

Introduction to the NMTAP-NEREC Training on Assistive Technology

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Rubin (Ch 13): Assistive Technology

- **Definitions:** The Assistive Technology Act (devices... used to increase... functional capabilities..., 7E-392; to enhance social integration).
- **Categories:** Daily Living, Communication, Accessibility, Computer Applications, Environmental Control, Home and Worksite, Prosthetics and Orthotics (myoelectric hand), Seating and Positioning (iBOT), Vision (JAWS) and Hearing, Mobility, Vehicle...
- **Resources:** ABLEDATA, RESNA, JAN, Ability Hub...
- **Problems:**
 - Investors slow to commit
 - Rigorous safety standards
 - Not optimizing client strengths
 - Purchases that do not work
- **Solutions**
 - Turn Key Requirements
 - Lemon Laws
 - AT extension agents (e.g., teams, mobile shops, etc.).
 - Training standards?
 - Universal Design (7E-409, 421).

Roessler (Ch 10a): Environmental Barriers

- Disrupted Career Development
- Super's Stages:
 - Exploration
 - Establishment
 - Maintenance
- Disability Impacts: Hershenson
 - Poor work performance
 - Negative work self-concepts
 - Limited work goals
- https://www.umb.edu/academics/sgisd/faculty_staff/david_hershenson
- Adjustments:
 - Recycling
 - Life redesign, 201
 - Build on strengths
 - Accommodate limitations
- Functional Limitations, 204:
 - Physical (sensory, chronic), intellectual (organic, traumatic), psychiatric.
 - Mobility, communication, self-care, self-direction, interpersonal skills, work tolerance, work skills (Rehab Act-73)
 - How would this impact your targeted plan (IPE, 165)?

Roessler (Ch 10b): Environmental Intervention

- Accommodations:
 - Assistive technology, job site modifications, job restructuring, and job coaching.
 - Print, communication, access, and learning.
- Outcomes:
 - Adaptability (Goodman, 208)
 - Confidence
 - Control (Devins)
- Self-Efficacy in Negotiation and Conflict Resolution (5e-225, Palmer).
- The Win-Win Approach (5e-235; marketing, over limitations).
- Counselors:
 - Conduct placement audits
 - Facilitate proactive employers, 228
 - Promote continuous review
 - Monitor technology mismatches
 - Promote succession planning (5e-235: consultation, advancement, [workload]).
- Impacts, 211:
 - Individual satisfaction and satisfactoriness;
 - Organizational productivity and competitiveness.

Roessler (Ch 10c): Psychosocial Factors

- Acceptance; Adjustment; Adaptation
- Onset, 36:
 - Early: Complications, Decision-Making, Level of Support.
 - Later: Fear of reengagement, Level of uncertainty, Shift to intrinsic (e.g., nonphysical) values
- Life Redesign, 201, 203
- Disability effects competencies, goals, and personality
- Hershenson's Model, 39
 - Reintegration
 - Restoration
 - Reformulation
 - Restructuring
- Disability specific accommodations and assistive technology, 33f
 - The Job Accommodations Network
 - <https://askjan.org/>
- Accommodative Consultation, 196, 218
 - Select
 - Monitor
 - Evaluate

Technology: Addressing Non-Use

- Marcia J. Scherer: <http://matchingpersonandtechnology.com/>
- Research shows that although a technology may appear perfect for a given need, it may be used inappropriately or even go unused when critical personality preferences, psychosocial characteristics or needed environmental support are not considered. The use and non-use of technology as conceptualized in the Matching person and technology model has been validated by many researchers and authors representing the fields of occupational therapy, physical therapy, speech language pathology, psychology, and others. The matching person and technology model is operationalized by a series of reliable and valid measures that provide a person-centered and individualized approach to matching individuals with the most appropriate technologies for their use.

Need for Standards

- With assistive (AT) and universally designed (UD) device development accelerating, a person-centered method to secure and utilize AT and UD devices is critically needed (Bauer, Elsaesser, Scherer, Sax, and Arthanat, 2014, p. 39). In particular, the lack of an interdisciplinary process standard results in a breakdown in communication among clients, providers, suppliers and other stakeholders leading to numerous problems, including device abandonment and inefficient use of resources [19, 20].
- Making decisions about treatments and technological solutions are to be grounded in the best available evidence with practitioner expertise and scientific research and with the characteristics, state, needs, values, and preferences of users (Federici, Scherer, & Borscic, 2014, p. 31).

The ATSM Alternative

- The Assistive Technology Service Method (ATSM) is an innovative evidence-based process standard to support the provision of person centered, evidence-based, and interdisciplinary assistive technology services (Bauer, et al., 2014, p. 39).
- The ATSM Online tool, as conceptualized, would provide an ongoing and accessible space to facilitate: a) knowledge transfer between members of the social system (e.g., AT trainers, students, and providers) and b) diffusion and adoption of the ATSM innovation with application to AT education and provision (Bauer, et al., 2014, p. 44). The ATSM Online would support a community of practice (CoP), a group of people sharing a common interest related to their profession (e.g., AT educators, students and practitioners)... with one-on-one mentoring as a best practice.

The ATA Process Model Alternative

- In the Assistive Technology Assessment (ATA) Process Model, final outcome of an “assistive solution” [was] developed by the Association for the Advancement of Assistive Technology in Europe (AAATE). The solution for a user provided by an AT service delivery centre must “involve something **more than just a device**, it often requires a mix of mainstream and assistive technologies whose assembly is different from one individual [to] another, and from one context to another... **The assistive solution is the goal of the entire ATA process**, which, hypothetically, might not require any technological aid (e.g., just changes to fit the environment or a blend of use of a device and personal assistance) [7]. It is also crucial when pursuing the goal of the assistive solution that the user’s request is taken seriously, often requiring an exploration **to capture and understand the user’s real needs**. For this reason, the ATA process sees the role of the psychologist as essential – **a pillar** of the model – to help guarantee a user-centred evaluation and to empower users to make their own choices.
- Federici, Scherer, and Borscic (2014, p. 29)

Basic and Follow-up UX Levels

- Whereas the analysis of the accessibility and usability at the AT service delivery centre (the system) is useful for defining a **basic** level of UX (User eXperience) during the user interaction with an AT, the **overall** UX of the interaction can be measured only in the user’s daily life milieu-environment after a long period (at least 3 months) of use (**follow up** level of UX). Practitioners, by estimating the difference between basic and follow up levels of UX, can reliably assess whether the interaction between the users and the AT is positively increased over time or whether it decreased, affecting the users’ performances and/or their well-being. In the ATA process model, the basic and the follow up assessments of the UX are a **core part** of an AT system delivery process.
- Federici, Scherer, and Borscic (2014, p. 31; all steps; user satisfaction)

The Multidisciplinary Team

- The psychotechnologist... is an ideal support for the multidisciplinary team in the assessment phase and in the decision-making process. The psychotechnologist is more focused on the technological side of matching the person with technology and less oriented to the clinical and psychological dimensions of human technology interactions, relationships, and communication [10].
- The psychologist in an AT service delivery process provides an appropriate psychological evaluation or a precise clinical intervention with the users and/or their significant human context over the course of the whole AT assignment process. We believe that to invest in personal factors represents an important turning point for a successful match between person and technology. Assigning greater importance to personal factors would help dramatically to reduce the abandonment rate of technologies by users [4,11-20].
- Federici, Scherer, and Borscic (2014, p. 29)

A Multinational Baseline

- It is not sufficient to know about what personal factors are (Federici, Scherer & Borscic, 2014, p. 33, on the Rehabilitation Psychologist), but it [the ATA process model] requires specific competences about the dynamics of the subjective dimensions and individual functioning and their assessment. It also requires training in the ways in which to help individuals express themselves and uncover their true goals.
- The psychotechnologist... is an expert in assistive solutions. By means of the use of different tools – e.g., the Survey of Technology Use (SOTU) and the Assistive Technology Device Predisposition Assessment [ATD-PA;3], the Quebec User Evaluation of Satisfaction with Assistive Technology [QUEST; 38], the Software Usability Measurement Inventory [SUMI; 39], etc. – the psychotechnologist explores the user's needs by seeking a proper assistive solution, leading the multidisciplinary team to observe critical issues and problems [40].
- While certainly not a perfect or complete model, they [ATA model centres] do represent one basis for a multinational discussion on the individual points of the AAATE Position Paper 2012 (Federici, Scherer & Borscic, 2014, p. 37).

References

Bauer, S., Elsaesser, L.-J., Scherer, M., Sax, C., & Arthanat, S. (2014). Promoting a standard for assistive technology service delivery. *Technology & Disability*, 26(1), 39–48. <https://doi.org/10.3233/TAD-140403>

Federici, S., Scherer, M. J., & Borsci, S. (2014). An ideal model of an assistive technology assessment and delivery process. *Technology & Disability*, 26(1), 27–38. <https://doi.org/10.3233/TAD-140402>

Glossary

- AAATE (Association for the Advancement of Assistive Technology in Europe)
- ATA (Assistive Technology Assessment)
- ATSM (Assistive Technology Service Method)
- EASTIN (European Assistive Technology Information Network)
- HCI (Human-Computer Interaction)
- ICT (Information and Communications Technology, or Technologies)
- MPT (Scherer's Matching Person and Technology model)
- UX (User eXperience)