

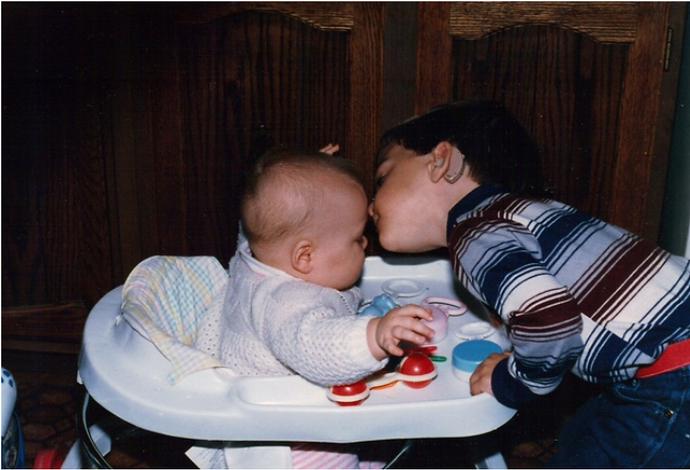
**Working toward barrier free education:  
Utilizing perspectives of students who are  
D/HH to address concerns of fatigue,  
isolation and access**

Jones Memorial Lecture  
University of Alberta  
November 20, 2017

Natalia Rohatyn-Martin, PhD



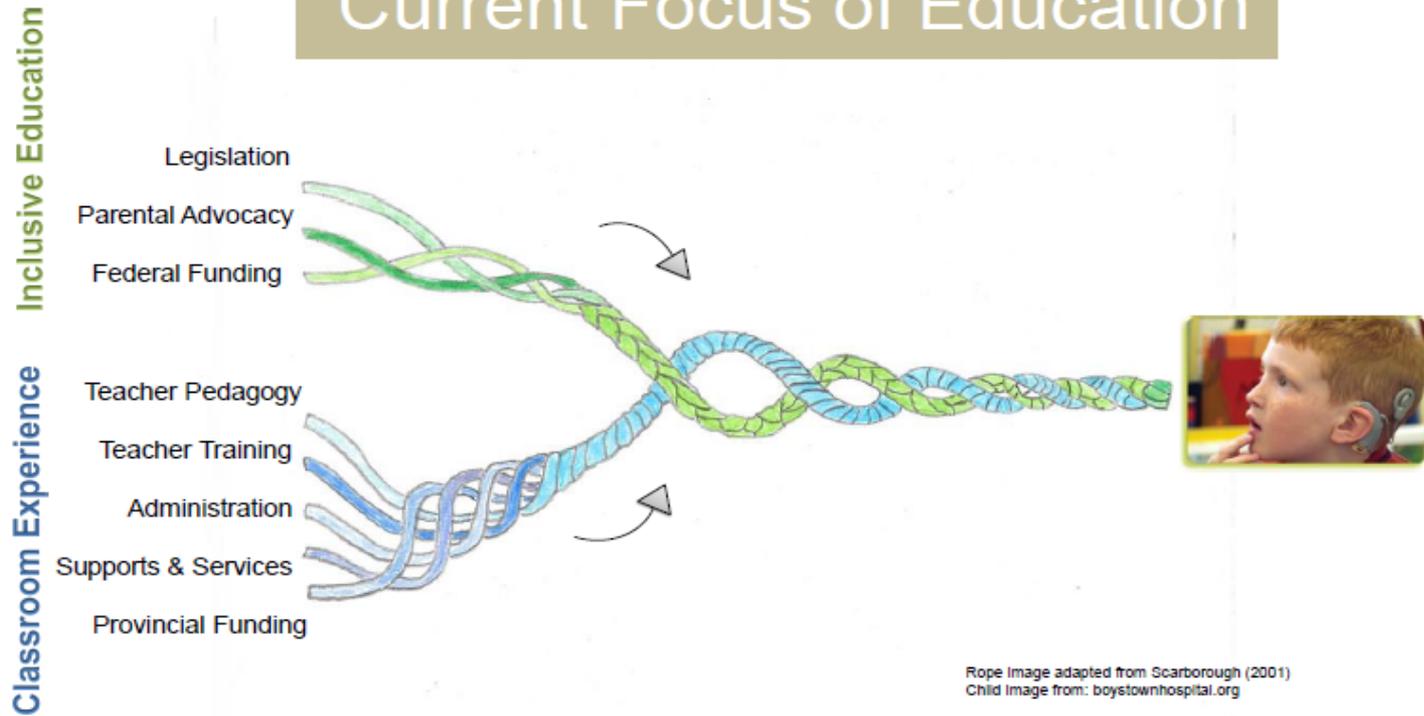
## Who am I?



## Background

- Trend towards the placement of students who are Deaf or hard of hearing (D/HH) in general education classrooms<sup>1</sup>
- Placements have been referred to as *integration*, *mainstreaming*, and more recently, *inclusive*
- Schools in North America are now changing their educational approaches toward a philosophy of inclusion
  - philosophy that promotes community membership for all students<sup>2</sup>, where all students' learning needs are being met, and where students feel they are socially “welcomed, and valued” (Antia et al., 2002, p. 215), and learn together in classrooms with their peers, regardless of their particular learning characteristics and needs<sup>3</sup>

## Current Focus of Education



2 foci of research and practice with students who are D/HH:

1. Inclusive education and underpinnings
2. What contributes to the classroom experience

## Previous Research

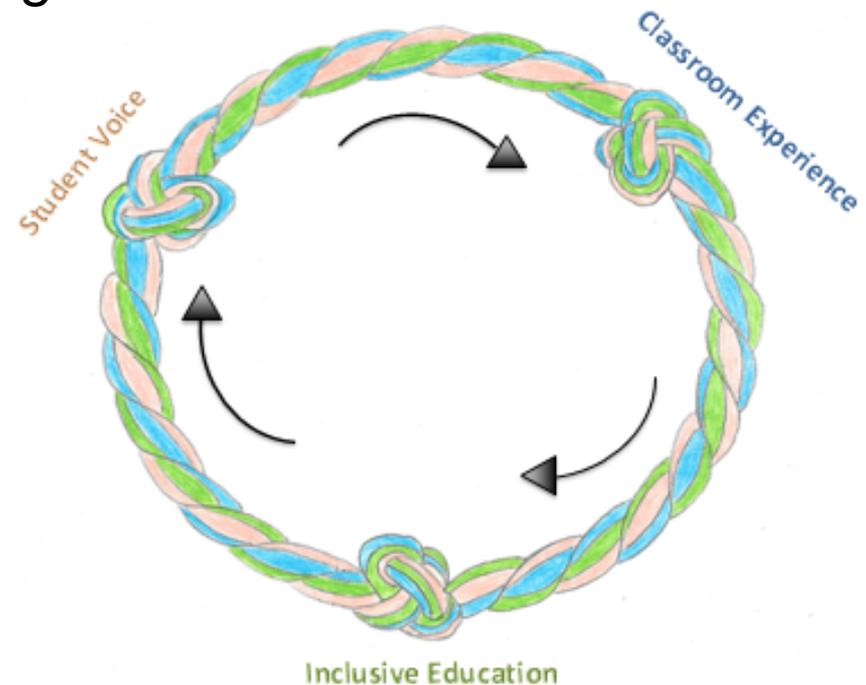
**Absent in the reviewed research North American literature:**

**D/HH students' nuanced perspectives and experiences of inclusion**

- Students are rarely key informants
- This research is valuable for all: educators, policy makers, and parents

## Current Study

- Building on the research of Jarvis et al. (2003; 2010) my research explores the perceptions and experiences of inclusion for Albertan students who are D/HH who communicate in ASL or spoken English
- Aim: change the perception of “inclusive” education from 1-way to truly inclusive



## 2 Studies

1. Documented factors D/HH students identify as facilitating or impeding their success within inclusive classrooms
2. Refine the structured interview questions about the experiences of students who are D/HH in inclusive mainstream schools

## **Study 1: Research Questions**

The key question guiding this inquiry was:

**How do students who are D/HH perceive their educational experiences in inclusive settings?**

Two subsequent research questions were also addressed:

- a) What does it mean to the student to be D/HH within an inclusive classroom?
- b) How may experiences of students who are D/HH differ from one another?

**Table 1**  
**Participant demographics**

Participant	Caitlyn	Billy	Wilden	Mark	Sarah	Kohli
Gender	F	M	F	M	F	M
Age Category/ (Grade)	17-18/ (12)	17-18/ (12)	16-17/ (11)	11-12/ (7)	14-15/ (10)	13-14/ (8)
Academic Achievement <sup>a</sup>	Average to above average	Below average to average	Below average to average	Above average	Average	Average to above average
Level of Hearing Loss	Severe	Profound	Profound	Profound	Profound	Profound
Age of Diagnosis	Birth	12 months	11 months	13 months	6 months	6 months
Age of Amplification (HA) <sup>b</sup>	18 months	12 months	13 months	13 months	12 months	6 months
(CI) <sup>c</sup>	-	-	3 years (right ear) 16 years (left ear)	19 months (left ear) 7 years (right ear)	4 years (both ears)	5 years (right ear) 12 years (left ear)
Mode of Communication <sup>d</sup>	Oral	ASL <sup>e</sup>	Oral TC <sup>f</sup>	Oral	Oral ASL	ASL Oral

**Note.** <sup>a</sup> Academic achievement= based on student perception not academic marks. <sup>b</sup>HA= hearing aids. <sup>c</sup>CI = cochlear implants. <sup>d</sup>Mode of communication=language used at home/school from most to least. <sup>e</sup>ASL = American Sign Language. <sup>f</sup>TC = Total Communication (spoken English supported by Signed Exact English for this student).

## **Current Study: Methodology**

- Narrative research
- Pre-interview activities (PIAs)
- Interviews
  - Including member checking interview

## **Pre-Interview Activities**

### **Personal Pre Interview Activity Example:**

Make a drawing, map or diagram of a place that is important to you. Add key words or hashtags (#) to show the parts of your drawing, map or diagram.

### **Schooling Pre Interview Activity Example:**

Make a list of 10 important words that come to mind for you when you think about school.

## **Current Study: Methodology**

- Narrative research
- Pre-interview activities (PIAs)
- Interviews
  - Including member checking interview

## Current Study: Methodology

- Thematic analysis - to explore emergent themes, ideas, and relationships between themes and ideas<sup>1</sup>
- Themes created based on grouping analytic codes
- Codes and themes supported by participant quotes, and shared with participants through the process of member checking<sup>2</sup>

<sup>1</sup>Charmaz, 1990; Glaser & Strauss, 1967, <sup>2</sup>Lincoln & Guba, 1985

**Table 2**
**Themes and Subthemes**

Theme	Subtheme
<b>Effect of Communication Style on Social Relationships</b>	Social Isolation Split Social Networks: School Friends versus Home Friends Difficulty Taking Others' Perspectives
<b>Importance of Language</b>	Struggles Navigating Multiple Languages
<b>Identity Development</b>	Identity of Self and Others Assertion of Independence Desire to be Viewed as Normal
<b>Educational Adaptations and Supports</b>	Fatigue Classroom Supports Improving Curriculum Access

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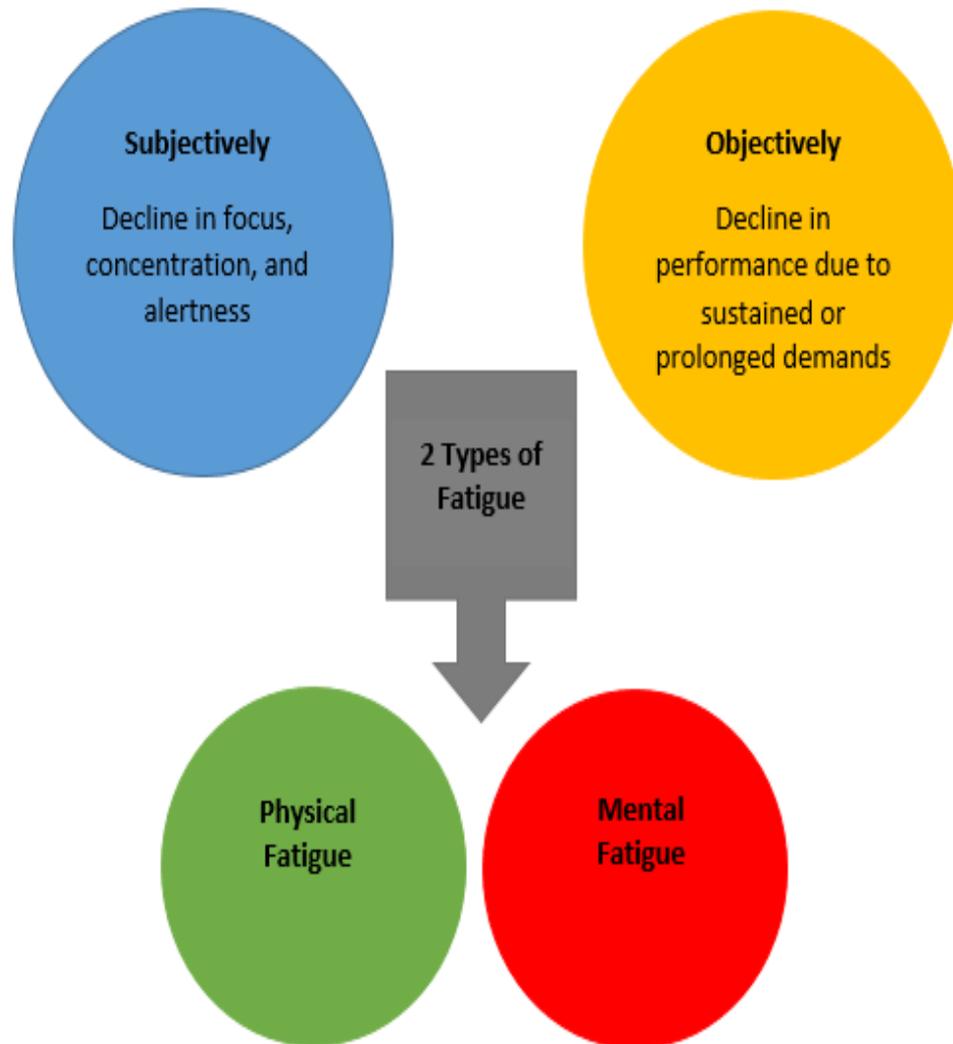
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# Fatigue



## Auditory Effort and Visual Effort

### Auditory effort<sup>1</sup>



- cognitive exertion required to attend to and understand a spoken message

### Visual effort<sup>2</sup> visually



- physical and mental exertion required to attend to and comprehend a message

<sup>1</sup> McGerrigle et al. (2014); <sup>2</sup> Hornsby, 2013

Auditory image: <http://www.healthaim.com/wp-content/uploads/2015/12/hearing-loss-775x390.jpg>; Visual image: <http://www.adweek.com/socialtimes/wp-content/uploads/sites/2/2015/07/HumanEye.jpg>

## Previous Research on Fatigue

**Fairly absent in the reviewed research North American literature:**

*Fatigue and students with hearing loss*

**A review of the literature revealed two studies (Bourland Hicks & Tharpe 2002; Hornsby et al. 2014) in addition to my pilot study**

Students are rarely key informants

This research is valuable for all: educators, policy makers, parents, and students themselves

## **Fatigue Study: Aim**

Goal of the pilot study - to refine the structured interview questions about the experiences of students who are D/HH in inclusive mainstream schools

Aim - to examine the lack of research on the possible detrimental effects fatigue has on educational outcomes for this population

Students were interviewed individually using semi-structured interview questions, four of which were specifically related to fatigue

## Participants

1 graduate student enrolled in a Master's of Deaf Education program

2 junior high students

All students have severe-profound hearing loss and use assistive hearing technology (digital hearing aids; bilateral cochlear implants)

All of the students communicated via spoken English, but in class 2 utilized an American Sign Language interpreter.

## **Themes**

**Four themes were revealed:**

**listening effort**

**listening conditions**

**survival mechanisms**

**not worth the effort**

## **Listening Effort**

Increased effort required to listen and comprehend classroom conversations and instruction compared to hearing peers.

“Every day I have to concentrate on the interpreters, or when people talk to me. I have to concentrate on the words that they’re saying to me. It’s really tiring and for some reason I’m not able to stick it into my head, not for a long time.”

- Peter

“I don’t like to sit and watch the interpreters all the time, because hearing people, they can move around, or text, or daydream, but for me I have to watch and concentrate all the time. It’s tiring. And if I turn around I miss something, and I don’t want to interrupt the class. I feel like it drains me out because I cannot use my natural language, I have to concentrate on the interpreter. Lip reading is very difficult for me. Well I’m okay with a little bit at a time, but if it’s like for a long time I just give up.”

- Peter

## **Listening Conditions**

Environmental factors that impacted the ability to attend to and comprehend classroom instruction or conversations.

“When the kids are very very loud, [and the noise is] like echoing [in] the room, then, if [the teacher] tries to talk, I won’t hear because of the [noise] echoing in the classroom. [All the noise] can make it really hard to hear sometimes.”

- Mark

“Yeah, it’s like I’m trying to listen but... sometimes it’s too noisy... I didn’t know I got tired because I was wearing my FM unit... it’s probably that. I try really hard to listen... because a whole bunch of kids that were like...really loud. I never thought about that before, but yeah, probably that’s why.”

- Mark

## **Survival Mechanisms**

Described strategies to cope with overwhelming classroom listening demands and fatigue

“If I fall behind, I just give up and (nods) I just nod. My mind is not able to work hard enough or fast enough to get the words together. I’m only able to pick some pieces, but not the whole thing.”

- Peter

“Sometimes [I will] just pretend I’m listening, sometimes I really am trying, but sometimes no.”

- Kohli

## **Not Worth the Effort**

When survival mechanisms are no longer effective and participants disengage

“Sometimes I just think, like what’s the point? So I put my head down on the desk and think about other things”

- Mark

## Fatigue

### Amplification or an interpreter:

- **Several revealed feeling higher levels of effort expenditure than peers without hearing loss**
- locating sound sources, understanding teacher instructions, and following classroom discussions

“I have to work harder watching the interpreter. There’s just so much to catch up on... I have to rush to get my notes down then learn it on my own. I don’t have time to learn it at the same time I write it because I’m too busy writing what the interpreter says.”

- Kohli

## **Implications/ Suggestions from Participants**

### ***Effort required to participate in classroom lessons***

Offer frequent breaks, alternate between whole class and small group lessons, combine auditory, visual and kinaesthetic learning opportunities within lessons, and reduce speaker overlap in classroom discussions

### ***Development of appropriate coping mechanisms***

Develop an awareness of the specific fatigue challenges for students who are D/HH and accurately recognize and discern classroom coping behaviours

Table 2

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Educational Adaptations and Supports	Fatigue <b>Classroom Supports</b> Improving Curriculum Access

## Classroom Supports

- **Assistance from classroom personnel**
- Note taking procedures
- Closed captioning
- **Assistive technology**

## Classroom Supports

Assistance from classroom personnel:

- Educational Assistants (EA)
- Interpreters

## **Classroom Supports**

Assistance from classroom personnel:

- Educational Assistants (EA)

- C: Well teachers terrify me. I don't like asking questions to them. So with the EA I'm more comfortable with them, so they come and help me. I don't mind that, but when [it's] a teacher... I don't know they just terrify [me].
- I: What's the difference between an EA and a teacher?
- C: [A] teacher... you just don't want to be wrong with them I guess... with an EA you're just like, whatever! They don't know more than you do, they're just in there helping, but a teacher knows everything, and you don't want to feel stupid... even though you know they're there to help.

“I have an educational assistant, so I go her office and then my educational assistant can help me with English and writing, so I like that. I like working with EAs. I like it because they help me a lot and [I] learn a lot of things. I like the way the EAs expand things. And I keep passing because of the EA helping me, expanding things that I can't remember on my own.”

- Sarah

## Classroom Supports

Assistance from classroom personnel:

- Interpreter

- I: So tell me what it's like working with an interpreter every day.
- B: I actually get two! The first interpreter will interpret what the teacher says and the second interpreter is taking notes about what is being said and the tests and that kind of thing. And then that interpreter takes the notes and when they switch off, then the other interpreter takes the notes.
- I: And what is that like for you?
- B: It's good, I like it. I need them to be there or I won't understand anything of the teacher or sometimes the classmates.

- I: What is the role of your interpreter in the classroom?
- K: Well they're there for communication, and writing... they'll look at your writing.
- I: Talk to me a bit more about what they do communication-wise.
- K: Well she sign[s] the words the teacher is saying so I can understand better. And even when I have basketball practice the interpreter's there so I learn the plays.
- I: Okay, and what about writing?
- K: When I ask them sometimes she will look at my English writing and helps me to fix it when I have mistakes. It can be helpful.

“The interpreter... she’s a better interpreter than the others that I had before. Because I knew her for a long time, it’s more easier to understand [her]. Before with interpreters sometimes they’re not understandable if I’m not comfortable with them, so I think it’s important.”

- Wilden

“She didn’t have enough knowledge of sign language even though she had a deaf daughter that doesn’t wear any hearing aids. She had less knowledge and she had [to use a] sign language dictionary a lot.”

- Wilden

“Yeah, some of their signs. Sometimes I didn’t know what they were... like what they were singing was the wrong sign. So I would say what was that and they would tell me and I would correct their signs. Like they would just choose the wrong sign.”

- Kohli

## Classroom Supports

### Assistive Hearing Technology:

- Hearing aids
- Cochlear implants
- FM Systems

## **Classroom Supports**

Assistive Hearing Technology:

- Hearing aids

- B: Grades 10 and 11 I did not actually have my hearing aids, because they weren't working. And now in the summer, I finally got these fixed. I can hear some now, and I like to hear.
- I: What types of things do you like to be able to hear?
- B: I can hear sounds, I can hear alarms. In grade 10 and 11 I couldn't hear the alarms, so they had to let me know when it's time to change classes, and so people would tap me on the shoulder and let me know when class was done. So it was hard, it's just easier to hear.

## **Classroom Supports**

Assistive Hearing Technology:

- Cochlear implants

- K: Well it felt more or less the same. The one side I can hear more than the other side. So my left ear I hear less. It's good, I can hear some and I like it. I can hear when the TV's on, but can't really hear what they're saying.
- I: How do you feel being able to hear things?
- K: I can't always hear everything. Sometimes it's scratchy or when it's not clear. It kind of sounds wet. So it's confusing, it's not clear. It just happens once in awhile. I think it doesn't help because my hearing levels are too low.

- I: You said you struggle sometimes wearing a cochlear implant?
- S: Yeah, sometimes I go to [the] audiologist to fix my volume, that's annoying. I don't know nothing about CIs and my mom knows everything. But I know how to put this together because that's the only thing I know. But she knows how the brain works, and stuff like that. Like I don't know how to do that (laughs). Like the volumes, and... sometimes I forgot to take it off when I go in shower, and oh... I'm scared to go in water because I remember when I go to West Edmonton Mall, we had water and I looked at it and I'm like oh my God I'm scared with the CI. But if [the CI is] off, I'm not scared.

## **Classroom Supports**

Assistive Hearing Technology:

- FM Systems

“It’s a thing to make me hear better. Like if the class is super loud and [the teacher] talks to me only through the FM, I could hear it, and the noise doesn’t really bother me. And when they say it’s hard to hear, just say, turn on your FM and hear it better.”

- Mark

- S: When the teacher's wearing a FM, I'm really good at classes, concentrating and putting my hands up for questions and make sure I get it and so I can put it in my notes and study at home with my tutors. And if other students [are] talking, I remember the teacher always repeating what the students saying. So I'm like oh okay, I get it. The FM, it has three buttons, so I always put the first one, where [I hear] only [what] the teacher [is] saying.
- I: And why's that?
- S: Because I feel the teacher's always just talk a lot, so I don't want to miss any of it. So that's why. I feel like it's annoying because like I just want to hear what they're saying. I don't like missing what the teacher's saying. Yeah, I feel I concentrate more if I don't have an FM with me and I forgot [it] at home, I feel like I'm missing something, you know? I don't like that, I just like wearing [my] FM.

- C: I use an FM system, never did like it, from the time since kindergarten. I just never really liked it. But this one I have now is probably one of the better ones I've had. Like when I switched from the last one to this one... a huge difference in sound. I'm not sure if the other one was working right, and I just didn't know it, but this one is really good even though it looks old fashioned but... I still don't use it.
- I: You still don't use it though, even though you like how it works?
- C: Well I only have Math... and I don't use it in Math, I used it in Biology because of all the information I need to learn, and so it helped me hear the information better. But, yeah I never really did like the FM system.

- I had an FM system... I really didn't like the FM system because (sigh) it distracted me too much, I guess. Sometimes it doesn't work and [it's] just too loud and it's kind of harder for me to focus on my work. It was too distracting because if I tried [to] focus, it distracts me, and I cannot really write down everything (sighs) and it doesn't help get the loud noise, and the interpreter signing, and trying to write down things from the board, and be listening and watch at the same time... so it was really incredibly irritating. So I'm pretty much glad that my FM is in kind of the dusty area of the room. I just stopped using it in grade 10, somewhere around that, because it's so troublesome. Because they're so frustrating carrying around everywhere and having to change it. It's troublesome to carry it, and handing it to the teacher in elementary and on... ugh, it was a nightmare. I never, never, want to go through that again. I'd rather chuck it out the window than touch it again.

- Wilden

**Table 2**

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## Improving Curriculum Access

- **Learning preferences**
- Pace of instruction
- Note taking
- **Supportive relationship**

## Improving Curriculum Access

- **Learning preferences**
- Hands on approach
- Visual reinforcement
- Digital technology supports

“Like some [teachers] like essays more than hands on projects, and I think they should give an option, but... (whispers) they don't. Like my math teacher... her teaching style is not... great. Like she teaches you it, and expects you to know it and... that's it. It's like one style and that's it. It can be frustrating sometimes.”

- Caitlyn

“I remember in grade 9 we used iPads, we downloaded an app [with] flashcards, especially for science and social. So we put a definition and then picture, and then tap it and you memorize. So that helped me too, but grade 10, I don't know why we stopped using it. We [were] writing our notes, and then remembering... that's the same thing, I guess but I enjoy the iPad better, because, it['s] easier for me, I like digital better.”

- Sarah

- B: I wish I could tell my teachers that I learn best when I can see the information.
- I: Can you tell me what you mean by that?
- B: Well, I learn best with captions, notes and writing on [the] board.
- I: What is it about these three things that helps you in the classroom?
- B: That way I know exactly what the teacher wants me to do and I won't forget.

“If the teacher point[s] at things that the teacher [is] doing so I’ll know what the kinds of things that they’re talking about. Because sometimes the things that are already written down, they’re talking further on that... and the student would not know which one they’re talking about.”

- Wilden

“I prefer on the board while the teacher [is] explaining it. That’s the number one [thing] I like. My math teacher does that, and keep[s] giving me notes, and questions, but she write[s] on the board so we can actually write it in my own words. Yeah, that’s what I like, paper and on [the] board, and then [the teacher] explaining it [to] the whole class.”

- Sarah

## Improving Curriculum Access

- **Supportive relationship**
- Perceptions of supportive vs. not supportive

“It’s important having a great relationship with my teachers, because if I don’t, it’s hard. Because I don’t like having a bad relationship with my teachers because I want to have a good relationship with my teachers so the teacher can help me and pass my marks. Like help me in class and stuff. I can’t ask [for] help if it’s a bad relationship.”

- Sarah

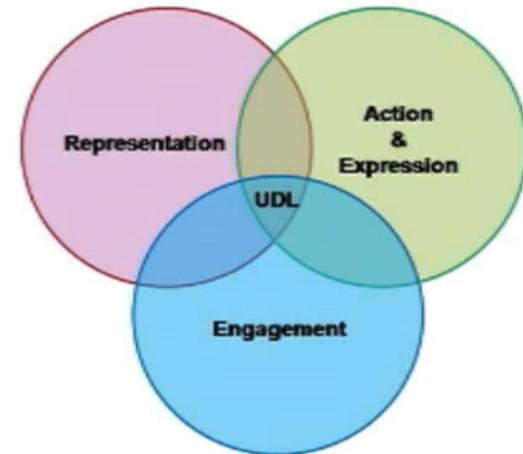
- I: Was there ever a time a teacher made school maybe not enjoyable for you?
- M: When they get mad at me a little bit.
- I: Can you tell me about a time when that happened?
- M: Yeah, one time in grade 5 when I do a wrong question, yeah, and then they say it's wrong and I need to repeat it. The teacher was not nice and didn't help me to get the question right, so it repeats and repeats and I get frustrated.

- K: I guess if I don't understand what I'm doing I'm supposed to ask the teacher and they can help me understand, they can teach me. But sometimes when I didn't understand, I didn't like the teacher.
- I: What didn't you like?
- K: They just ignored me, you know I just had to do it all on my own. I had to be patient through it and do it myself. It makes me feel, they think, I can't do it. But I did it.

## Universal Design for Learning

- Framework to address “potential barriers to learning in a curriculum or classroom and to reduce such barriers through initial designs, designs with the inherent flexibility to enable the curriculum itself to adjust to individual learners” (p. 508)
- UDL also helps to address learner variability by evoking flexible methods to empower educators, and to maximize learning for students

# Universal Design for Learning



UDL Principles

- 3 essential principles:
- Multiple means of Representation (MMR)
- Multiple means of Engagement (MME)
- Multiple means of Action and Expression (MMAE)

**Personal**

**Social**

**Intellectual**

## What can you do?

### **Multiple Means of Representation (MMR)**

- adapting for different sensory needs
- adjusting environment to ensure all have physical access

### **Multiple Means of Engagement (MME)**

- flexibility in content to reflect student interests
- collaborate with educators or parents

### **Multiple Means of Action and Expression (MMAE)**

- flexibility of assessments
- flexibility in student knowledge of content

## FATIGUE

**Personal**



**Social**



**Intellectual**



**What can you do?**

### **MMR**

- be aware of fatigue symptoms
- identify sources of fatigue

### **MME**

- support students to self-advocate to communicate needs to educators to rectify fatigue
- provide breaks to students throughout the day

## CLASSROOM SUPPORTS

Personal



Social



Intellectual



What can you do?

### MME

- include students in all aspects of school life (and events between school and community)

### MMR

- collaborate with parents & students for instruction based on cultural needs

### MMAE

- provide opportunity for students to self-advocate for presenting understanding in varied ways

## IMPROVING CURRICULUM ACCESS

**Personal**



**MMR**

- open dialogue about individual strengths and needs

**Social**



**What can you do?**

**MME**

- provide access for students to meaningfully interact with peers and educators

**Intellectual**



**MMR**

- open/running dialogue about best practices throughout school year

**MMAE**

- provide opportunity for students to present their understanding in variety of ways

## **My Lessons Learned...**

- **ALL students are individuals and should be treated as such!**
- **Fatigue!**
- **Qualitative methods!**

## Conclusion

- **Need for research in the area of fatigue**

Educators are uniquely positioned to provide students with internal and external supports to alleviate and/or cope with fatigue

- **Need for research focused on student perspectives**

Students should be actively engaged and involved in their education

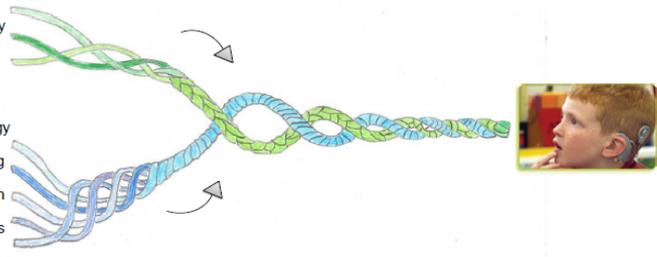


# UNIVERSITY OF ALBERTA

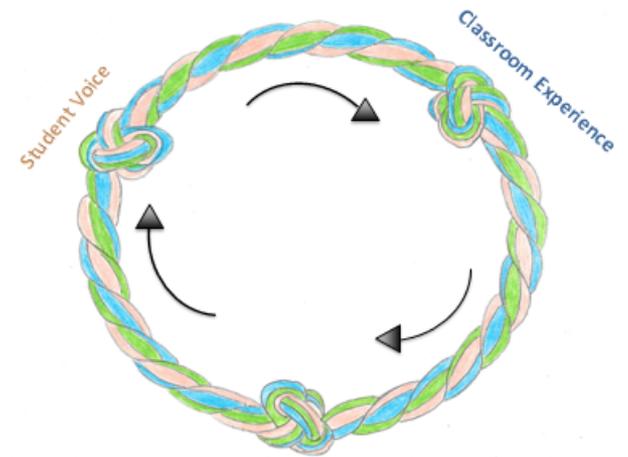
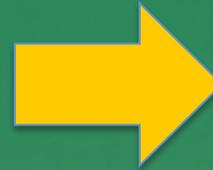
## Current Focus of Education

Inclusive Education  
Classroom Experience

- Legislation
- Parental Advocacy
- Federal Funding
- Teacher Pedagogy
- Teacher Training
- Administration
- Supports & Services
- Provincial Funding



Rope image adapted from Scarborough (2001)  
Child image from: boystownhospital.org



Inclusive Education

**Inclusion is not about integrating students by housing them into (or out of) forced containers of classrooms and schools. Inclusive education is about providing opportunities with supports for all students to have access to, and contribute to, an education rich in content and experience with their peers (Moore, 2016, p. 17).**

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