

A Beginner's Guide To Designing a Manual Communication Board

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Adapted from the Pixon® Language and Learning Activity Notebook (in the Pixon Project Kit) written by Gail M. Van Tatenhove

Designing a manual communication board for a person with complex communication needs (CCN) involves consideration of a range of issues related to the person's abilities. Generally, key factors to be considered when designing a manual communication board focus around mobility, vision, access, cognition, and language. Answer each of the **Person-Centered Questions** listed below and review the various design considerations. The basic rule for designing a Manual Communication Board (MCB) is that there are no rules. MCB designs can be as unique and varied as the person designing them and the person needing one. There are some traditional practices in MCB design (e.g., use of color coding, pictures in a grid, etc.), but those practices leave plenty of room for creativity and innovation.

As you implement the MCB, consider what modifications in the design are necessary. It often requires day-to-day use of a MCB in order to identify ways to improve upon the design. This design information becomes invaluable when later assessing the person for a speech generating device (SGD) or AAC communication app.

The chart below will help you ask questions, gather information, and make decisions. Use it as a starting point in designing a manual communication board. As a team, brainstorm design ideas and collaborate to develop a board that works for the person as an initial communication system. Even though there are lots of questions listed here, DON'T OVER THINK IT. Start someone and make modifications as you gather more and more evidence of how your person communicates and what will improve his/her life.

The design questions are critical. Do your best to answer those questions, and then physically make the board. If you have NEVER made a manual communication board, start with these resources to learn about the pictures and technology you can use.

<http://praacticalaac.org/praactical/5-resources-for-creating-aac-and-visual-support-materials/>

<http://praacticalaac.org/praactical/5-free-resources-for-making-communication-boards-visual-supports/>

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Area	Person-Centered Questions	Design Considerations
MOBILITY	<p>Does the person walk independently, with assistance/equipment, or sit in a wheelchair?</p> <p>If he/she walks, how will he/she transport a MCB?</p> <p>If he/she is in a wheelchair, is there a laptray?</p> <p>What is the size of the working space on the tray?</p> <p>How much of that working space can the person reach to and touch?</p> <p>How will the communication display be attached to the laptray? How easy will it be to be cleaned?</p> <p>If considering an eye point display, how will it go with the person? Will it attach to the wheelchair? How will it go on/off quickly?</p> <p>How will an eye point display be transported when the person is in a vehicle?</p> <p>WHAT OTHER QUESTIONS DO YOU HAVE?</p>	<p>Consult with a physical therapist (PT) to information on the person's physical skills and their relationship to use of a MCB.</p> <p>Design a portable board for ambulatory people and stationary boards for non-ambulatory people.</p> <p>Consider "back-up" stationary boards in locations for ambulatory and non-ambulatory people (e.g., at work area, by bathtub, etc.).</p> <p>Design a portable board that can be carried. It needs to be lightweight, sturdy, & durable. Will it be folded-up, in notebook, hanging on a strap or in a carrying case?</p> <p>Design a system to be placed on the laptray, maximizing the available working space balanced with the distance that the person can reach.</p> <p>No AAC companies currently make eye point boards with frames that can be attached to wheelchairs. Investigate options for eye point displays made out of PVC pipe. Use Lexan or plastic to make the display. Attach the display to the frame with Velcro. You'll need to be creative to figure out how to attach the frame to a wheelchair. Contact a handyman or wheelchair vendor for suggestions and help.</p>

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<p>VISION SKILLS</p>	<p>Are there any behaviors that the person uses which are clues to visual challenges (e.g., flipping pages in front of his/her eyes, staring off into space, etc.)</p> <p>Does the person have the vision to use pictures? Are objects or tactile symbols required?</p> <p>What size target can the person see?</p> <p>How does the person handle color vs. black & white pictures?</p> <p>How much detail in the picture is "too much?"</p> <p>Does the use of color coding help or hurt?</p> <p>How does access influence vision (and vice versa)? Can the person see what he/she is selecting?</p> <p>Does the use of highlighting (with light pointer, sound clicker) help the person find pictures?</p> <p>What kinds of things help the person visually locate tactile symbols/pictures on a MCB?</p> <p>How will you keep the MCB in a STABLE location in order to promote visual-motor learning?</p> <p>What happens to the person's ability to focus and attend when pages are changed in a communication book? How much flipping around becomes a problem?</p> <p>WHAT OTHER QUESTIONS DO YOU HAVE?</p>	<p>Consult with an occupational therapist (OT) or vision specialist to learn how the person's vision skills and how those vision skills will influence use of a visual-based communication system.</p> <p>Design a system to match both vision and access skills.</p> <p>Consider use of background colors, spacing between pictures, heavy grid lines to maximize vision, and other creative ideas.</p> <p>Consider use of textures, shapes, sounds and 3-dimensional features to assist persons with low/no vision.</p> <p>Watch for differences in how the display is used when a display is placed flat on a surface, at an incline, or vertically.</p> <p>If pictures/symbols are presented manually (present 2 or 3 choices by hand or on a small display), observe how the person scans through the choices. Assist the person to do a left-right, top-bottom scan.</p>
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<p>ACCESS SKILLS</p>	<p>Can the person point directly to the picture/word on a communication display? (This is called direct selection.)</p> <p>What part of the body could the person use to select targets on a MCB? (Consider finger, fist, toe, eyes. etc.)</p> <p>What size target can the person accurately select? Is the point readable to communication partners?</p> <p>Is spacing between targets necessary?</p> <p>Is some kind of "key guard" or guide necessary?</p> <p>What is his/her range of motion and reach?</p> <p>What kinds of tools might help the person select targets? (Consider head pointer, hand pointer, light pointer, etc. Think outside of the box.)</p> <p>Could the vocabulary be "coded" in some way (e.g., color/number, letter)? Could the person learn the code in order to tell his/her communication partner the word he/she wants to say? How would the person access the code?</p> <p>Does the person need someone to verbally/visually scan through the choices for him/her? (Called partner assisted scanning.)</p> <p>What kind of scanning array might work for this person?</p> <p>WHAT OTHER QUESTIONS DO YOU HAVE?</p>	<p>Consult with an occupational therapists (OT) or physical therapist (PT) to brainstorm on accessing issues.</p> <p>Consider how to maximize the person's ability to use direct selection as the fastest way to pick targets.</p> <p>Consider use of an incline to extend the person's reach range.</p> <p>Consider the use of tools to help extend the reach, select more or smaller targets, etc. BE CREATIVE.</p> <p>Consider simple "encoding" strategies to maximize direct selection (e.g., 4 small targets inside of 1 large BLOCK the person can fist point to, followed by giving a "code" as to which word in that block he/she wants).</p> <p>Research and explore types of encoding strategies (e.g., color/number).</p> <p>Consider how partners can help access (part Direct Selection, part Partner Assisted Scanning). Strive for maximum language.</p> <p>If the person is using a communication book, or any type of display that involves flipping pages or sections of the board, consider the use of page spaces or tabs to separate pages/sections and help in turning the pages/sections.</p> <p>If the person walks and carries his/her MCB, consider the use of cloth carrying cases to keep it lightweight, but figure out how to access the targets when walking (e.g., lay it on a stable, hard surface).</p>
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<p>COGNITIVE SKILLS</p>	<p>Are pictures meaningful to the person?</p> <p>What kind of color-coding or other design factors might help the person look at, locate, and learn pictures?</p> <p>What happens when you present a simple MCB for an activity and do interaction/teaching activities with him/her?</p> <p>Present communication pictures to the person in a meaningful activity. Does he/she attend to pictures presented to him/her? Does the person LOOK at the picture when you point at it and when you LABEL the picture (e.g., more, stop, help, again, drink, play)? Can the person then LOCATE the picture him/herself in meaningful communication opportunities?</p> <p>How many models might be needed for the person to LOCATE and LEARN to use the picture meaningfully?</p> <p>How many targets and/or words are appropriate TODAY for the person? (Don't aim TOO LOW.)</p> <p>How many targets and/or words are you hoping to get to in the next 6 to 12 months?</p> <p>What is the balance between what the person can handle cognitively, physically, and visually? Which issue takes priority?</p> <p>WHAT OTHER QUESTIONS DO YOU HAVE?</p>	<p>THERE ARE NO COGNITIVE PREREQUISITES FOR USING AN AAC SYSTEM!!!! DO SOMETHING! USE A DESIGN THAT SUPPORTS LEARNING!</p> <p>Design a system that provides the MOST number of words that the person can see and access – and allows them to show you they can handle more than you think. You can leave blank spaces and add in more words (maintaining location and motor pattern) as the person needs more vocabulary.</p> <p>Make manual communication boards that you will use to MODEL TO the person when you talk to him/her. Use a design that parallels the person's own MCB.</p> <p>Consider a range of strategies and formats to maximize cognitive, visual, or motor skills, such as visual masking, highlighting, etc. Check out this link to stimulate some ideas: alaac.org/strategy/communication-books-making-decisions-about-format/</p> <p>For people with very significant cognitive disabilities, consider what kind of strategies you will use to PREPARE the person for a more traditional MCB. Consider hand-held symbols, symbols attached to simple single message devices, tactile features added to pictures, etc.</p>
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<p>LANGUAGE SKILLS</p>	<p>What is the person's receptive and expressive language level? Are you able to get a language sample using a trial MCB?</p> <p>How much core vocabulary (common everyday words) does the person need to access? How much growth is expected?</p> <p>How much morphology (word endings) is needed? How will morphology be added to the board?</p> <p>How much extended vocabulary (infrequently used) does the person need to access? How much growth is expected?</p> <p>Can all the language he/she needs be placed on a single sheet display (where he/she can see all the core words at once)?</p> <p>Will any multiple displays need to be made (where you flip a section or whole page to get more words)?</p> <p>What is the person's categorization skills? Do they understand word groups?</p> <p>What "word altering" strategies could be used to expand the vocabulary set?</p> <p>Is spelling an option for expanding the vocabulary set?</p> <p>What about the use of pragmatic starters (e.g., "I am telling you something." "I am asking a question." "I am teasing you.")</p> <p>What is your plan for expanding the person's vocabulary to AT LEAST 50 to 300 core vocabulary words?</p> <p>WHAT OTHER QUESTIONS DO YOU HAVE?</p>	<p>Emphasize board designs that use a single display/board of words (called Single Sheet Designs) for core vocabulary because they are the most "language-friendly" design. They present the least cognitive, memory, and motor challenges to use them.</p> <p>Consider activity-based displays to supplement the main permanently available, personal core board.</p> <p>Consider a Minspeak-based manual communication board that uses multiple meaning pictures (see VanTatenhove.com).</p> <p>Discuss how to organize the language on the board (by category, alphabetical, in clusters, etc.)</p> <p>Consider multiple displays (e.g., vocabulary book) for infrequently used, extended vocabulary.</p> <p>Consider adding morphological markers for verb tense, plurality, and comparative/superlative.</p> <p>Consider including some basic word altering strategies (e.g., same as, opposite of) to expand vocabulary and language development.</p> <p>Consider providing a supplemental spelling display and/or the "starts with" strategy for emerging spellers.</p> <p>Consider the use of pragmatic starters to help clarify the purpose and function of communication.</p> <p>Discuss the use of visual scene displays and how to use them to communicate more than just noun-based vocabulary.</p> <p>Determine how you will include some simple light-tech voice output technology to add to the person's language output for social interaction.</p>
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DEVICE / APP ISSUES	<p>Will the manual board need to coordinate with any current or future (anticipated) speech generating device (SGD) or AAC communication app?</p> <p>Is the manual board going to be used in preparation for a device, as a supplement to a device, or as a back-up to a device?</p> <p>What type of vocabulary layout will help in transition to a SGD or App?</p> <p>What picture set/system will help in transition to a SGD or App?</p> <p>What color code will help in transition to a SGD or App?</p>	<p>If the manual board is a back-up system, investigate software tools available from the SGD/App manufacturer for creating manual displays from the SGD/App.</p> <p>If the manual board supplemental to an SGD/App, design a board that is easily used with the SGD/App, can be transported simultaneously, and doesn't add significantly to the bulk/weight of the system.</p> <p>If the manual board is preparing someone for a SGD/App, the first priority is to use the picture system/set that is used in SGD/App. Pixons are the system of choice for any SGD/App that using Unity icon sequences. Use the color code that is used in the SGD/App. Trying to simulate the layout is challenging and can only be approximated.</p>
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ADDITIONAL RESOURCES:

About historical communication displays and organizational strategies:

http://trace.wisc.edu/docs/non_vocal_comm/indicate.html

https://openlibrary.org/works/OL7081350W/Nonoral_communication_system_project_1964-1973

<http://www.blissymbolics.org>

About resources for making and personalizing manual communication boards and books:

<http://praacticalaac.org/praactical/5-free-resources-for-making-communication-boards-visual-supports/>

<http://praacticalaac.org/praactical/10-resources-for-designing-developing-communication-books/>

<http://praacticalaac.org/strategy/praactically-personal-individualizing-communication-books/>

<http://praacticalaac.org/praactical/organizing-vocabulary-for-communication-books-getting-started/>

<http://praacticalaac.org/strategy/communication-boards-colorful-considerations/>

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