistic Spectrum Disorder (ASD)**

Individuals with autism spectrum disorder have the following things common, which include:

1. **Social communication and interaction:**
   - Difficulties with communication including non-verbal. When we communicate, we use both verbal language (the words we use to express ourselves) and non-verbal language ('how' we say things, including our body language, tone of voice, facial expressions and gestures). People with autism spectrum disorder can have difficulties with non-verbal communication. For example, this may mean that they have trouble maintaining normal eye contact or understanding the gestures of other people. They may have trouble understanding social cues. As such, they may find it difficult to adjust their behaviours to various different social contexts.
   - Difficulties relating to people. People who have autism spectrum disorder may also find that they have difficulties relating to people. This may be related to underlying difficulties with ‘theory of mind’, which is problems with empathy or seeing things from other’s perspectives. In order to get by in the world, it helps to be able to guess or figure out how someone else is thinking or feeling. For example, if we know that a friend has had a bad day, then we can usually guess that our friend might be feeling sad or upset. However, individuals with ASD often have difficulty seeing things from someone else’s perspective, which makes it much more difficult for them to deal with other people. This is why children with ASD often may appear non-empathetic or uncaring. With effective intervention, children with ASD may start to learn how to be more empathetic in situations, but it may not be a skill that comes automatically.

2. **Restricted or repetitive behaviours, interests or activities, including:**
   - Unusual play with toys and objects. A child on the autism spectrum may play with toys, but often will play with them differently than other children do. For example, a child playing with trains may line them up over and over again or be obsessed with parts of a toy or repeatedly take apart and put a toy back together.
   - Rigid routines and/or preoccupation with routines or rituals. Many children on the autism spectrum may have routines that they persist in doing over and over again and they may get extremely upset if they are kept from doing them. This includes placing things in a certain way or order. Because these symptoms are very similar to those seen in obsessive compulsive disorder (OCD), these children may receive an additional diagnosis of OCD by health professionals, prior to their being recognized as having an underlying autism spectrum disorder.
   - Difficulty with transitions such as changes in routine or one’s surroundings. Possibly due to sensory processing issues, since changes in routine/environment represent changes in sensory input, children with autism spectrum disorders may be sensitive to changes or transitions in their environment. For example, parents often report that the child has trouble shifting from one activity to another. Even the slightest changes in routine or schedules can cause problems. Parents find they need to give advance notice about activities or changes. They generally do better when their routine and environment is consistent and stable. Changes in caregivers or teachers may be particularly stressful for some children.
   - Sensory processing disorder, which is a problem processing sensory input such as sound, touch and movement. For this reason, these children may be hypersensitive and become distressed or try to avoid sensory input such as sound, touch or movement. E.g. becoming upset with loud noises, become upset when touched, have troubles with tags on clothing or food textures. Others may be under sensitive, and in fact try to seek out sensory input such as sound, touch or movement. E.g. screaming, touching everything, or spinning. In many individuals, sensory issues can be severe and if not dealt with, can cause even more impairment than having ASD itself.
• **Difficulties with distractibility and inattention.** Individuals with ASD are often distractible and inattentive, and it is important to explore if there are any factors contributing to this. For example, perhaps the child is actually distracted from being overwhelmed from too much sound (such as the hum of the fluorescent lights), or from simply being in a large, noisy classroom. In such a case, reducing the sensory overload would thus help with the concentration.

In some cases, individuals with ASD may also receive a diagnosis of Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD), and may benefit from standard ADHD treatment (Holtmann, 2005).

• **Problems with moods such as anger or anxiety.** When we get overwhelmed, we can get angry, anxious or upset. Because of their other challenges, children with autism spectrum disorder may be at an increased risk of getting overwhelmed and upset. One way to help them is to figure out what exactly is stressing the child, so that a plan can be put together to deal with each of the stresses. For example, typical stresses may include school (peers, teachers, school work) or home (dealing with parents, siblings).

There are some things that individuals with Autism Spectrum Disorder may not all have. For example, some individuals may have delays in normal spoken language, while others may have normal spoken language but still have problems expressing their thoughts/feelings or difficulties with non-verbal communication. A large number of individuals with autism spectrum disorder may have other problems like intellectual disabilities or mental retardation, while others may actually have above average intelligence.

**Strengths of ASD**

Despite the difficulties that they may have, individuals with ASD also have many strengths which may include:

• **Being very good at following rules and laws,** as well as trying to understand things according to rules and laws (Baron-Cohen, 2003).

• **Being object rather than people focused,** which helps some individuals with ASD do very well in fields such as science, engineering, computers. In addition, many individuals with ASD have interests across other fields that include arts, music, drama, and social sciences, to name just a few.

• **Being able to focus their attention for long periods of time,** even on tasks which others may find boring or mundane.

• **Being able to stay objective,** and not be as affected by 'peer pressure' or others opinions (e.g. children on the autism spectrum are far less influenced by peers when it comes to clothing trends or pressure to try drugs).

• **Being visual.** Many may have exceptional (even "photographic") visual memory (i.e. memory for things that they have seen). These strong visualization skills (the ability to think in pictures) may help in engineering, design and other visual fields.

• **Being auditory and verbal.** Rather than being visual however, many with ASD may have exceptional auditory memory (i.e. memory for things that they have heard.) Strong verbal skills in fact, can help in future professionals such as being a writer, editor, tour guide, or lecturer...

• **Strong "analytical" or logical reasoning skills,** which may help with accounting, engineering, and computers...

• **Show great depth of knowledge in areas of interest,** which can help them become experts in their fields of interest.

• **Having a super work ethic,** as they tend to be punctual, reliable, dependable and very accurate!

**Treatment and Interventions are Necessary**

Individuals with ASDs have a unique way of perceiving the world which can be an asset. However, they are vulnerable to stresses at home, school and other environments. They are easily overwhelmed by sensory triggers (e.g. sound, light, noise, smell, etc.) which can trigger behavioral or emotional problems. They may have social difficulties which make it different to get along with others at home, school and other places. As children with ASD grow older, many of them may develop depression and anxiety.

Thus, intervention is essential to help not just the child with an autism spectrum disorder, but all those who
interact with the child, including family, relatives, teachers and classmates.

Evidence-Based Treatment of Autism Spectrum Disorder (ASD)

It can be overwhelming to hear about all the numerous treatments recommended for autism spectrum disorders. Many well advertised and promoted treatments do not have research support so parents should be careful to evaluate treatment options.

When considering any treatment, here is a list of useful questions that parents might consider asking (Freeman, 1997):

- Is there any harm from this treatment?
- Is the treatment developmentally appropriate for the child?
- If the treatment does not work, how will it affect my child and family?
- Has the treatment been validated scientifically
- How will the treatment be integrated into my child's current program, and life routines? (Parents should be wary of a program that ignores other aspects of the child's life and education.)

Main Interventions for Autism Spectrum Disorder (ASD)

The main types of interventions for children/youth with autism spectrum disorders are the following:

1. Social Skills and Life Skills Interventions

These are interventions to improve social skills and help the child relate and get along better with other people (Perry and Condillac, 2003).

For example:

- Identifying thoughts or feelings: individuals with ASD often have a lot of difficulty knowing what they are thinking or feeling.
- Expressing thoughts or feelings: its one thing to know what you're thinking or feeling, but its equally important to know how to properly express those thoughts or feelings - including when its appropriate and when its not!
- Teaching the child empathy, which is the ability to see things from another person's perspective.
- How to identify and respond to other people's emotions
- Conversational skills such as listening to others, taking turns in conversation, etc.

Remember Spock, or Lieutenant Data on Star Trek? They had trouble understanding human emotions and why humans behave the way they do. Children and youth with ASD are similar; normal rules of human relationships and feelings which come automatically to neurotypical children may need to be explicitly taught to a child with ASD.

2. Language and Communication-Based Interventions

These are interventions to help the child with difficulties with language and communication (Perry and Condillac, 2003).

Although children with ASD may have normal verbal language, they have trouble communicating with others due to difficulty with their non-verbal language. This includes reading social cues, tone of voice, knowing how to take turns in conversation, knowing how to show a genuine interest in others, etc.

Many of these naturally overlap with social skills interventions; after all, you need to be able to communicate with others in order to get along with them.

3. Sensory and Motor Interventions

Sensory processing (aka. Sensory integration) is a person's ability to take in, process and make sense of
Many individuals with autism have sensory processing problems such as:

- Hypersensitivity to sound, e.g. becoming easily upset or overwhelmed with what appears to others to be normal levels of sound.
- Hypersensitivity to touch, e.g. having trouble with food textures or tags on clothing.

Although there are a variety of programs and interventions that claim to help with sensory issues, experts do not yet fully agree about whether these therapies truly work or not. Although many parents report that sensory interventions may be helpful, there remains a lack of adequate scientific evidence.

For this reason, sensory interventions they should be only be used along with a) proven therapies, (b) with careful evaluation, and (c) if they do not interfere with proven therapies. They should not be used as a sole intervention for autism spectrum disorders.

4. Intervention for Challenging Behaviour / Behavioural Management

Individuals with ASDs often have difficult behaviours, such as aggression, self-injury behaviours, or other disruptive and inappropriate behaviours. Research supports the use of positive behavioural strategies as the first treatment strategy for problem behaviour (Perry and Condillac, 2003).

It is recommended to:

- Use behavioural principles to manage behaviour. E.g. figure out what purpose a behaviour is trying to serve, and try to offer more adaptive ways to achieve the same purpose.

5. Biomedical interventions such as Medications

When behavioural strategies are not enough, then other strategies such as medications may be used for specific specific behaviours or conditions (such as obsessive compulsive disorder, or attention-deficit hyperactivity disorder) or specific symptoms (such as impulsivity, insomnia).

6. Psychotherapy

One type of "talk therapy", known as cognitive-behaviour therapy may be helpful (Attwood, 2006). These programs help children cope by looking at their thoughts, feelings and behaviours.

7. Treating any other associated conditions

If the child has any other conditions, it is important that there are strategies and treatments for them as well. Other conditions that may commonly be seen in children/youth with ASD include:

- Attention-Deficit Hyperactivity Disorder (ADHD): a condition where a child has troubles with inattention, and may also have troubles with hyperactivity and impulsivity.
- Mood problems such as anxiety and depression, which may occur when individuals become overwhelmed by the stresses in their life. Typical stresses in children with ASD include relationships with teachers, family and peers. Identifying stresses and coming up with ways to cope with them is one way to deal with mood problems.

The following school interventions are recommended:

- The student with ASD should be identified as a special needs student (through a process known as an Identification, Placement and Review Committee, aka IPRC) so an individual education plan (IEP) can be put in place.
- An IEP has specific accommodations and modifications to the student's educational program to help that student succeed.
- Resources available may include access to educational assistants (EA), Occupational Therapists (OT), physiotherapy (PT), behavioral specialists, autism specialists and assistive technology such as laptops or FM (hearing) systems.
Students with ASD are usually placed in the regular classroom (unless there are learning difficulties), occasionally with EA or resource support. In general, easing the workload in high school by substituting one or more courses with resource periods is recommended.

If a child is unable to cope in the regular school system, some school boards have special classes for students with ASD.

**Psychoeducational Assessment:** if not already done, it can be very helpful for a child with ASD to be seen by a school psychologist for a psychoeducational assessment which is a series of very detailed tests to assess the child's learning strengths and difficulties, such as whether or not there are any learning disorders.

### Specific School Accommodations and Modifications

The following table lists some general recommendations for students with ASD, but note that every child is unique so accommodations need to be tailored for the individual child:

**Resistance to change**

The need to have the same routine every day, and the tendency to become distressed if routines are changed even in the slightest way.

- As much as possible, ensure a consistent, predictable environment with routines.
- Provide a written schedule for the day’s events; for students, it is enough to have it on the board; others may need it written on a sheet that they can keep at their desk.
- Anticipate future events that will cause changes in routines; e.g., the teacher can tell the child that s/he will probably be away several times during the year and that there will be a supply teacher.
- Give transition warnings; i.e., instead of simply switching from one activity to another, tell the child ahead of time that there will be a change.
- Give choice whenever possible; e.g., "You can finish up now, or you can have another minute…"
- With major changes like going to a new school, the child should be orientated ahead of time, by visiting the new school (several times if necessary), walking the route if appropriate, meeting teachers ahead of time, etc.

**Social skills difficulties**

Unlike other students, the ASD student does not automatically learn the subtle social rules required to get along with other children, and thus may appear self-centered; talking "at" rather than "with" others; saying inappropriate things even if they are true; e.g., calling someone ‘fat’, saying their clothes are ugly, etc.

- Explicitly teach social skills to the student, either one-on-one (ideally in a subtle way so the child doesn't feel singled out), or as part of the teaching to the entire class.
- In direct interactions with the student be prepared to gently cue the child to more positive behaviors.
- Create and rehearse "social scripts" (dialogues for different social situations) and "social stories" (short stories that explicitly explain what to do in a social situation and why).
- Praise and positively reinforce the child for showing positive social skills, even if they seem obvious.
- Keep an eye on the child's interactions with peers, and intervene if the child's behaviors are causing other peers to take notice and start teasing - kids with ASD are at high risk of social ostracism, teasing and bullying from others. Improve the child's self-esteem and at the same time help the child to connect with peers by letting the ASD student use their academic strengths to help others; e.g., a student who is a good reader could be given an opportunity to read to peers with difficulties in reading. Find one or two empathetic peers who can be a guide and protector for the student.
- No matter how frustrated you may be with the student, avoid any teasing, ridicule or shaming.

**Non-verbal communication difficulties**

Much of our communication is non-verbal, relying on eye contact, gestures, or body language.

- **Poor eye contact.** Many students with ASD find eye contact overwhelming, which leads them to avoid eye
contact. Thus, do not force the child to look at you, and do not punish or blame a child who doesn't give you direct eye contact.

- **Do not rely exclusively on body language.** Body language is communication by using body movements and gestures. People with ASD have a hard time reading body language, thus if you are getting bored with someone with ASD about their favorite hobby, instead giving vague non-verbals like looking at your watch or looking impatient, you may have to simply tell him/her, “Thanks for telling me about that. I have to go now.”

- **Practise non-verbal cues,** e.g., watch TV with the sound off or observe a social interaction from a distance in the playground and ask the child to describe the action and how people might be feeling.

- **Difficulty interpreting and modulating volume and tone of voice.** The student may not be able to tell the difference between your "happy" voice and "angry" voice so use words to explain your emotion; e.g., if you are frustrated, say you are frustrated and don’t just rely on your tone or volume to show how you're feeling.

Similarly, a student with ASD may smile or laugh when anxious or look bored when happy so be careful how you interpret their moods. Teaching them to practice appropriate facial expressions in a mirror may help.

**Tendency to be concrete and take things literally**

This tendency also may cause student to misinterpret sarcasm or humor.

- Limit (not eliminate) the use of metaphors (or explain them the first time you use them); e.g., instead of: "I'm worried about how you're doing in math-you've got to pull up your socks!" say "I'm worried about how you're doing in math-you need to ask questions if you don't understand, and make sure you regularly do your homework."

- Be aware of how much non-literal or metaphorical communication you are using; e.g., your tone of voice, sarcasm, expressions, rhetorical questions, etc. Clarify when necessary.

- Note that many children with ASD enjoy humor and expressions of speech so rather than avoiding them completely explain them the first time you use them.

- Since people with ASD tend to have "concrete" thinking, simplify abstract concepts. Presenting visual images that represent abstract concepts may help visual learners. For example, Temple Grandin, a well-known author, speaker, and individual with an autism spectrum condition, found the image of a dove, peace pipe, or the signing of a peace agreement helpful for understanding the concept of peace.

Comprehension tends to be weak

- Do not assume that a child who reads fluently or parrots back what you say perfectly comprehends at the same level. Ask follow up questions to be sure they've understood.

**Concentration difficulties**

The student with ASD may have difficulties with distractibility, inattentiveness, and organization skills and also have an official diagnosis of Attention-Deficit Hyperactivity Disorder (ADHD).

- All the usual ADD/ADHD accommodations that help a child pay attention or focus better may be helpful for example, seating the child near the front of the classroom.

- Limit visual distractions where the child sits.

- If the student is taking a long time to answer a question, try not to interrupt as this may derail the child’s concentration and s/he will have to start over again to get his/her train of thought back.

- If a child is under stimulated, then offer healthy ways of stimulation (e.g., if he/she fidgets, allow the child to go for a walk, sit on an exercise ball, etc.).

**Executive function difficulties**

Individuals with ASD may have trouble with ‘executive function’, which is the ability to prioritize, plan, organize and manage time and space. Thus, specific strategies may be needed for all these.

- Break homework tasks into small steps, setting deadlines for the completion of each.

- Older students may find it helpful to keep all their subject notes in one binder; younger students may benefit from colour-coded binders or duotangs matched with textbooks marked with matching dots.
• Constant communication to and from school is essential to keeping student organized.
• Adults may have to take the role of helping the child with “executive functions” until the child is able to do these skills on their own.

**Restricted range of interests**

The child may have a massive preoccupation or interest in just a narrow area, e.g. transportation, technology, dinosaurs, weather, music, musicians, etc. The child may be so interested that s/he lectures and talks excessively about this area, but be unaware when others aren't interested.

- Set limits on how much the student can talk or occupy him or herself with that topic. For example, you might let the child ask only three questions daily about the topic, and then only a certain time.
- At the same time, the interest might be used to connect the child with peers with similar interests, or to help teach academics. For example, a child interested in trains may be motivated to solve math questions involving train scenarios. A story or article about trains could be used for a reading assignment. Use the special interest as a bridge to other interests, e.g., the study of trains might lead to comparisons to other modes of transportation.

**Motor difficulties**

Motor difficulties includes fine motor problems (such as difficulties with handwriting, and being able to copy and understand what they are copying), as well as gross motor problems (clumsiness that makes it difficult for the child to play team sports in the gym or school yard).

- Some school boards provide Occupational Therapy (OT) support to ASD students for fine motor, and sometimes gross motor difficulties
- Gross motor: make accommodations for gym class so that the child isn't pushed into competitive situations with other peers. Do not have students choose teams because the child with ASD will inevitably be the last child picked.
- Fine motor: typical accommodations include:
  - Special pen/pencil grip to make it easier to hold pens/pencils
  - Allowing the child to write on graph paper which makes it easier for him/her to plan visual-spatially
  - For older students, allowing the use of keyboard for taking notes or written assignments or tests
  - Providing photocopies of teacher’s notes and more time to copy off the board.

**Sensory processing issues**

Most students with ASD have sensory issues, and may thus be overwhelmed by seemingly normal levels of sensory stimuli such as sound, or touch.

- Be aware that the child may become easily over stimulated by noises, lights, strong tastes or textures, and that if s/he can't recognize that s/he is over stimulated, then teachers will need to recognize the cues and teach the child to also recognize them.
- For touch hypersensitivity, make accommodations so the child is less likely to be touched unexpectedly; for example:
  - Allow the child to have more personal space in 'Circle Time'
  - Allow the child to be at the front, or the back of a line up, but try to avoid the middle of a line up due to jostling
  - Assign the student a locker at the end of a hallway so they only have to deal with one student beside them.
  - Use firm touch rather than light touch
  - Tell the student if you are about to touch him/her
- For troubles with auditory processing:
  - Some kids may benefit from FM systems (the child wears a headset that broadcasts the teacher's voice directly into the child's ears, thus reducing the amount of other noises that could interfere)
  - Seat the child near the teacher, yet away from distractions (e.g., away from the hallway door)
  - Speak slowly, in small phrases
  - Teach to the type of learner, e.g., for visual learners use visual cues, or written instructions to reinforce
Mood swings and troubles controlling emotions

Some individuals with ASD may have troubles managing their feelings. They may have sudden and extreme problems with moods, such as "flight" (anxiety, fear, withdrawal), "fight" (irritability, anger and rages) or even simply "freeze".

- Allow a safe, quiet spot where a child can cool down.
- Help the child learn a vocabulary for identifying and describing his/her emotions, so that teachers can act appropriately
- Work with the child to come up with a list of strategies to deal with being overwhelmed, such as:
  - Deep breathing (in through the nose and out through the mouth)
  - Telling the teacher so that other strategies might be tried such as
  - Having a 'time out' or a place to 'chill out'
  - Using soothing stimulation (e.g., squeezing a ball, going for a walk, listening to relaxing music)
- Be alert to signs of depression such as increased disorganization, withdrawal, tiredness, decreased threshold for stress, crying, suicidal talk, as they are at a higher risk of risk for stress, anxiety and depression.

Do You Suspect Autism Spectrum Disorder (ASD)?

If you suspect that your child has ASD, then have your child to be seen by a family doctor or paediatrician to make sure there aren't any medical problems that might be causing or contributing to the symptoms. The doctor can then recommend next steps for exploring such as a specialized service for assessing ASD, or a private practice psychologist.

"Thomas still loves trains but at least..."

After the diagnosis of ASD, Thomas' parents were able to see his behaviors in a new light, and find new ways to help him cope with things. His parents joined the local ASD parent support group, and were referred to the local services for ASD. They were able to see that much of his difficulty getting along with others wasn't due to him intentionally trying to be difficult, but to his ASD. They saw that he often didn't 'get it' in social interactions with others, and they were able to provide more help so that he could understand social relationships. At school, when the teachers became aware of his ASD, they were able to come up with an Individualized Education Plan (IEP) to take into account his needs.

Thomas is still obsessed with trains though, so his parents found it helpful to learn and read up on trains themselves, so they are now able to hold a conversation with him about his interest, and thus able to help him practice his conversation skills. And bit by bit, they are then able to try to shift his interest to other areas. With their encouragement, he has started to develop other interests such as computers. Through that interest, he has more to talk about with some of the other classmates, and he is slowly starting to make a new friend.

Thomas still has a lot of struggles and challenges ahead, but at least now he and his parents know that they aren't alone and that there are supports out there.

Useful Websites

Autism Ontario has a detailed list of educational resources at [www.autismontario.com](http://www.autismontario.com)

Online Asperger Syndrome Information and Support, Web: [http://www.aspergerssyndrome.org/](http://www.aspergerssyndrome.org/)

Recommended Books


More Than a Mom: Living a Full and Balanced Life When Your Child Has Special Needs, by Amy Baskin and Heather Fawcett, 2006.

A Mind Apart: Understanding Children with Autism and Asperger Syndrome, by Peter Szatmari, 2004


Look Me in the Eye: My Life with Asperger’s, by John Robison, 2008. An incredible book that describes what it is like to have Asperger’s.

References


About this Document

Written by the eMentalHealth Team and Partners.

Disclaimer

Information in this pamphlet is offered ‘as is’ and is meant only to provide general information that supplements, but does not replace the information from your health provider. Always contact a qualified health professional for further information in your specific situation or circumstance.

Creative Commons License

You are free to copy and distribute this material in its entirety as long as 1) this material is not used in any way that suggests we endorse you or your use of the material, 2) this material is not used for commercial purposes (non-commercial), 3) this material is not altered in any way (no derivative works). View full license at http://creativecommons.org/licenses/by-nc-nd/2.5/ca/