Introduction

The preceding issue of *Technology and Disability* was titled "Research and Development in Europe - Part I." This issue, "Research and Development in Europe - Part II," continues the theme. It presents additional articles describing the results of the past decade's investment in assistive technology research and development by the European Commission.

Assistive technologies provide substitute capabilities for the functional impairments of people with disabilities. Substituting for very specific functions in clearly delineated task environments, is easier than providing a range of functions in multiple environments. Applying robotics to support activities of daily living is a challenging mission. Dario, Guglielmelli, Laschi and Teti, describe their efforts to achieve this mission in, "MOVAID: A personal robot in everyday life of disabled and elderly people." They describe a robotic system that works with household appliances, and explain how it influences the user's perceived and actual autonomy.

Topping and Smith provide another article on robotic applications, "The development of Handy 1: a robotic system to assist the severely disabled." This robotic system, first developed ten years ago, is successful because it is commercially available at a relatively low cost. The paper traces the development activity over the intervening decade, and how various functions were added to address the user's needs. It also examines issues related to user acceptance of a robotic system, through interviews with users, family members and care providers.

Many of the articles describe specific projects implemented through strong international collaboration between multiple partners. Some of these partners are themselves centers of excellence within the field of assistive technology. This issue's program spotlight article features an internationally known center of research and development in Scotland. "The Application of computing technology to interpersonal communication at the University of Dundee's Department of Applied Computing," by Gregor, Alm, Arnott and Newell, presents a range of programs. These programs are generally linked by the faculty's common interest in human computer interactions, and specifically linked by

a focus on facilitating interpersonal communication by people with disabilities.

Research and development is expected to yield new technologies and products. However, the quantitative and qualitative methods can also be applied to better understand the human interface with assistive technology devices. In "Biomechanical evaluation of handgrips for the design of elbow crutches," Comin and his six co-authors demonstrate how to apply biomechanical techniques to systematically compare interface options for a specific product. Although subjective user impressions may still determine the final choice between similar options, the results distinguish the better from the worse interface designs.

Research and development is only part of the continuum of product development and service provision addressed by assistive technology. Samuelsson explores the importance of integrating the client's perspective into the application of assistive technology in, "Wheelchair Intervention: A Client Centered Approach." The author argues that the wheelchair prescription process has an element of art along with the science, but that it is possible to structure some elements of the professional's expert judgement, and use that framework to capture the client's opinions and preferences. This process enables all participants to make optimum choices from amongst several minimally satisfactory options.

As information technologies become intertwined with our daily lives, and are increasingly imbedded into assistive devices, producers need to consider how all the potential users are integrated. In "Assisting the facilitators - interface design and telematic support for IT-based assistive technology," Zagler and Panek remind us that facilitators - family members, care providers, therapists and teachers - are often a critical but overlooked user of assistive devices. They demonstrate the efficacy of a multiple-user interface, that permits each participant to contribute the successful operation whether they are proximal or distant.

As mentioned in the prior issue's introduction, these articles only provide a sample of the on-going research and development programs in Europe. It is an opportunity for readers to identify activity relevant to their own

work, and to contact the authors and establish a dia-
logue. By extending our understanding of work outside
our traditional geographic spheres, we hold to eventu-
ally realize a single global field of assistive technology.

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