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A Customized Switch Holder: One Solution to Switch Placement Problems

A switch may be the only means of interacting with the environment. This small piece of equipment plays a very important role in the child's life. To insure that the child is able to respond optimally with the switch, several factors need to be taken into consideration. The type of switch to be used will need to be determined according to the child's abilities and interests. Also the child's position plays a major role in his success in accessing a toy or the computer. And last, but not least, is the placement of the switch. Placement is one factor which is often overlooked, or not emphasized enough in an overall view of the child's use of the technology.

Switch placement may be difficult to determine for children with severe disabilities. Many children access the computer while positioned in their wheelchair. While the monitor is placed at eye level, the child must concentrate on activating a switch. Even though a switch can be secured to a wheelchair in a variety of different ways to allow switch access for various body movements (e.g., head, leg, or foot) a majority of children use their arms, hands, or fingers for switch access. Switch mounts are available commercially for head or chin positioning, which can be attached easily to the child's wheelchair. Various materials are available for securing a switch flat on a table or wheelchair tray. Dycem, suction cups, duct tape or even masking tape can serve the purpose in securing a switch temporarily on a surface for the child. However, children who exert a lot of pressure may still move a switch slightly out of place with these materials. A more secure placement is then needed to hold the switch in a stable and reliable position.

A customized switch holder, such as the one designed by ACTT may be the solution. The design is an adaptation of a homemade switch holder used by an ACTT site during a follow-up visit by ACTT staff members. Made out of durable material, this holder not only secures the switch in place, but can also serve as an arm rest for the child who has difficulty lifting his hand onto and off of the switch. It provides an elevated surface so only slight movement is needed to activate the switch. The holder can also provide a surface that can be identified tactility by a child with visual impairment. When he feels the familiar switch holder and his switch, he knows that it is time for computer activities.

Switch placement is also an important consideration for children with mild disabilities who perform developmentally in the birth to three age range. A switch may be the best method of input to the computer; however, children who have the physical ability to handle the equipment tend to become distracted with moving the switch and switch cords. The customized holder provides space underneath for hiding cords and provides a stable position for the switch, eliminating the distraction of playing with the tape, picking up the switch or sliding it across the tray or table. The secure switch placement allows the child to concentrate on the child's reaction to the toy or software.

With a little help from a carpenter or handyman, an inexpensive switch holder can be made from a scrap plywood. The holder can be designed to fit a tread switch of any shape or size. The customized holder can be placed on any table or wheelchair tray, and securely attached with clamps, if needed. This secure placement allows the child to concentrate on the activity and the interventionist to concentrate on the child's reactions to the toy or software.

With a little help from a carpenter or handyman, an inexpensive switch holder can be made from scrap plywood. The holder can be designed to fit a tread switch of any shape or size. The customized holder can be placed on any table or wheelchair tray, and securely attached with clamps, if needed. This secure placement will then allow the child easy access to operate a toy, tape recorder, or a computer. ACTT has used these customized holders with three different switches and has found them to be very helpful for many young children with differing abilities.

Making a Customized Switch Holder for a Large Round Switch



Front of Switch Holder

Materials

- Scrap 3/4" plywood (preferably AC grade)
- Circular saw
- Saber saw
- Router with rabbeting and rounding bit
- Sand paper
- Varnish or paint
- Large round switch, such as Big Red Switch

Procedures

1. Study the application of the switch. Determine how to work the wood to adapt it to the switch.
2. Cut the 3/4" plywood to fit securely on top of the child's wheelchair tray.
3. After determining the correct placement of the switch, trace the switch onto the plywood, leaving a 3/8" lip on the inside.
4. With the saber saw cut the traced circle. Using the router with the rabbet bit, make a ledge to hold the switch so that it will be recessed. Rout around the switch's shape. Remove the unnecessary wood with the router.
5. Place the switch into the hole. Check for adjustments. Remove the switch and make final adjustments.
6. Rout an additional straight line underneath the plywood so the switch's cord can pass through. For a smooth outer edge, use the router and rounding bit around the outside edge of the holder.
7. Sand the holder till smooth. Paint or varnish the holder.

Application

Insert the switch into the holder. Place on child's wheelchair tray. Use a portable clamp to secure the switch holder if necessary. Plug the switch interface box into the ADB port of the computer and the switch into the switch interface box. The switch is now ready to use.

Variations

Any type of switch may be used. Just make the cuts to fit the switch. When painting or varnishing the holder, be creative and include the child's name, graphics, and/or a favorite sticker.

Summary

An important consideration when using switches with young children is secure placement of the switch on a wheelchair tray or table. A customized switch holder can provide a suitable placement for children with severe physical disabilities, as well as those with mild developmental delays. Made out of inexpensive scrap plywood, the holder can be designed to fit a switch of any shape or size. Applications are not limited to young children or certain disabilities. A person of any age who uses a switch and needs secure placement on a wheelchair tray or table could benefit from a customized switch holder.

Hutinger, P., Johanson, J., Robinson, L., & Schneider, C. (1998). *Building interACTTive futures*. Macomb, IL: Macomb Projects.