



## **Environmental modifications and use of assistive technology for persons with Disabilities & Barrier free environment**

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### **Abstract**

The celebration of the International Day of Persons with Disabilities takes place on a global scale, although its level of success varies greatly from region to region. Let's proceed beyond just raising awareness of the issue since it has a direct impact on people's lives, and even a little effort on our part may go a long way toward assisting someone who is disabled. When individuals have more control over their own lives, they are in a better position to seize chances. The Sanskriti Foundation is committed to assisting persons who are unable to work due to physical limitations in their efforts to become financially independent. There have been 129 persons with physical disabilities who have shown interest in applying for one of these wheel chairs thus far. Let's do everything we can to make life more respectable for our brothers and sisters who struggle with physical disabilities.

### **Introduction**

Functionality is the central theme in the field of occupational therapy (OT), which stands for "occupational therapy." The client's capacity to operate more effectively within the context of his or her functional duties is the primary focus of therapy, which may take many different forms. When a client comes to the therapist with physical or psychosocial concerns, the therapist will take note of how the disability impacts all aspects of the client's life regardless of whether the issues are physical or psychological. Occupational therapists have the information necessary to evaluate which therapy method would be most effective for a specific client based on the results of this global evaluation. However, if a client were to come with an environmental concern, a global assessment would often give way to an evaluation that would solely look at accessibility. This is because environmental issues are more complex than accessibility issues. When nothing else is taken into consideration, there are likely several underlying reasons of dysfunction that will go unreported. The Occupational Therapy Practice Framework Domain and Process does not have an official definition for accessibility; nonetheless, the term accessibility does have the connotation of referring to the physical admission and navigation within a place. Accessibility is a crucial component of a functioning home environment; nevertheless, it is not the only issue that must be taken into consideration. What goes on within the four walls of a house will have a significant impact, both on one's sense of self and on the quality of life they lead. The majority of activities of daily living, often known as ADLs, take place within the house, as do many jobs that contribute to the overall definition of a person. Because of the fundamental role that this setting plays in so many aspects of life, it is imperative that an occupational therapist analyse it in the same manner that they would any other challenge. The therapist will not only make the client's house more accessible by carrying out a comprehensive analysis of the environment, but they will also make it more functional so that the client can feel both secure and productive in the space. Within the realm of occupational therapy, there is a very limited amount of literature pertaining to the alteration of homes. When it is discussed, the tone of the conversation will often shift toward one that emphasises accessibility rather than a more global perspective. It has also been shown that some environmental adjustments were made as a reaction to cognitive problems; nevertheless, these adjustments still serve a single goal and do not take into account the wider picture. Modifications to the environment that are not related to healthcare are solely focused on improving accessibility. Accessibility is defined through pages of building code



and structural vocabulary within the architectural community. The real customer is completely ignored in favour of ensuring that the building complies with all national and regional standards, which is the primary emphasis of the project. It would appear to be essential to develop a client-centered strategy for environment modification in order to take into account all of the aspects of a client's life that need to be taken into account. To guarantee that this strategy is effective within the context that is under consideration, it is necessary to take into account client aspects in addition to occupation. The subject of environmental modification is going to be discussed in this paper, and it will do so by first investigating the literature that has been supplied by fields within the healthcare industry, and then by fields that are more directly responsible for the development of physical spaces. When we have finished going through the previous research, we will next describe and defend the methodology behind the process of information collecting and the development of hypotheses. After that, the findings of this study, which will include an environmental requirements survey, educational supplements for the therapist about environmental modification, and client information forms, will be provided. In the end, we will share our findings as well as our suggestions for any future projects.

### **Being able to work again**

Community Based Rehabilitation Biratnagar (CBRB) is a voluntary organisation that has been operating in the eastern part of Nepal since 1990. More than three thousand disabled children and adults are receiving rehabilitation services via the organization's current efforts, which are being carried out in 41 villages located within the Morang District and inside the Biratnagar Sub municipality.

As a result of the need for many persons with disabilities to go to the nation's capital or to the neighbouring country of India for repairs, the CBRB established a modest orthopaedic workshop in 1997 with the purpose of doing simple repairs on assistive equipment. Over time, CBRB worked towards developing a fully equipped orthopaedic workshop. They built a complete service that encompassed the production, supply, and maintenance of assistive devices via their collaboration with Handicap International (Nepal), which resulted in a partnership. Local individuals, including women, men, and those with and without disabilities, were given the opportunity to undergo technical training in Nepal and India before being incorporated into the CBRB team that was already in place. People who are living with disabilities in sixteen districts of eastern Nepal are now able to get high-quality orthoses (such as callipers, braces, and splints), prostheses (such as prosthetic legs and hands), and mobility equipment (such as crutches, tricycles, and wheelchairs) from CBRB. CBR staff, therapists, and workshop technicians collaborate closely to improve the lives of persons with disabilities and the overall quality of life in the community.

Chandeswar is one of the individuals who are better off as a result of having participated in the orthopaedic workshop. He was a rickshaw puller who put forth a lot of effort up until he had an accident that required the amputation of his left leg. Because he was no longer able to pull rickshaws for a living, he was forced to give up his source of income, and because he needed to pay for his medical treatment, he had to spend his savings. The CBRB team that was working in Chandeswar's village recognised him and provided him with a below-the-knee prosthesis as well as rehabilitation services to ensure that he was able to walk well with his artificial leg and learn how to pedal his rickshaw again. Chandeswar was able to return to his normal life. Now Chandeswar makes a respectable income by pushing his rickshaw with his feet through the congested streets of Biratnagar.

"We were carrying out CBR for many years, but since we began supplying excellent assistive equipment we have been more successful, our reputation has gone up, and now we have a wonderful acceptability in the community," said the President of CBRB after seeing the benefits to individuals like Chandeswar.



### **Models of Disability and Rehabilitation**

The ability to analyse and think about something that is not the actual thing but that may be related to the real thing is one of the primary ways in which models contribute to comprehension. When people want to get a better knowledge of an issue or the world around them, they turn to a number of different models. Physical models, three-dimensional graphical models, animal models of biological systems, mathematical or ideal models, and computer models are all examples of the types of models that fall under this category. When however, linkages are exceedingly complex, as they are in rehabilitation processes and other areas of human activity, it is seldom feasible to build models that are statistically predictive. This is because of the nature of the interactions. In spite of this, it is often feasible to create approximative correlations between the many observable variables that are present.

Conceptual models are often used to refer to models that are based on incomplete information. Even though they may not provide quantitative answers, conceptual models can help individuals think about the behaviour of components in complicated systems. This can be a very helpful skill. They could make it possible to comprehend broad connections without the need of an in-depth vocal or written explanation being provided. In this sense, they are similar to an out-of-focus photograph that just hints at the existence of connections. In the fields of science and engineering, it is common practise to make use of models as a means of assisting in the development of hypotheses that can subsequently be tested through experimentation. However, even as models assist scientists in moving forward with new understanding, they are eventually replaced by newer versions. The outcomes of the experiments can indicate that the models need to be revised, or possibly scrapped entirely in favour of brand-new models.

### **Evolution of models of Disability**

Over the course of the last several decades, there has been a shift in the conventional understanding on the reasons for disability. In the 1950s, it was thought that the absence of an impairment of a certain severity was sufficient grounds for denying a claim for disability benefits. On the other hand, it was believed that the presence of an impairment of the given severity was sufficient grounds for granting disability benefits. Therefore, the Committee on Medical Rating of Physical Impairments of the American Medical Association stated that "competent evaluation of permanent impairment requires adequate and complete medical examination, accurate objective measurement of function, and avoidance of subjective impressions and nonmedical factors such as the patient's age, sex, and occupation." [Citation needed] (American Medical Association, Committee on Medical Rating of Physical Impairment, 1958).

By the middle of the 1970s, Nagi (1976) had outlined a process in which a pathology (such as arthritis) gave rise to an impairment (such as a limited range of motion in a joint), which may then result in a limitation in function (such as an inability to type), which may finally result in a disability (such as being unable to type) (inability to work as a secretary). While outlining a process that would appear to move inexorably from pathology to loss of a job, Nagi noted that correlations among impairments, functional limitations, and work loss were poor. He speculated that the extent to which the environment accommodated limitations largely determined whether or not disability would result from the onset of a medical condition. He was outlining a process that would seem to move inexorably from pathology to loss of a job. During this time, at least three other organisations have developed their own models or made modifications to existing ones. These organisations are the World Health Organization (International Classification of Impairments, Disabilities, and Handicaps, 1980), the Institute of Medicine (Disability in America, 1991), and the National Center for Medical Research Resources



(NCMRR) (1993). Although each of these models uses different nomenclatures for the components, they all attempt to facilitate and improve understanding by describing the concepts and relationships among medical conditions, impairments, functional limitations, and the effects of the interaction of the person with the environment (i.e., handicap, disability, societal limitation).

The environment was included in the understanding of disability in a direct and explicit way by Nagi's model. Because of his approach, a search was conducted to identify the aspects of society, including family, community, and culture, that contribute to the development of disabilities. Research has focused on the social and demographic characteristics of the individual and family, the individual's prior occupation and the industry in which the individual was previously employed, the flexibility of the workplace with respect to the physical tasks of work and hours of work, the nature of the local economy, customs and laws governing employment, and the extent of income transfer programmes, for example, when it comes to the topic of disability in the workplace. For instance, the topic of disability in the workplace has been the subject of a great deal of research (Yelin, 1992).

Although the environment was accounted for in the Nagi model, the way in which it conceptualised the environment was severely lacking. According to his model, the environment has an impact on individuals only when an individual's activity limitation interacts with the demands that are placed on that individual; the process that gives rise to disability is still inherently a function of the characteristics of medical conditions and the impairments that are attendant to those conditions.

The IOM model (IOM, 1991) was directly derived from Nagi. Nagi defined disability as "a function of the interaction of the person with the environment" and began to describe certain subsets of environmental factors that could potentially affect the development of and movement within a disabling process. The IOM model was published in 1991. In this approach, the biological and lifestyle risk factors, in addition to the physical and social environmental risk factors, were characterised as independent variables that exist at all phases of the process. The regulation of these parameters, which impact advancement within the model, consequently affects (prevents) impairment. [Case in point:]

The NCMRR model places additional emphasis on the significance of the environment by including a category referred to as societal limitations. This category was included to take into account the restrictions that society places on individuals, which limit the individuals' capacity to independently participate in tasks, activities, and roles. As instances, we might point to the refusal of certain businesses to offer reasonable accommodations and the absence of ramps in public buildings, which prevents people with disabilities from entering such facilities.

Using the previous models as a foundation, this committee presents a model in which the person and their environment interact to decide whether or not a handicap would occur. The relational character of impairment, as stated in the IOM model, is now improved and clarified, and Nagi's terminology is employed in the description of the phases of the model. According to this updated model, the environment plays a significant part in deciding whether or not each stage happens, as well as whether or not transitions between phases take place.

## **Conclusion**

International Day of Persons with Disabilities takes place on a global scale. When individuals have more control over their own lives, they are in a better position to seize chances. Let's do everything we can to make life more respectable for our brothers and sisters who struggle with physical disabilities. The majority of activities of daily living, often known as ADLs, take place within the house. Modifications to the environment that are not related to healthcare are solely focused on improving accessibility.



It would appear to be essential to develop a client-centered strategy for environment modification. Community Based Rehabilitation Biratnagar (CBRB) is a voluntary organisation that has been operating in the eastern part of Nepal since 1990. More than three thousand disabled children and adults are receiving rehabilitation services via the organization's current efforts, which are being carried out in 41 villages. CBRB provided him with an artificial leg and rehabilitation services to help him walk again. Chandeswar now pushes his rickshaw with his feet through the congested streets of Biratnagar. In the 1950s, it was thought that the absence of an impairment of a certain severity was sufficient grounds for denying disability benefits. By the 1970s, Nagi had outlined a process in which a pathology gave rise to an impairment (such as a limited range of motion in a joint), which may then result in a limitation in function. The environment was included in the understanding of disability in a direct and explicit way by Nagi's model. Because of his approach, a search was conducted to identify aspects of society that contribute to the development of disabilities. Research has focused on the social and demographic characteristics of the individual and family.

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