Thursday Plenary

The RESNA Debate

SPEAKER: Welcome to this morning's plenary session.

We have a coffee break in the exhibit hall after this session.

At noon there will be an award lunch.

The workshop has been cancelled, but we have a plan. So Toby is offering at 11:00 a.m. in the tech lab, Jackson room third floor.

The final exhibitor showing is at 3:45 to 5:15.

How are you doing? These presentations are fantastic. Thank you so much to the sponsors and exhibitors.

Moving along, if we can have the Minute Madness folks come up to the stage.

We have a compressed time we are running so we are going to kick right off.

Good morning. I am a designer for Mexico. I do design for disability. I am presenting a tricycle for CP in Europe. We in Mexico have been analyzing it in the physical characteristics in Mexico and Latin America. They are direct users of tricycles. We have been doing ethnographic studies to analyze the needs of the users. For social and rehabilitation purposes. It has to be foldable, light and easy to repair. Working to design tricycles for children and older people as well

SPEAKER: Good morning. My name is Andrew and my focus is building passive exoskeleton specifically for augmenting reduced triceps function. It's motivated from my desire to downhill ski and being able to use outrigger. And that requires load bearing through the arm. So to try to keep that light, I use heavy rubber that allows for gravity compensation so I can weight bear and lean in the outriggers. The main thing is being able to straighten my arm so I can carry all my weight on heavy rubber tubing. That's my project. I'd like feedback. Let me know what you think.

SPEAKER: So we did a pilot study looking at nutrition and perish with individuals with spinal cord injury. It's a cross sectional design. It's a school study working with myself and students, also students from OT and engineering but also those as well.

This focuses on 1 component of that. What are we really going to use to measure the pressure component and correlate the nutrition.

I had this poster up yesterday and I'm thankful for everybody that stopped yesterday. It is in place, talk to us about the engineering white paper that was also up yesterday.

SPEAKER: I've been working on this windmill device developed originally for clinicians to use with manual wheelchairs. They liked it because they could check fit and work on biomechanics of propelling. They can make sure they didn't fall out the chair on a slope. However we found other uses for it. My colleague, Kari Morgan, found it to be a great exercise tool and found it useful to help athletes exercise with it. We have a copy of it in her lab and 1 at Lakeshore. They started using it with the wheelchair rugby team. And when they did the peak CO2 measurements, they tried using this and it seemed to work. We did this study in our lab where we compared our results to an arm crank and competed on a windmill. So we think it's a viable method to measure peak CO2.

SPEAKER: My poster was also up yesterday. It looked at the effectiveness of a service delivery program in an assistive technology clinic. Describing the device, training and follow‑up over time. We looked at the effectiveness of the program through the functional ability assessment. We found that individuals uses devices like power wheelchairs were more satisfied. We also identified a few areas of lower satisfaction. So we looked at how you could better address their needs.

SPEAKER: I'm an R and D engineer at Duke. We have been working an an SPL meter for use on an Android phone application to modulate their speaking volume. We had people come to us that said children are uninterested in standard pressure sound meters. The main function of the ap, the gif was working, but the higher I speak, the higher the ball moves up and vice versa. The goal is to keep the ball in the green or gray color to give them feedback how loudly they are speaking. Available in the Google play and android store

SPEAKER: I'm from Vancouver, BC. We found out a lot of components of our program is focused on the manual wheelchair. This is a test that focused on the front caster performance and we did a lot of reliability on that part and we published the results of that test. Thank you.

SPEAKER: Fantastic work. And these were all reviewed very highly. It's just wonderful content.

Weir going to move on to the next event. This is the RESNA debate. It's my pleasure to introduce the very hard working and talented Emma Smith who put this together. Give her a great round of applause.

>>>MODERATOR: Good morning everyone. I'm going to invite my first pair of debaters to join me on the stage for now.

We decided to debate topics of importance to the audience. We asked the member should be to submit topics. We decided on 2. You will see 2 debates and they will have 2 individuals debating. The first is in keeping with the theme of the conference. The use of assistive technology in the life span. The topic is be it resolved that the future of as the assistive technology is in addressing the

Just to get a sense as a pro‑debate vote, how many of you are in favor or for this resolution?

Okay, and how many of you are against?

And how many say they are undecided? Or fence sitting? That's a lot of opinions to change.

We have two debaters for this debate. Jen wanted me to know to let you know age is more than a number.

The second debater is Daniel Cochrane. Just an ATP, sorry. Within the school district and an adjunct faculty member. And I've learned he has been brushing up in his aging knowledge.

When we think about technology of aging, we believe it addresses the needs of independence creases the life span cross the age of individual. We see the aging in the communities it's going to be a key priority and in the cast off the health care systems.

In terms of how it's going to proceed, each contestant ‑‑ debater will give a 3‑minute argument and will have a 2‑minute argument. Then they will have a 3‑minute break and during that time, we may get a sense where you are sitting and then have 3 minutes of rebutting and that will start with Daniel. I'm going to ask them to be read and we'll get started

>>>MS. BOGER: I don't plan to grow old gracefully YOOM going to have face lifts until my ears meet. Aging is a unique journey for all of us. Here3 reasons why. 1 is the aging demographic. We are all aging. In in 5 will have 65 and by 2115. 50 percent of people in the U.S. is over the age of 50. We are likely to pick up 1 or more condition at require special support. That's almost double the number under 65. The human race is aging and we need innovative ways to handle aging.

Baby boomers are very different. They expect to live longer, and are not shy getting what they want when they want it. They are representing a huge population and untapped niche of the market. They have 70 percent of the country's disposable income. Assistive technology is a $2 billion industry. It's a 15‑fold increase in 6 years. Many talks and the industry listens. It's going to shift assistive technologies from being items of necessity to items of luxury and status.

.3 is that my notes are in the wrong order.

Increasing spokes on holistic support.

They reserving the person as more of a synopsis of functional limitations. They support hobbies and creation, supports being alive. Supporting aging is going to foster greater invasion and individuality. Consumer happy boomers are going to demand addressing the needs of individuals. To new limits it is expanding what is possible and giving an impetus for practical application and is defining the future. Thank you.

>>>MODERATOR: Nice timing.

>>>MS. BOGER: Can I leave now?

>>>MS. GOODWIN: Something about this proposition reminds me of that scene in The Graduate. When they pull Dustin aside. I just want to say 1 word. Plastics. There is a graduate future in plastics. He is now 79 years old. And he could have the benefit of assistive technology. I would like to mangle the metaphor from the movie. I would like to say the future is plastic. You can make it coo do anything for anybody. It gets to the heart of what I think is wrong with the premise. It's the common misconception that assistive technology is for a specific age or category. It's not tied to age or impairment or disability category. Its instead tied to doing an activity. I believe that strongly. In the language of the ICF it changed the interaction to the environment. In the K‑12 world, we call it a tool. We all use them and what defines us as humans, is we are tool users. Do your aging adults want to read or see their photo album? So do my kids. Do they want to write e‑mails and communicate with the family? So do my kids. They would rather you Snapchat but that's a different thing. Do aging adults with dementia need assistance washing their hands? I saw a video modeling for wash in hands. Come into the classroom and you will see low tech technology helping them do what? Wash hands. So do young adults want to stay in their homes facing extreme difficulties, especially in states like my own Illinois where we have lack of options to support independent living. So assistive technology addresses the interaction between human functioning and participation no matter what the age I see the rest of ply time

>>>MODERATOR: Are you ready, Jen?

>>>MS. BOGER: Born ready. I complete agree with you. It's about enabling people to do what they want to do. It's the aging population that's going to drive innovation in the field. It's the massive number of older adults. 36 percent I quoted is the CDC's official number. If we think about functional disabilities to perform effectively, that number is much much higher.

The massively increasing demand to help with sight, mobility, and cognition. I can't think of a single population that won't benefit from those advances, through able‑bodied populations.

More engaged lives. The increasing shift of these people are creating the solutions working for them. People with disabilities are the experts. They continue to be central to the future of assistive technology. There are conditions we can support? No. Will we stop creating for needs of all kinds? No. Will it continue to drive the future? Yes. We are at a very interesting time in the development of assistive technology. AT is going to be common place and it's not going to be a stigma but rather a natural part of the course of life. It will change how we view functional disability.

>>>MS. GOODWIN: Okay. So there still is at let's 3 FIFKTS of the population not included in the aging population. But I meant to pick up something Jen wrote about in a recent article. Something she called a wicked problem. I want to suggest they don't just occur with aging. They occur at any level. At K12 we still have wicked problems and they engage us and have us figure things out.

We have a student with CP that can't move any part of her body. She is fully included in a next year hushed grade class.

We are using all of the brain power we have. My tag line for special education, is that special ed is rocket science. Our solutions are just as innovative and revolutionary for that kid as the ones you come up with with the wicked problems you are trying to solve at the other end of the life spectrum. I'm going to stop there.

>>>MODERATOR: All right you both have 3 minutes to prepare your rebuttals and closing arguments.

While their 3 minutes have started. I'd like to take another vote. Be it resolved that the future of assistive technology is in addressing functional limitations associated with aging rather than development of products addressing the needs of individuals with disabilities. How many are for? And how many are against? How many are still undecided? How many of you have changed your opinion since the last time you voted? Excellent question. We are going to give you 2 more minutes. You can have a quick chat.

With 30 second to go I'm going to bring you back as they get ready for their final push. Are you ready?

>>>MS. GOODWIN: Ready.

>>>MODERATOR: We are going to start with you dan

>>>MS. GOODWIN: My opponent made an argument with the disposable income that's going to drive this. With the field I work in, the idea of assistive technology being more mainstream and something school districts, for example, buy for the entire district is going to be similar in the product fields of it. We are not looking at it as assistive technology in a sense but a tool we give to the kids across the population.

Within the school setting, there are 48,271 students in the U.S. and assistive technology is part of what we do. We can purchase a $15,000 system without writing a medical necessity and without multiple appeals to insurance, in between it's a little dicier. But I don't think the funding piece is what is divided buying it in that sense.

I also think the part she said it reflects the person rather than the impairment is what we are trying with the that are mainstream for kids because they are not really looking at in assistive technology.

Somebody mentioned yesterday that the aging doesn't want to be thought of as disabled. Neither do kids. So what we are trying to do is find solutions for everybody. Especially with 1 to 1 deviced. That's driving just as much the invasion and change on the other end of the life spectrum

>>>MODERATOR: You have 45 seconds.

>>>MS. GOODWIN: That's the point I'm going to make. I'm going to cede the rest of my time.

>>>MS. BOGER: Going back to Daniel's point, it's true three‑fifths of the population is not older. But the two‑fifths that is has a lot more functional limitations. And that's a bigger chunk of the population. We con help them what assistive technology. Simple fact, it means enabling people to do what this point. AT is a very preliminary process. It doesn't mean supporting adults and it means we have to consider all spectrums of aging when we support all those technologies. I think we need to rethink the term assistive technology it's and just call it technology. By it's nature, it's assistive. I can't live without my calendar on my phone. I think it's a mentality we are designing special needs, and that's what the older adult population is going to do. It's going to make it more common. It's going to translate to all population. We need to start designing it as a standard rather than supporting aging as an exception. It's built into all the stuff we use every day. It's going to support all populations, including children and myself. Everybody.

We also think we have to combine the experience of aging boomers and the willingness to try new things with the fluency of the millennials. We have to bridge the grap with the people that understand the technology with the massive demand of the people that are willing to work with them to figure out wetter conclusions. I think to create assistive technology is to create for everyone and for the future of the human race.

>>>MODERATOR: Thank you both, Dan and Jen, for excellent arguments. I think we have heard we are all aging. And whether we call it assistive technology or technology, you may have turned a lot of heads in the room. We also learned technology needs to be about function as proposed to a group of people. With that in mind, a final vote. How many remain in favor? We need to focus on technology for aging? Most are on this half of the room. Was there an arrangement? And how many are against the resolution? How many of you remain undecided? How many of you changed since the beginning? Congratulations. You did an excellent job and we look forward to the where you go next

SPEAKER: Okay David Jaffe is going to take the topic of universal design. Take it away.

>>>MODERATOR:

We got the slides up? Welcome to the main event. This contest pits 2 members in a universal design debate. Be resolved that universal design is critical to technology development. Before we get started. I'd like to poll the audience. Who agrees with this proposition? Disagrees? And who is undecided?

Let me introduce this moon's contestants. Arguing for the resolution she founded Blue Ski Designs which helps people with disabilities do what they want. Combined the passion for people and design with engineering to create new products and possibilities. Graduated from the University of Virginia with a focus on rehab engineering

And on this corner of the stage from Buffalo, New York he is a program director in assistive and rehab technology. He earned his Ph.D. in engineering in the area of human factors. Please welcome Jim Lenker.

And now a few words about universal design. The design of practice and environments to be usable by people of all ages and abilities to the greatest extent possibility without the need for adaptation or specialized design

Be aware that universal design is 1 of 2 design possibilities. It is specifically directed to benefit people with disabilities. Where as universal design is, ACA or inclusive design benefits everyone, including people with disabilities

Here are designs for all, design for each, senses, error. Design for limited strength and stamina and design for body types.

On the benefit side, it may benefit many users. May cost little to add, row douched the need to add an assistive technology device if applied to a consumer product but universal design ‑‑ okay. May never suit all products, people, situations and preferences. There are complications and issues with cost and the design of specific products. So we are going to have the same flow of debate. As before. With Diane starting with the 3‑minute introductory argument for the proposition. I'll change places. Tell me when.

SPEAKER: I've been developing AT products for 25 years. Think about the diversity of the people you work with. Be it physical, cognitive, age, size, stature, tone, range of motion, mobility. We are not designing for the average Jane or Joe. And we are not designing a specific solution. Assistive technology products must address many needs. They must be useful to many people with disability. That's Principle One.

Think about the end users and other that living with the end users. That set it up and program it. That's you. The bus driver, teacher, friends. They have different abilities and limitations. AT must be simple and intuitive. That's Principle 3. It must be easy to use and understand. Considering universal design in the process improves the ult to use it without a doubt. The originators said assistive technology attempts to meet the specific needs of the individuals but the 2 fields meet in the middle. Sometimes the fields overlap. Like with speech recognition. And everyone benefits, like with Siri.

Usability considerations to the wider population. The principles of UD are equally relevant. Using UD deadlined encouraging assistive technology designer it's a checklist to make sure usability and other aspects of good design for everyone. We need to broadb the view to improve usability so more people benefit. If we want the products to be effective and usable to more people without disabilities, it's important we incorporate.

>>>MODERATOR: Next woe we will hear from Jim

SPEAKER: Keying asked to speak on the negative side on the proposition is like being invited to India to the audience to predisposed to favor your opponent and you have been asked to speak on behalf of violence. So just based on the way the resolution is worded and the tone of the resolution I agree. UD can support and benefit any design process. Theoretically and that's where we diverge on this matter. I submit there is a business argument against the resolution and a scientific argument. I'll start with the scientific argument since we are a scientifically minded organization.

First, if one is going to implicate it on a wide spread basis there needs to be a design we can follow so we can work today the same outcome in the same manner. As it is now, there are different definitions of universal design. There is my elevator pitch. But there are a couple of good frame works. The 7 principles from the late 90s. And the 8 principles. And so if we are going to move forward with systematic implementation, we need a common understanding of that. Further, we don't have a good scientific process to make that happen. If designers are going to follow a universal design process, they need tools and we need to be able to tell them how many population they are going to use. How many measurements tools are you going to use if you are going to reach this goal of universal design, and where will you conduct the test to make sure it's usable as possible to as many as possible? If we really want products working for people in their bailee lives we need to test in the community in daily lives to demonstrate that. And that's leading to the second argument which I'll discuss in my later ‑‑

>>>MODERATOR: Thank you Jim. Diane, are you ready for your additional arguments?

SPEAKER: I am. I'd like to share a couple of design examples to illustrate how following these principles can lead to a better products.

I designed a 1 button TV and VCR remote. The user interface was a big sweep and you could function macros to operate the VCR. The second hit you could stop the VCR, turn the TV off and the VCR off. Simple. You could also cycle it through the favorite channels. It was so easy. I was good for cognitive impairments and for older folks. The principle of ethical use said to avoid stigmatizing users and make it appealing to all. The spinner had 2 changeable overlays. A when you hit a switch they both spin and when it stops you see a number on the deck and 1 on the outer and you can play any game that uses 1 or 2 die. Everyone hits a switch to play. No one is stigmatized and it's appealing to all. I got a letter from a mom that said it was the first time the kids were able to play together. It moves the design to greater accessibility and usability by all and when people with and without disabilities can play together, everyone wins.

>>>MODERATOR: Jim are you ready? Go ahead.

SPEAKER: So my second area of argument against the resolution is, in addition to the scientific case is the business case against it. As a goal, everyone would want to achieve this but I think it's unfair to ask businesses to adhere to a resolution like this. Because implementing a design product is ‑‑ the perception is they know their products already. I think the perception is they know where they need to go with the products to maximize their sales.

 Assistive technology manufactures have been on the margins and working with then margins of profit and if universal design is going to require extra time, it's going to affect the bottom line. And no one on the business side is going to demonstrate there is going to be an additional return on the investment of design energy.

I feel there is a scientific argument that we don't have a design process and tools businesses need to uniformly follow this and I think secondly and think it leads to a business argument that it's unfair them to require them to follow them when we can't give them the tools they need.

>>>MODERATOR: Now is ‑‑ you get 3 minutes now to prepare your rebuttals. And while we are waiting on them to compose their notes. We'll have a vote. How many are in favor of the resolution? By a show of hands. How many against? Pretty even. How many changed their minds? How many changed from undecided to either for or against? How many changed from either for or against to the opposite? A little bit of each.

In this 3‑minute period, I want to thank the contestants from refraining from the use of foul language and not hitting below the belt. That's great.

SPEAKER: I thought we could use foul language. I was saving that for my final talk. Shit.

>>>MODERATOR: You are going to be first. The final rebuttals will be 3 minutes and we'll start with Jim are you ready?

SPEAKER: I got a minute.

>>>MODERATOR: He's feverishly writing. Diane looks calm and confident.

Okay Jim, you are up first with the rebuttal.

SPEAKER: And so, I guess my concluding remark would start with the fundamental notion that the burden of proof is on the fundamental side of the notion. And so with all due respect to mow opponent I'm not sure there has been enough of a case made to justify it's implementation. I was moved by the products examples from her experience and I have respect for that. But at the same time I think it was a universal design process in hindsight and the with the principles. Which is true. And at the same time, I got the feeling that the specific principles from universal design has been cherry picked for the purpose of that example. And my point is that we need to ‑‑ that was good, it worked. But at the same time, we are asking designers to be considering all areas of universal design and principles of universal design and it's my contention it's not an inexpensive process. They will perceive it to be time‑consuming and they need to consider cognitive needs to physical to sensory needs to community integration to societal norms and so on and that will be ‑‑ they will feel inadequately prepared to all with the design.

We need to be sure if we are going to ask all assistive technology businesses to do this, it's only fair we give them to correct tools so they can do it equally. Otherwise, we are do a disservice. Because they will follow design processes they think will be following UD principles but it can lead to different experiences with the processes of universal design and with that it could blow up in our faces because it could be different businesses have different experiences and it could have negative connotations. If lodge or even small businesses if they start having bad experiences and start losing money over that. Thank you

>>>MODERATOR: Thank you Jim. Diane, you have the final word.

SPEAKER: I first want to replay to a couple of things. Jim is an academic. Not a business man. Not designing products as I understand it. Design is an organic process and it's good to have guidelines. You have to ask will it suit people with different dexterity. With different cognitive and vision issues? With different mobility impairments? 1 handed, whatever? These are things we cross‑and these are part of the universal design guidelines if you look at them. We are designing for others in the world doing different activities creases different environments. I hope the design examples I shared elevated the benefit of applying universal design principles. Following the design can serve as a checklist. He talked about the standards he may and the policies an academic would apply. But we are talking about AT agreement. They should be concerned with universal design. AT designers dovetail nicely with universal design principles and guidelines and AT designers would do well to follow them. We want to make it possible for them to do what they want and more easily and independently. Break throws in mobile and independent technology are going in the right direction, encouraged by federal regulations unfortunately, we can't trust the regulations to stay user friendly. Someone may design to build a wall. But I digresses. Look at what Alexa is doing for smart access. It'sa some. I have to stop.

>>>MODERATOR. I need to thank both debaters for their thoughtful and entertaining comments. I'm glad the audience was entertained and I hope it got you thinking of both sides of the issue. It's important to consider designing for everybody. And important to riles as was said yesterday, each person is an individual with needs and preferences. And it's hard to design for a market of people that have different preferences in 1 products. I'm concerned that may add complexity to a product and make it heavier and more expensive as well. There are issues not mentioned today I think we should think about.

For example, if you are going to make a device in a color, what is the universal color everybody is going to like? There is none. There is that as well. There are limitations on bight seed.

Once again. We'll have a final vote. How many are in favor? Opposed? Undecided? Okay. And how many have changed from the beginning? Have you changed from against to for? How many? How many have changed from for to against? How many changed from undecided?

It's good that we have should some people making that decision.

I want to ‑‑ this isn't a win/lose thing

SPEAKER: Why are you pointing to me on the loss side?

>>>MODERATOR: I want to thank to debaters for their time and comments and the audience as well

SPEAKER: Before you leave, I have a couple of notes.

First. A big thank you for the debaters. Jennifer Boger, Daniel Cochrane, Diane Goodwin and Jim Lenker.

This is your RESNA. We are so thankful you are here and it's very appreciated.

The CEU code is 722.

We have a coffee break sponsored be Permobile and that's after this session. The awards lunch is going to be in the St. James ballroom. And don't forget Raj. The iPad fund raiser is going well. We have raised $1,825. Let's see if we can make it $2,000? What do you think?

The drawing will be held at 7:00 p.m. in the Jefferson ballroom. You must be present to win.

Thank you. This concludes this plenary.

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