Switch on learning is a presentation that will take you from assessment to the IEP. From this session you to learn to assess for appropriate switch use, see and touch switches that can access toys, computers, communication devices, environmental controls, recreation and mobility options and learn strategies that will make your students successful. First this session will look at the what/why/when/where of switches, then assessment, types of switches, strategies for success, an action plan, IEP recommendations and resources. This handout is available in MP3 format at [www.cindynankee.wikispaces.com](http://www.cindynankee.wikispaces.com).

**What**
Wikipedia defines a switch as a mechanical device used to connect and disconnect a circuit at will. A switch may be used for access to an activity, keep in mind the switch is secondary to the activity. A switch is not the activity.

**Why**
A switch may be used because direct selection or assisted direct selection of a device or activity is not the best or most efficient access.

**When**
A switch may be used for play to activate toys, computer games or communication devices for social interaction. They may be used in education with the computer to complete assignments or answer questions through a communication device or speech program such as SDP. Switches may be used for recreation and the arts. It may be used at home for all of the above including use with environmental controls. Switches may be used activate powered mobility.

**Where to Start**
- Obtain knowledge: attend a training, read, check out switches from a Loan Library.
- Consult with team: OT, PT, SLP, Teachers, AT
- Rule out direct accessibility
- Assessments
- Trial Use
- Access and mounting

**Assessment**
Through assessment we want to find the most efficient and fastest accessibility that requires the least amount of effort. We want to be able to select an appropriate switch and we want to be able to locate and mount the switch at a point that requires the least effort. We need to know the task requirement of switch or switch activity. Will the student/client be able to locate the switch, are they capable of a momentary hit, a sustained hold as with a wheelchair, a quick release as in stopping a wheelchair, are they able to visually, cognitively and motorically time a switch hit as need for a scanning.

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ASNAT  Assessing Students Needs for Assistive Technology  [www.wati.org](http://www.wati.org)  The ASNAT is an assessment manual developed by WATI (Wisconsin Assistive Technology Initiative) The ASNAT follows the SETT (student, environment, task, tool) process. The manual includes chapters specific to need, assessment forms, environmental observation form, AT continuum, and a trial use guide.

**Every Move Counts** by Jane Korston is a non-traditional, sensory based communication assessment and intervention strategy appropriate for the development of communication in individuals having sever multiple differences, developmental differences and/or autism.

**Stages** by Madalaine Pugliese, [www.cambiumlearning.com](http://www.cambiumlearning.com) is an alternate assessment framework to help identify learning needs, assess skills, report progress over time and select appropriate educational software for learners with special needs.

**Sensswitcher** at [http://www.northerngrid.org/ngflwebsite/sen/intro.htm](http://www.northerngrid.org/ngflwebsite/sen/intro.htm) is a suite of programs designed to help teach ICT (information and communication technology) skills to people with profound and multiple learning difficulties, those who need to develop skills with assistive input devices (switches) and very young children new to computers.

**Types of Switches**
- **Mechanical** have movable parts requiring pressure to connect the circuit.
- **Mercury** or tilt switch is activated by the movement of mercury within a switch.
- **Pneumatic** is sip and puff often used for W/C mobility.
- **Electronic** switches require power and are “capacitive” or activated by skin touch.
- **Proximity** switches have an adjustable range that may activated by a body part near but not necessarily touching touching the switch.
- **Fiber Optic** switch is a light beam and requires very minimal but specific movement.
- **Infra-red beam** switch is a light beam.
- **Sound activated** switch such as the clapper.

**Connecting Switches**
Mechanical switches will connect directly to a device, though often you may need an adapter to go from 1/8” to 1/4” or the other way around. Adapters are available at Radio Shack. Battery operated devices may be adapted with a battery interrupter which may be purchased from Ablenet or homemade, just search Google for home made battery interrupter for directions. In order to use a switch with the computer, a switch interface box is required, most are now USB connections and have several programmable ports for single click, double click etc. STAGES assessment serves as a good resource for switch software at various levels. A switch may be connected to the wheelchair again you may need a switch interface or a mouse emulator.
Switch Access

Access is the means by which a person controls an assistive technology device. Computers, toys, EADL’s may all be accessed by a switch. A power wheelchair may be accessed by a joystick, proximity or electronic switches. A communication device may be accessed by switch scanning with one or more switches.

The ideal location for mounting or positioning a switch for physical access would require a small, voluntary, controlled movement that does not illicit reflexes. The hierarchy of switch location generally would start with the hand, then head, including jaw, check, eyebrow, eye blink, mouth, then feet and other upper or lower extremity location such as knee. In order to assess for the optimum location for a switch, client/student positioning must first be considered. Be sure to consult with OT and PT for positioning considerations. Karen Kangas is an excellent resource for positioning for task performance.

A switch may be mounted to a wheelchair, headrest, armrest, footrest, on or in a lap tray. Switches may be mounted or positioned using dycem or shelf liner, velcro, and mounting brackets. There are various brackets on the market for mounting switches, one example is the Slim Armstrong. It is beneficial to be prepared with a small toolbox including allen wrenches, screw drivers, velcro, dycem, a few nuts, bolts, screws and batteries.

Success Strategies

Team approach/communication: meet frequently with team members, share the knowledge, use the same language, keep a journal, involve the family.

Engaging activity: remember the switch is not the activity, make it interesting, know your students interests. Activity or type of switch use includes: cause and effect, choice making with single switch use, two switch or multiple switch use, scanning with one or two switches. There are several variations to scanning including automatic, step, inverse, linear, row-column, block and frequency.

Environment: arrange and/or sabotage the environment to encourage and motivate switch use.

Trial & error: try various switches from a loan library before purchasing. Try positioning the student/client in various ways for optimum motor control and try various positioning of the switches. Use the WATI Trial Use Guide. If at first you don’t succeed, try, try again.

Practice & repetition this will take time. Try, try again.

Resources Use the people around you, your team, seek out loan libraries, company trainings/representatives, webinars.
**CCE Creating Communication Environments:** CCE is a training put on in Wisconsin by WATI. CCE teaches the

- **Prompt Hierarchy**
  1. Environmental cue
  2. Open Question
  3. Prompt or Request
  4. Full model

- **Descriptive feedback**
- **Pause for response time**

**Action Plan/Goal setting**

**Formula**

- **Time Frame:** In 36 weeks
- **Conditions:** Given fiber optic switches on a tray array
- **Behavior:** Eric will use an onscreen keyboard to complete writing assignments
- **Criterion:** at the 5th grade English level

**Resources:**

- Purcel, Sherry L., Ph.D., CCC-SLP and Debbie Grant, M.A., CCC-SLP (2007) *Using Assistive Technology to meet Literacy Standards (Grades K-3, 4-6, 7-12)*, Attainment Company, Inc.

**Website resources**

- [www.aacintervention.com](http://www.aacintervention.com) Julie Maro and Dr. Caroline Musselwhite
- [www.atilange.com](http://www.atilange.com) Michelle L. Lange, OTR, ABDA, ATP Access to Independence
Jim Luther’s Adapted Computer Access Materials for Windows

Linda J. Burkhart

Cindy Nankee, OTR, ATP, Wisconsin Assistive Technology Initiative

Dan Herlihy author of Intellitools Extreme

Inclusive Company free downloads

SENSwitcher - a suite of programs designed assess and teach skills with assistive input devices.

A resource of fun ideas and ‘assistive technology’ aimed at moderate to severely learning/physically disabled people. Switch software downloads.

Article: Assessing, Teaching and Measuring Choice Making Skills of Students with Significant Disabilities using SoftTouch Steps to Learning programs and IntelliKeys Keyboard (by SoftTouch company)

The SpecialEffect GameBase contains a range of PC-based computer games and leisure software. We’ve been finding out if and how each game can be played using access technology like switches, headpointers and adapted keyboards. But that’s not all. We’re the driving organization behind the StarGaze project, which aims to provide gaze-controlled technology.

FREE software for MACINTOSH only (OS 9 and OS X).

AbleNet
AMDi, Advanced Multimedia Devices, Inc.
Attainment Company
ASL Adaptive Switch Labs
Don Johnston
Enabling Devices
EnableMart
Inclusive TLC
IntelliTools
Cambium Learning

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