

Tools for Assessing Computer Access Skills

Edmund F. LoPresti

Koester Performance Research
4705 Fifth Ave. 1-I
Pittsburgh, PA 15213 USA
+1 412 901 1042
edlopresti@acm.org

Heidi Horstmann Koester

Koester Performance Research
2408 Antietam
Ann Arbor MI 48105 USA
+1 734 663 4295
hhk@umich.edu

William W. McMillan

Department of Computer Science
Eastern Michigan University
Ypsilanti, MI 48197 USA
+1 734 487 0110
csc_mcmillan@online.emich.edu

ABSTRACT

This paper reviews several assessment tools that have been developed to assist in determining computer access goals and needs. Our research team is currently developing a software tool to present consistent exercises and provide greater support for measuring functional abilities.

Keywords

Assessment tools, performance measurement

CURRENT PRACTICE

Assessment of client abilities is a key factor in a successful computer access intervention. A number of assessment tools, such as Matching Person and Technology and the Lifespace Access Profile, have been developed to assist rehabilitation professionals in determining clients' assistive technology goals and needs [2].

Existing tools provide limited support for measuring a person's functional abilities. Quantifiable measures can assist in selecting appropriate interventions, justifying interventions, and tracking the outcome of an intervention over time. Even when computer exercises are defined, they are performed with standard word processors or icons on the desktop of a standard graphical user interface [3,5]. The results of the tests will depend somewhat on a person's software. They also require the clinician to measure quantitative performance (e.g. time to complete a task) and make judgments about performance based on a Likert-type scale. It would be desirable if these measures could be recorded automatically, leaving the clinician free to observe more subjective aspects of client needs and preferences.

Software has also been developed which automatically presents consistent tasks and records results [1]. These programs tend to focus on one specific computer access skill (e.g. use of a pointing device, typing, or scanning). Software is currently available which presents evaluation exercises for a range of computer access skills (EvaluWare,

Assistive Technology Inc). However, EvaluWare does not automatically record performance data.

SOFTWARE DEVELOPMENT

To address these unmet needs, our team is developing software to present consistent tasks, measure and record performance, and assist in data interpretation. Prototype software was evaluated in a series of usability tests. Seven rehabilitation professionals performed a simulated assessment. All subjects were able to successfully complete all necessary tasks, and mean time for a simulated assessment was 19.4 minutes, significantly lower than the target time of 60 minutes derived from clinician surveys. These seven and 18 additional subjects completed surveys evaluating the software after trial use. Subject responses indicated that they felt the software would be worth the effort to use in assessments [4].

This software is currently being developed to provide additional features. Skill tests will include keyboard use, pointing device use, text entry, and switch use. Additional data visualization functions will be provided, as well as a telerehabilitation interface. Support will be provided for multiple operating systems.

ACKNOWLEDGMENTS

This work is supported by NIH grant 2R42 NS3625202A1.

REFERENCES

1. Angelo J. (1994). Scanning Assessment Tool Assessing Selection Control Techniques. *Proc. RESNA*, 383-385.
2. Bromley BE. (2001). Assistive Technology Assessment: A Comparative Analysis of Five Models. *Proc. CSUN*.
3. Dumont C, Dionne C. (2000). Validation d'un instrument de mesure pour évaluer l'accès à l'ordinateur chez les personnes ayant une déficience physique. *CJOT*. 67(3):173-183.
4. Koester H and McMillan W. (1998). Software for Assessing Computer Usage Skills. *Proc. RESNA 1998*. pp. 266-268.
5. Lee KS, Thomas DJ. (1990). Control of Computer-Based Technology for People with Physical Disabilities: An Assessment Manual. U. of Toronto Press, Toronto.