Clinical Perspectives on Wheelchair Selection

A Participatory Planning Process for Wheelchair Selection

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INTRODUCTION

The wheelchair serves to increase a person's ability to function effectively and efficiently in his/her environment. Optimal performance depends on the successful selection of a wheelchair. The wheelchair selected must "fit" the individual and facilitate the ability to manipulate a variety of environmental barriers.

The process of defining that "fit" requires identifying the characteristics of two halves of an equation: the person and the environment. The aim of the wheelchair user is to control his/her mobility as much as possible. The clinician works with the user to define the range of mobility goals. This interaction can enhance the degree to which the wheelchair becomes a part of the user. Only through user involvement can optimal mobility be achieved.

The methodology presented here is based on wheelchair selection as an ongoing planning process comprised of a number of sub-plans. The overall plan is subjected to periodic review and further modification throughout the life of the user, just as the various technical aspects of the wheelchair itself must be regularly evaluated in terms of their effectiveness in meeting the goals of mobility. Each sub-plan consists of a goal, and each of the technical aspects of the wheelchair is a means for accomplishing these goals. For example, one sub-plan goal may relate to the goal of maintaining sitting balance utilizing a range of back and seat heights as the means for achieving such balance.

Several criteria for the evaluation of a planning process have been established.* The first step in planning is to properly identify the problems to be remediated. The next step is to define clear objectives or goals for solving these problems. The third objective is to maximize user participation in this process of goal definition.

Ideally, contributions should be made by the user throughout the planning process. Initially, the professional will contribute most of the technical information about the general design and functions of wheelchair components, as well as the process of selection. Over time, as goals and means are defined and revised, the degree of user participation should be expected to increase to include contributions to technical aspects as well as goals.

THE PLANNING PROCESS

Identification of the Problem(s)

In the case of wheelchair selection, the task of identifying the problem will involve physical, social,

*Ozer MN: Design Process Viewed as Technology. In *Proceedings of the 9th Annual Conference on Rehabilitation Technology*, 6:143-144. Washington, DC: Association for the Advancement of Rehabilitation Technology, 1986.

economic, and technological considerations. For example, for those with spinal cord injury the problem is not only impairment in the use of limbs but the functional consequences of the impairment in that person's own environment. For a person with excessive spasticity, a major problem may be trouble with steering a motorized chair though the relatively bumpy area from his house to that of his next-door neighbor; the control system must be responsive to this need. Another person with paralysis may have trouble navigating even a slight incline because of insufficient strength; anti-slippage devices as well as a lightweight chair may be useful here. For some, problems may pose only occasional difficulties, but for others they might become constant crises.

It is necessary to explore with the user his or her lifestyle in order to identify all of the possible problem areas. Consideration must be given to activities carried out on weekdays and weekends—all activities carried out when the person was "on his feet." If one of the priorities in the past was to walk along the riverbank in the evening, is this still a high enough priority to be considered in the selection of a wheelchair? The most precise definition of any user's problem must arise from as complete an exploration as possible of that person's unique situation and way of life.

The more complete the delineation of the problem, the more likely that the goal statement established will reflect the needs of the user. This process of problem identification is, ideally, an ongoing one. The user becomes better able to state his problems as he gains experience in recognizing and expressing them to informed, attentive listeners. Furthermore, problems may arise and mobility needs may change over time with regard to use of a particular wheelchair.

For example, returning for his annual check-up, a person with longstanding quadriplegia wanted to replace a worn out back-up manual wheelchair. When asked what problems he encountered with it, he first mentioned his concern about tipping, then not being able to maneuver in tight places in his house trailer, then not being able to cross even a short distance of gravel outside his house. When asked which was most important, he responded that he would like to be able to maneuver his chair so that the gravel between paved surfaces in the rural area where he lived would not be such a barrier. This is the sort of problem that is often difficult for clinicians or users to identify initially.

Determination as to whether the problems are properly identified and prioritized is basically a "check-out" procedure. Before going on to the definition of the goal statement, the user is asked to confirm what he has stated initially as his major concern by once again stating his major concern. **(Figure 1)**

Definition of the Goal

Exploring several alternatives is useful before selecting the highest priority goal, or the "best" statement of the goal. It is necessary to describe the goal in functional terms—those that are most meaningful—in order for the user to become a major participant in evaluating the degree to which the goal is accomplished.

As illustrated in the case above, it is important to encourage the user to become involved in exploring and selecting goals in terms of his/her own life setting. It is also an important aspect of the evaluation of the planning process to express the goal as specifically as possible. The clearer and more specific the goal statement, the more likely it is to be recognized when accomplished. A three-point criterion of specificity would include:

> WHAT is to be accomplished;
> WHEN (or WHERE), describing the setting;
> HOW MUCH (or HOW WELL or HOW LONG), describing a measure of degree of accomplishment.

For instance, the person described above set the criteria for specificity when he described his goal to "be able to push my chair through the gravel near my house without getting winded."

The purpose—user satisfaction—sought by such planning questions is not new. What is important is the degree to which people are involved in the planning process; consciously exploring the problem, specifying the goals, and evaluating and modifying the effectiveness of the ongoing plan.

A Measure of User Participation

A scale to help the clinician measure the user's degree of participation is shown in **Figure 2**. At the first level, "independence," the user asks himself the questions and provides the answers. At the

Name: _____ Date _____

Therapist _____

1. WHAT ARE YOUR CONCERNS?

   a)

   b)

   c)

2. WHAT IS YOUR GREATEST CONCERN?

   Check-out: _____ Agreed _____ Confirmed

3. WHAT DO YOU WANT TO SEE HAPPEN? WHAT WOULD MAKE YOU FEEL THAT YOU ARE MAKING PROGRESS? WHAT ARE YOUR GOALS?

   a)

   b)

   c)

4. WHAT IS YOUR SPECIFIC GOAL?

A	B	C	D	What?
A	B	C	D	Conditions?
A	B	C	D	Degree?

5. Please circle the "lowest" level of participation used in answer to the various portions of the goal statement.

A = open-ended question FREE CHOICE

B = suggestions (3 options) MULTIPLE CHOICE

C = recommendation (1 option) FORCED CHOICE

D = prescription (tells what to do) NO CHOICE

Figure 1.
Client response form.

Measure of Degree of Participation in Planning

	Professional	User	USER Percent contribution
1. Independence	- - - - - - - - - - - - - -	Asks himself Answers for himself	100%
2. Free Choice	Asks open-ended questions without providing answers.	Answers for himself	80%
3. Multiple Choice	Asks Provides several (3) answers from which to choose. "Suggests"	Selects answer(s) for himself	60%
4. Forced Choice	Asks Provides one answer for discussion prior to action. "Recommends"	Agrees (or disagrees)	40%
5. No Choice	Does not ask. No option for discussion of already determined action. "Prescribes"	Compliant in carrying out action (or non-compliant)	20%

Figure 2.

second level, "free choice," the professional interviewer may ask the questions that help define the problem and goal, but the user provides the answers on his own. When necessary in order to meet the objective of developing a "specific" statement, the interviewer may then move to the third level, "multiple choice," in which the user has merely to choose from the several suggestions supplied by the interviewer. At this level the user is still making a major contribution to decision making. The fourth level, "forced choice," marks a significant shift in the degree of user control exerted on the planning process. At this stage, the user has merely to state "yes" or "no" to the recommendation made by the interviewer. Even less control would be exemplified by the fifth stage, "no choice," where the action is "prescribed" and the user is merely expected to be "compliant."

A method to maximize the user's degree of participation in the planning and selection process would be to: 1) initiate the questioning at the free choice level; 2) go down the scale one step at a time and only when it is necessary to meet the need for specificity; and, 3) return to the higher stages of participation as soon as possible during any course of planning.

Given certain limits in wheelchair design, matching the technical aspects of the problem with goals and priorities may require some compromise. Cost must be considered—not only dollar costs but costs in terms of reliability and maintenance.

Review and Revision

Over time, the user's environment or his capabilities may change, or there may be a significant

breakthrough in some aspect of wheelchair design that could increase his mobility options.

As the individual gains daily life experience with the use of a wheelchair, there is more opportunity for him to participate in identifying technical aspects that would improve his mobility system. If, for example, the user initially participated at a level of "concurrence" by merely following the recommendations of the professional, then the aim would be to reach a higher level of participation during the ongoing phase—for example, that of "multiple choice."

A CASE STUDY

The following example of a person with a recent spinal cord injury at the level of C6 is presented to illustrate the successful use of the participatory planning process in wheelchair selection.

During the early post-injury phase, the user described on the "free choice" level a number of goals for evaluation and selection of an appropriate wheelchair. One goal was to be able to balance himself while sitting so that he would still be able to use both arms in carrying out tasks. Because of his lack of finger dexterity, he felt it would be important to have armrests that were easily removable. Another goal was to continue to travel widely, as he had done prior to his injury. He wanted a wheelchair that was portable and that could be stored in a relatively small space in the cabin of an airplane. He did not want it to be stored in the cargo bay during travel. Another high priority for this person, who was also diabetic, was to maintain his health and cardiovascular endurance through physical activity. "I was athletic before my injury and want to continue."

In selecting the means for meeting these goals, the young man requested a lightweight wheelchair with a variety of levels of back support. He learned that he could counterbalance his weight by leaning rather far back and thus have both his arms free to carry out tasks. When he was placed in a chair with a high back, which is the usual method for dealing with problems of balance, he was unable to use the weight of his trunk for counterbalance and needed to use one of his arms to steady himself. Thus, he was able to demonstrate for his own needs the value of a chairback lower than that ordinarily recommended for persons with his level of spinal cord injury.

The selection of the other appropriate means for meeting his goals was aided by a magazine article he had read about alternatives now available in lightweight wheelchairs. "I knew what the options were myself and had a chance to think things through before finally selecting my chair." The chair he chose had moveable rotating armrests and could be modified for exercise and be disassembled for storage in small spaces.

This user functioned at the level of "free choice" with respect to setting goals, and at the level of "multiple choice" in selecting the means for meeting those goals by having the options available for him to review. For example, in respect to the decision for the height of his back support, his ability to experience a range of back heights enabled him to select one which was particularly effective for him.

During a review session several months after discharge from the hospital, he described his wheelchair as meeting his needs. When asked to evaluate the degree to which it was meeting his goals, he mentioned that he had been able to take several airplane trips, balance had not been a problem, and he had participated in wheelchair slalom racing regularly. An initial concern that his lightweight chair might interfere with "boardless" transfers had not turned out to be a problem.

There had been some difficulties, however. The padded material covering the armrests had deteriorated very quickly. He also found the gloves he had been issued to use did not give adequate padding for his palms. He found it worked better to buy gloves available in bicycle shops and to use the sort of handlebar covers used for bicycles to cover his armrests. He planned to mention these alternatives to the prosthetics service for consideration by other users. He had now moved to a new level of participation; he was contributing new ideas to the solution of problems. He was operating at the level of "independence." He was identifying problems on his own and finding solutions without the need for interaction with a professional. Indeed, he was offering a perspective to the professionals that could be helpful to other users.

CONCLUSION

The clinical use of a structured participatory planning process can facilitate a wheelchair selection that most effectively meets the user's mobility requirements and results in personal satisfaction. Evaluation is done on the adequacy of problem identification, specificity of the goal statement, and the degree to which user participation is maximized during the planning process. Particularly during the ongoing process of review and revision, the opportunity exists to increasingly involve the user in the selection and modification of the wheelchair components, as well as in identifying problems and defining new goals.

AUTHOR'S NOTE

The participatory planning process referred to in this article is described in greater detail in a recent publication, *Patient Participation in Planning: A Manual for Therapists,* by O. Payton, C. Nelson, and M.N. Ozer (F.A. Davis Publishers, Philadelphia, PA, 1989). The manual includes procedures for self study in the development of the skills necessary for carrying out this process, as well as formats for the training of therapists during inservice and professional workshops.