



UNIVERSITY OF
MARYLAND



Access Methods and Strategies

EDUC 477/6890

Devices Part III-A



Access Methods and Strategies



Access Levels.



Access levels

- There are essentially **two levels** of access when using assistive devices:
 - **primary** and
 - **secondary** access

Primary

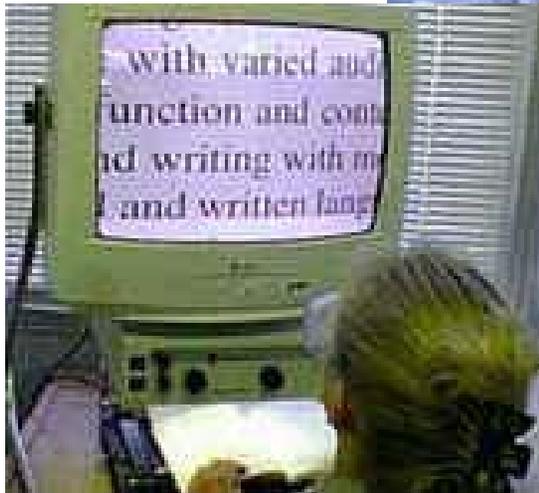
Access to the technology itself.



- Primary access is concerned with **how** the person(s) will be able to access a piece of technology.
- Computer input is typically accomplished with hands on a key board
- Examples of a primary access
 - a person who has limited use of their hands and arms use a mouthstick to type on a keyboard
 - or using a simple switch to select from items on a screen. (i.e., devices that provide access to the technology)

Secondary

Using a piece of technology provides the person with access to some other activity of daily living.



- Secondary access is concerned with **what the person is able to do** once they are able to use a specific piece of technology.
- to accomplish secondary access issues such as writing, editing, and printing a document.
- In other words, what does the technology give this person?
- Examples
 - using a simple communication board to carry on conversations with friends, solicit information from others, communicate wants and needs,
 - using a text magnifier to enable the reading of a book.



Access Types

- There are two types of access that a person can use to achieve primary access:
 - **Direct selection**
 - **Indirect selection** (or scanning).
- Each method:
 - has many different types and forms.
 - places a different set of demands on the user.



Direct Selection

- We all use direct selection throughout our lives.
- It is always the option of choice because it is:
 - easier to use.
 - faster.
 - more consistent.
- Using direct selection, the person points to, or in some other way (for example, eye gaze) indicates, their choice from an array of possible options. The process of selection is independent, and the user can randomly choose any item from the selection set. This form of access is epitomized by the AT&T slogan, "Reach out and touch someone."



Types or forms of direct selection



- You and I use direct selection every day when we:
 - type on a keyboard.
 - point to an item on a restaurant menu.
 - dial the telephone number of a friend.
- Persons with disabilities sometimes require assistive technology devices to assist them in using direct selection

Direct Selection

- Here, the man is using an extension device (an optical head pointer) to select a message on a communication device



Direct Selection

- In this photo, the man is using his eyes to indicate what he wants to order for dessert.



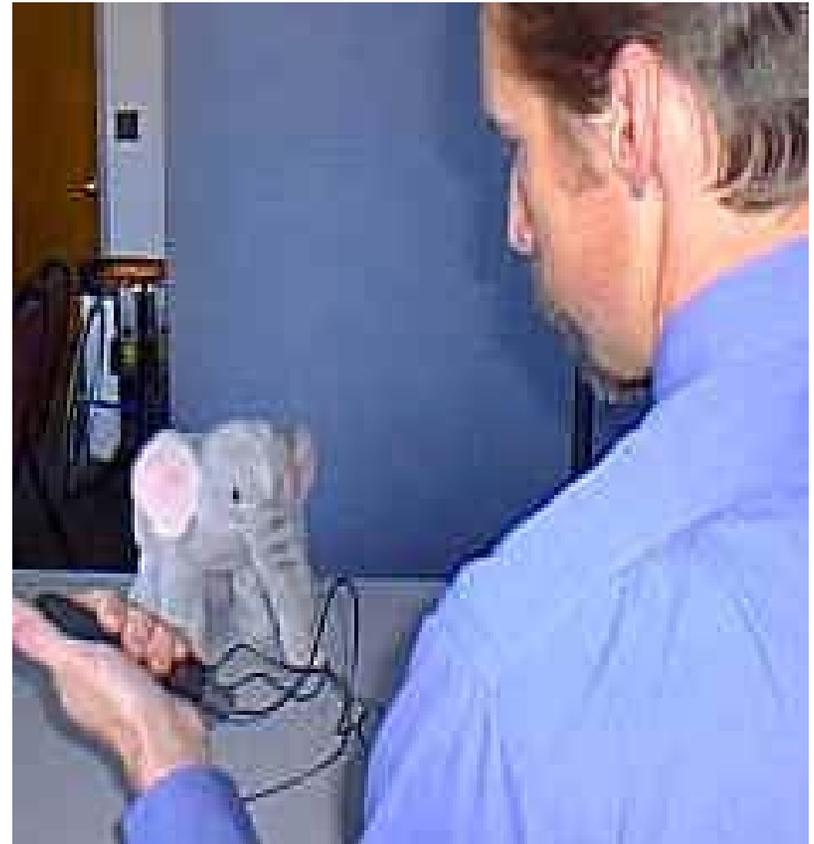
Direct Selection

- The trackball used here allows a person to select a "key" from a keyboard displayed on the computer monitor



Direct Selection

- A single switch allows one to turn on and turn off the toy in this picture





Direct Selection



- **Demands on the user.**
 - requires greater physical abilities, but
 - makes fewer cognitive demands, and
 - places fewer attention demands on the person



Indirect selection: (scanning)

- Indirect selection (more commonly called scanning)
- used only when direct selection is not a viable option
- Scanning may be used as a backup system when a person is able to direct select, but in using this method they quickly become fatigued
- Scanning is also used as a primary system when a person is not able to effectively use any form of direct selection (e.g., a person with quadriplegia).



Indirect selection: (scanning)

- In contrast with direct selection, which is a very active process, scanning is more passive and involves the use of intermediate steps before a selection can be made.
- The selection array is presented to the user sequentially.
- When the desired item is presented, the user generates a signal to indicate that is the item they wish to select



Types or forms of indirect selection



- We use scanning on occasion during our day-to-day activities.
- Examples
 - using a automated telephone system ("If you want _____, press 1 now")
 - searching for words in a dictionary
 - fast forwarding a VCR tape to find a segment of a movie

Indirect Selection

- Manual Scanning.
- The communication partner is pointing to individual choices.
- When they reach the item the user wants to select, she will nod her head to signal her choice



Indirect Selection

- In this photograph, the computer is displaying the items of the standard keyboard to the user in a sequential manner.
- When the desired item is highlighted, the user presses the switch located under their chin to signal the computer





Scanning Methods and Patterns



- Devices that allow a person to use scanning will present information in scanning patterns and methods



Scanning Methods



- Automatic.
- Step
- Inverse.



Scanning Patterns

- Linear.
- Circular.
- Row/column or column/row.
- Group-item, and
- Directed scanning.



Indirect Selection Demands on the User



- Requires less physical abilities, but
- it makes more cognitive demands, and
- places greater attentional demands on the person