Presentation type: 90 mins/2hr Instructional Session

A3: Assessment of Learning Powered mobility use – approach and application of the ALP. (90 mins)
Lisbeth Nilsson

B3: Finding the best available evidence -fast: A brief refresher on finding & evaluating research for the busy clinician. (90 min LIVESTREAM INTERACTIVE SESSION)
Fi Graham

D4: 3D Printing for Seating and Mobility Dispensaries - Design and Manufacturing Within a Clinic Based Format. (90 mins)
Mr. Richard Pasillas, Mr. Jeremy Cantu

B9: From idea to innovation – a practical session on problem solving, design, disability and innovation. (2 hours LIVESTREAM INTERACTIVE WORKSHOP)
Tim Adlam

A12: Supporting psychological wellness in children and families with disabilities / medical conditions: reflections from paediatric practice. (90mins LIVESTREAM INTERACTIVE SESSION)
Nicola McDonald, Helen Thorne

B10: Moving towards guided self-assessment and personal budgets for seating and mobility equipment: Through the lens of Enabling Good Lives. (90m mins LIVESTREAM INTERACTIVE SESSION)
NZ Ministry of Health, Mana Whaikaha and Enable NZ.

C12: Exploring power mobility use – a learning approach for children and adults with cognitive impairment. A focus on the early phases of the learning process. (90 mins)
Lisbeth Nilsson

A3: Assessment of Learning Powered mobility use - approach and application

Lisbeth Nilsson
Associated to Lund University, Sweden
Occupational Therapists

Learning objectives

1. Discuss why it is important to apply the full ALP with instrument and facilitating strategies
2. Explain important aspects of how to apply the facilitating strategies
3. Apply the ALP approach to another activity involving tool use learning

Abstract

The learning approach Assessment of Learning Power mobility use (ALP) was developed for power mobility intervention with children and adults with multiple and complex disabilities involving mild to profound cognitive impairment. The ALP tool includes the ALP-instrument for assessment of the eight-phase learning process, and the ALP-facilitating strategies for guidance of approach for each phase and stage in the process. The instrument covers the full range of observational categories from novice to expert performance, thereby providing unique information necessary for assessing actual phase and stage of learning, also in early learners. The facilitating strategies informs selection of intervention approaches offering challenges matching the learners actual phase of tool use understanding. Using the full ALP is emphasized as a pre-requisite for best possible learning.

The ALP approach involves facilitator and learner in a reciprocal process of exploration, mutual interaction and learning. The facilitator explores the needs, characteristics and performance of the learner, as well as how to individually apply the ALP tool; and the learner explores how to interact with their physical and social environment in a new situation, as well as exploring what effects they get from active exploration of using a powered mobility tool. Video recordings will be used to illustrate one child's progress through the process of learning powered mobility use. Important aspects of the facilitating approach and possible outcomes of tool use learning in powered mobility are presented.

The identified learning process has gained recognition as being applicable with other assistive technologies. One example is the adaptation ALP for AAC (Alternative and Augmentative Communication) which will be shown. The generic ALP tool, version 3.0 is presented and exemplified by suggesting what performance is observed in the phases of learning for simple tools such as a spoon for self-feeding and complex tools such as applications for smart phones.

References:

1) Nilsson, L. Driving to Learn. The process of growing consciousness of tool use – a grounded theory of de-plateauing [dissertation]. [Lund, Sweden]: University of Lund; 2007. Available at: https://lup.lub.lu.se/search/publication/548098

2) Nilsson L. Powered mobility for people with profound cognitive disabilities leads to developing occupational performance. British Journal of Occupational Therapy. 2019;82(11)655–657.

3) Nilsson L., & Durkin J. Assessment of learning powered mobility use—Applying grounded theory to occupational performance. Journal of Rehabilitation Research and Development. 2014;51(6):963–74.

4) Nilsson L., & Durkin J. Powered mobility intervention: understanding the position of tool use learning as part of implementing the ALP tool. Disability and Rehabilitation: Assistive Technology. 2017;12(7):730-739.

5) Svensson, E. & Nilsson, L. Inter-rater reliability of the assessment of learning powered mobility use, version 2.0, when applied with children and adults engaged in Driving to Learn in a powered wheelchair. Australian Occupational Therapy Journal. 2021; 68(2): 115-123.

Presenter Biography

Lisbeth Nilsson is a PhD and specialist in occupational therapy and associated researcher of Occupational Therapy and Occupational Science at Lund University, Sweden. She developed the intervention Driving to Learn™ in powered wheelchair for people with profound cognitive disabilities. Her special interests are tool use learning and assessment and facilitation of the learning process. She and her collaborator Durkin, PhD and OT, UK, developed the Assessment of Learning Powered mobility use (ALP).

Her current focus is implementation of the ALP tool in powered mobility intervention and other fields of assistive technology. She is actually collaborating and carrying out research nationally and internationally with OTs, PTs and SLPs; and she has presented and published her findings worldwide since 1998.

B3: Finding the best available evidence -fast: A brief refresher on finding & evaluating research for the busy clinician. (90 min LIVESTREAM INTERACTIVE SESSION)

Fi Graham

Participants will:

- Draft a clinical question that results in focused and accurate search results.
- Identify which (free) database best answers their search question.
- Identify a structured approach to reduce or increase their search results without imposing a bias on search results.

This 90 minute workshop will step participants through articulating clinical question of the research evidence and conducting a simple database search, in ways that maintain objectivity in the search results. We will recap on strategies that avoid searching ways that confirm our biases (e.g, avoiding the 'how do I find evidence that proves what I do is the best approach' type of searching.

Participants will require pen and paper, and would benefit from either having two screens available, or be familiar with how to split their screen (so that the presentation platform and a database platform are simultaneously in view). There will be some small group activities as well as individual tasks. This is not a sit and listen session!

Presenter biography

Fiona Graham is a Senior Lecturer with the University of Otago teaching postgraduate interprofessional rehabilitation. Her research areas include telehealth in rehabilitation, knowledge translation and participation focused interventions, particularly for paediatric populations. She resides in Christchurch, New Zealand.

D4: 3D Printing for Seating and Mobility Dispensaries - Design and Manufacturing Within a Clinic Based Format

Mr. Richard Pasillas, Mr. Jeremy Cantu, Mr. Victor Carvente
CUSHMAKER 3D, Santa Fe Springs, USA
Mr. Richard Pasillas, Owner/President
Mr. Jeremy Cantu, Quality Control & Production Supervisor
Mr. Victor Carvente, 3D Printing Specialist

Learning objectives

Goals: To share knowledge and firsthand experience regarding an emerging technology that will likely dominate all custom fabrication seating and mobility services in the years to come. To guide the audience to an awareness that portions of this technology are open-source, accessible and within a budget for anyone wishing to venture forward.

Objective 1 - Describe the nature and mechanism of 3D printing technologies as applicable to the seating and mobility industry.

Objective 2 - Spell out which tools or assets are most accessible for expediting mass customization.

Objective 3 - Actuate a plan to integrate 3D printing technologies into one's own workplace or ad hoc field clinic. .

Abstract

As clinicians and fabricators the biggest challenge in dispensing complex rehab services is to problem solve and produce one-of-a-kind solutions, in a timely and efficient manner. Typically, we have numerous technical and commercial avenues to address these challenges. Still, we ultimately must question whether the funding source will provide adequate reimbursement for our proposed one-off solution and whether time constraints, staffing limitations or location circumstances are conducive to the drafted proposal.

Over the past few decades, 3D printing has emerged as a highly viable fabrication tool for one-of-a-kind prototypes and functional end products. In fact, 3D printing technologies have proven to reduce fabrication costs to agile minimums: in terms of labor, materials, floor space, tooling and time to delivery. An even bigger advantage to this technology is that, once a solution is dispensed, its digital profile remains a part of an ever growing library of proven solutions. Subsequently, these archived solutions can be: re-dispensed, further embellished, proportioned to new anthropometrics or even repurposed from a more expedient starting point. More importantly, 3D printing technologies also represent the ideal tool for customization on a broader scale of uses, disciplines and departments. (1)(4)

This didactic presentation will detail numerous aspects in which 3D printing technology is used to dispense a wide range of seating, positioning, mobility, ADL and other related components. Numerous examples will be available for audience members to keenly inspect and manipulate first hand.

The goal for this presentation is to spread awareness and technical insight for these easily accessible, open-source and office compatible fabrication tools. The presenters will highlight 3D printed seating/mobility components from workshops and clinics around the world. Additional discussion will include recommendations for what audience members should look for when making purchasing decisions regarding 3D printers, drawing/slicing software and feedstock. (2)(3)(5)

Content references:

1) The Ten Principles Of 3D Printing 1.https://bigthink.com/experts-corner/the-ten-principles-of-3d-printing
2) 3D Printing Introduction for Occupational Therapists and Students 2. https://tinyurl.com/yy47vgu8
3) A 3D Printed Seat With A Cellular Structure That Molds to Your Butt 3. https://tinyurl.com/yyb64jbd
4) Computer-aided Product Design With Performance-Tailored Mesostructures 4. https://tinyurl.com/y2xxs4q5
5) 3D Printing and Developing Patient Optimized Rehab. Tools (Port) - A Technological Leap. 5. https://tinyurl.com/y5knuo8j

Presenter biography

Richard Pasillas: cushamsterrick@gmail.com, CUSHMAKER 3D. USA

Owner/President of CUSHMAKER 3D. Has spent 42 years in the complex rehab industry as a custom seating specialist. Mr. Pasillas began investigating 3D printing as a seating & mobility fabrication tool in 2006 and produced a proof of concept wheelchair seat cushion, using SLS technology, in February 2013. Mr. Pasillas has designed 90 3D printed products and has delivered over 3000 of these components to wheelchair dependent consumers since 2014.

Jeremy Cantu: jeremyscottcantu79@gmail.com. CUSHMAKER 3D. USA

Quality Control & Production Supervisor for CUSHMAKER 3D. He is responsible for stress testing and quality assurance standards of all deliverable products. He is also involved in product research & development and currently supervises 6 highly specialized fabrication technicians. Mr. Cantu has 23 years experience in DME and Complex Rehab industry and has previously assisted with Lecture presentations at OSS Australia, 2019 and ISS Vancouver, 2020.

B9: From idea to innovation - a practical session on problem solving, design, disability and innovation. (2hr INTERACTIVE SESSION)

Dr Tim Adlam

Everyone is a designer – we all solve problems and invent solutions. It's what humans do - together. Design is a collaborative activity where no one person has all the answers. This workshop will build on the plenary talk and practically explore how to solve problems and design solutions. We will explore how design thinking can be applied to problems in different contexts and do some designing together in small groups.

Learning objectives

Attendees should be able to:

1. Describe three approaches to design that are relevant to designing for people with disabilities
2. Apply design thinking to solving an everyday problem
3. Evaluate the success of a design

Some relevant and interesting references:

1) Orpwood, Roger. (2009). "Design methodology for aids for the disabled". Journal of medical engineering & technology. 14. 2-10. 10.3109/03091909009028756. http://dx.doi.org/10.3109/03091909009028756
2) Pullin, Graham. (2011). "Design Meets Disability", MIT Press, ISBN 9780262516747, https://mitpress.mit.edu/books/design-meets-disability
3) Holloway, C., 2019. "Disability interaction (DIX) a manifesto". Interactions, 26(2), pp.44-49. http://dx.doi.org/10.1145/3310322
4) Bound K, Thornton I. (2012). "Our frugal future: lessons from India's innovation system". NESTA. ISBN 978-1-84875-138-5 https://media.nesta.org.uk/documents/our_frugal_future.pdf

A12: Supporting psychological wellness in children and families with disabilities / medical conditions: reflections from paediatric practice. (90min INTERACTIVE SESSION)

Nicola McDonald, Helen Thorne
CDHB, Christchurch, New Zealand
Nicola McDonald, Child Health Psychologist
Helen Thorne, Senior Physiotherapist and Physiotherapy Team Leader, Canterbury Child Development Service

Learning objectives

Participants will:

1. Strengthen their understanding of the psychological and emotional challenges children with disabilities / chronic medical conditions may experience.
2. Strengthen their understanding of the family experiences of disability/chronic medical conditions, especially at important points of the care journey.
3. Learn practical ways to support children and families in this sphere and when to seek extra support around psychological and emotional wellbeing.

Abstract

Children with disabilities / chronic medical conditions and their whanau face a unique set of challenges. In this presentation common psychological and emotional difficulties experienced by this population will be discussed. We will explore the impact these can have on children and their whanau, and the complex interactions between psychological and physical factors (including pain). We will talk about issues arising at different life stages including when children transition into wheelchairs, trial new equipment or experience progression of their condition. The concepts of chronic sorrow and grief will be used to explore family journeys.

Together we will reflect on some case examples and discuss practical strategies for supporting the psychological wellbeing of children and families we are working with. Indicators for seeking further support for families will also be outlined.

Content references:

1) Brown J (2013) Recurrent grief in mothering a child with an intellectual disability to adulthood: grieving is the healing Child and Family Social Work 113-122

2) Coughlin M.B. and Sethares K.A. (2017) Chronic Sorrow in Parents of Children with a Chronic Illness or Disability: An Integrative Literature Review Journal of Pediatric Nursing 37:

3) Rudebek, S. (2020). The psychological experience of children with cerebral palsy. Paediatrics and Child Health, 30 (8), p. 283-288

4) Yehene, A. Ben-Valid, S., Golan, S., Bar-Nadav, O. & Landa, J. (2019): Factors associated with parental grief reaction following pediatric acquired brain injury, Neuropsychological Rehabilitation.
5) Young S, Shakespeare-Finch J, & Obst P (2020) Raising a child with a disability: a one-year qualitative investigation of parent distress and personal growth. Disability & Society 35 (4), 629-653

Presenter biography

Nicola McDonald has been a Child and Family Psychologist in Christchurch for nearly ten years, the last five of which have been in Christchurch Hospital's paediatric department as a Child Health Psychologist. She primarily supports children and young people experiencing psychological difficulties which link to their medical conditions/disabilities. She provides assessment and individual, family and group intervention. Nicola has special interests in anxiety and pain and works closely with colleagues from the Child Development Service. She holds a Masters of Child and Family Psychology (First Class Hons) and lectures on Canterbury University's Child and Family Psychology Programme.

Helen Thorne is physiotherapy Team Leader at the Child Development Service, CDHB. She has 20 years' experience working with children and adults with health conditions and disabilities, and has a Post-graduate Diploma in Rehabilitation. Helen provides therapy, equipment and seating solutions for children/young people newborn-16 years of age, working within an interdisciplinary team. Helen supports staff within CDHB Child Development Service as well as West Coast DHB and local adult services, providing supervision, teaching and advice, especially in the areas of physiotherapy management, complex seating, and lying supports. She is a member of the Enable NZ panel reviewing clinician's case studies for accreditation in Wheeled Mobility and Postural Management.

Helen and Nicola are both passionate about working with children/young people and their families, and supporting them to achieve their goals.

B10: Moving towards guided self-assessment and personal budgets for seating and mobility equipment: Through the lens of Enabling Good Lives. (90 min INTERACTIVE SESSION)

Cath Williams, Portfolio Manager Disability Directorate, NZ Ministry of Health
Rachael Burt, Director, Disabled People and Whanau Supporting Mana Whaikaha
Natasja Chapman –Operations Director, Enable New Zealand

Presenter biography

Cath Williams, Portfolio Manager Disability Directorate, Ministry of Health. Being an Occupational Therapist has informed my work as a Manager of Rehabilitation services and Assistive Technology services, in Australia, over 30 years.
Since returning to New Zealand, 8 years ago, I led the design, procurement and implementation of ACC's Disability services, Living my Life. I am currently the Portfolio Manager managing the Equipment and Modification Services in the Disability Directorate, Ministry of Health.
I believe that people are the holders of knowledge about what is important to them to achieve the outcomes needed to engage in their chosen life roles. I am committed to the removal of barriers to participation and the rollout of Enabling Good Lives – Disability transformation.

Rachael Burt, Director, Disabled People and Whanau Supporting Mana Whaikaha
Tēnā tātou katoa,
I'm Rachael the Director of Mana Whaikaha. Mana Whaikaha is the prototype in the MidCentral region that was co-designed with community to prototype a transformed approach to the Disability Support System, based on the Enabling Good Lives Vision and Principles.
Prior to Mana Whaikaha, I have had the honour of working in the Disability Sector for over 20 years in varying roles including working in Enable NZ, Needs Assessment and Service Coordination and a National Disability Support Provider.
As someone who identifies as a Disabled Person, I have been excited to support the development of removing environmental barriers, through and Enabling Good lives approach, working towards a fully inclusive society where disabled people are leaders of their own lives.

Natasja Chapman has been with Enable New Zealand since August 2017. Prior to taking up her current role as Director, Operations, she held the position of Enable New Zealand's Service Manager for Housing. Natasja has previously held positions at the Ministry of Business Innovation and Employment and also at Immigration New Zealand Palmerston North, where she held several roles including Operations Manager for four years. She has also been part of the project considering how Equipment can be accessed via personal budgets, in the context of transforming the disability sector.

C12: Exploring power mobility use – a learning approach for children and adults with cognitive impairment

Lisbeth Nilsson
Associated to Lund University, Sweden
Occupational Therapists

Learning objectives:

1. Discuss why it is a powerful activity to explore power mobility use
2. Explain possible benefits of exploring power mobility use ahead of ability to drive goal-directed
3. Motivate application of the ALP tool for assessment and facilitation of tool use learning

Abstract

If children and adults with multiple and complex disabilities involving cognitive impairment, are given opportunities to explore power mobility experiences, their consciousness of tool use can grow. Power mobility devices are powerful mediators of experiences promoting development and learning. Exploring possible effects of acting on joystick or switch/es operating the device, offers the user a variety of effects, sensations and learning experiences impacting body and relations to environment.

The ALP tool originates from research projects carried out by Nilsson (Driving to Learn) and Durkin (Moving forward). Both projects focused on gaining understanding of the learning process and how to facilitate tool use learning through power mobility experience. The ALP tool includes the ALP-instrument for assessment of the eight phases and three stages in the learning process, and the ALP-facilitating strategies guides the approach for each phase and stage in the process. The ALP is process-based as it connects assessment of a user's actual phase in the tool use learning process with appropriate facilitating strategies for each phase and stage. Assessment and facilitation is carried out in real context and set up for each individual's abilities, needs and possible motives. Assessment is based on observation and interpretation of learner performance in the moment and facilitation is aiming at providing the just right challenge at each moment of an intervention situation.

Elucidating possible learning benefits in earlier phases of the learning process can assist clinicians who wish to use powered mobility as a learning experience. The learning approach Assessment of Learning Powered mobility use supports recognition of minor changes in performance indicating small successes and steps forward ahead of reaching goal-directed driving. It also guides how to facilitate this progress at each of the phases in the process. Using the full ALP is emphasized as a pre-requisite for successful outcome.

References:

1) Nilsson, L. Driving to Learn. The process of growing consciousness of tool use – a grounded theory of de-plateauing [dissertation]. [Lund, Sweden]: University of Lund; 2007. Available at: https://lup.lub.lu.se/search/publication/548098

2) Nilsson L. Powered mobility for people with profound cognitive disabilities leads to developing occupational performance. British Journal of Occupational Therapy. 2019;82(11)655–657.

3) Durkin J. Developing powered mobility with children who have multiple and complex disabilities: Moving forward [dissertation]. [Brighton, UK]: University of Brighton; 2006.

4) Nilsson L., & Durkin J. Assessment of learning powered mobility use—Applying grounded theory to occupational performance. Journal of Rehabilitation Research and Development. 2014;51(6):963–74.

5) Nilsson L., & Durkin J. Powered mobility intervention: understanding the position of tool use learning as part of implementing the ALP tool. Disability and Rehabilitation: Assistive Technology. 2017;12(7):730-739.

6) Svensson, E. & Nilsson, L. Inter-rater reliability of the assessment of learning powered mobility use, version 2.0, when applied with children and adults engaged in Driving to Learn in a powered wheelchair. Australian Occupational Therapy Journal. 2021; 68(2): 115-123.

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Lisbeth Nilsson is a PhD and specialist in occupational therapy and associated researcher of Occupational Therapy and Occupational Science at Lund University, Sweden. She developed the intervention Driving to Learn™ in powered wheelchair for people with profound cognitive disabilities. Her special interests are tool use learning and assessment and facilitation of the learning process. She and her collaborator Durkin, PhD and OT, UK, developed the Assessment of Learning Powered mobility use (ALP).

Her current focus is implementation of the ALP tool in powered mobility intervention and other fields of assistive technology. She is actually collaborating and carrying out research nationally and internationally with OTs, PTs and SLPs; and she has presented and published her findings worldwide since 1998.