

EATS: Efficiency of Assistive Technology and Services

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Introduction and background

With this second newsletter, we want to inform you about the preliminary results of EATS, a European project on the effectiveness of assistive technology and services. The European Commission funds the EATS project (Fourth Framework Programme: TIDE programme).

The aims of the EATS project are:

1. To develop a methodology for comprehensive assessments of assistive technology and services (AT&S), including effectiveness.
2. To support decisions on group levels about AT&S by conducting field studies in specific areas, and providing information on effectiveness.
3. To provide recommendations for implementing the use of the instruments.

Instruments

As described in the first newsletter (May 1999) the following instruments were developed in the EATS project:

A. Individual Prioritised Problems Analysis (IPPA), which is derived from the Problem Elicitation Technique. The IPPA intends to describe the outcomes generated by the provision of AT&S in terms of solution to pre-identified problems.

B. EATS 2D, which is developed to be used in addition to the Euroqol. EATS 2-D describes changes (caused by the provision of AT) on the impact on disability in daily life. It is a tool for making general comparisons, for example

between services and technologies in different areas.

Methods

Both the IPPA and the EATS 2-D are supposed to be applicable to different categories of assistive technology and services and to be useable in different situations and settings. Therefore it is important to perform the tests in different assistive technology areas and in different countries. On the other hand it must be prevented that the variability of situations is too large. It was decided to restrict the study to a limited number of problem areas, so that the range of AT solutions in the study will be sufficiently varied and not too large. The criteria for this selection were:

- frequent problems so that sufficient data can be gathered in a limited time period;
- at least one problem area similar in all participating countries;
- sufficient variation of possible AT solutions;
- inclusion of problem areas in which technology from the telematics area as well as other technologies may be relevant;
- accessibility of the relevant service delivery procedures for the consortium partners.

The resulting problem areas are problems in mobility, speech related communication problems, hearing problems and self-care problems in relation to bathing. In the validity study the clients were interviewed twice by an independent interviewer /assessor. The first time early in the service delivery process, after a first global assessment of the problems and possible solutions been made by the service delivery professional, and a second time after three months of actual usage of the AT solution. Since the service delivery process differs substantially among

countries and also between problem areas, the exact timing of the first assessment may differ. From a methodological point of view this is unfortunate, but in practice unavoidable.

The instruments were tested in the context of AT service delivery in four different countries (Sweden, Norway, Italy and The Netherlands) regarding validity, feasibility and reliability. Based on an English version of the instruments, translations were made into the four languages.

Validation

The validity is estimated by comparison of the scores with the results of a few other instruments and variables, that may have expected to have a relation with the effects of the AT solution (*construct validation*).

These instruments and variables are:

- a) the SIP68 (a well tested instrument for problems in daily functioning);
- b) the judgement by the user of the degree to which the solution had fulfilled the expectations;
- c) Euroqol.

Responsiveness was assessed by means of effect sizes and comparison between instruments.

The *content validity* (or ‘face-validity’) has already been subject to testing during the development and especially the translation procedure of both instruments.

Feasibility

To assess the feasibility of IPPA and EATS 2-D, all interviewers were asked how difficult it was for them to understand the instructions and perform the interviews. This was done both by questionnaires and by group discussions with the interviewers. Also the interviewers had to evaluate each individual interview with respect to:

- duration of the interview;
- their impression of how difficult the interview was for the respondent (did he/she understand the questions, how

much explanation was required, et cetera);

- degree of non-response (questions not being answered);
- stage of the process in which the first interview took place; and other remarks or observations that might be relevant for improvement of the instruments.

Reliability

The reliability study is performed in the Netherlands only. Internal consistency is not applicable, because both instruments are no multi-item tests. The reliability is tested by the assessment of reproducibility. In this study a separate group of about 100 users were included. Clients who have been using a mobility assistive device for a while, who are in a stable mental and physical condition, and are older than 16 years are interviewed twice, with a period of two months in between. In one group the test-retest reliability is tested (same interviewer), in the other group the between-assessors reliability (different interviewers). Other indicators of reliability were derived from comparisons of results between countries and between different categories of assistive technology solutions.

Preliminary results

In the four countries a number of 248 clients were interviewed for validation purposes. Test-retest reliability and inter-assessor reliability were evaluated in a separate study in 100 clients.

The results indicate that the feasibility of both instruments is satisfactory. The questions fit well into the service delivery procedures in each country and can be easily administered. With respect to the validity the results show positive correlations between changes in IPPA scores and changes in SIP68 and Euroqol scores, which supports the construct

validity. Similar results are found for EATS-2D. The test-retest and inter-assessor reliability of EATS2-D are reasonable; in this perspective EATS2-D proves to be slightly better than the Euroqol. The test-retest reliability and inter-assessor reliability of IPPA is poor. More clear instructions, better training of the interviewers and a more self-explanatory questionnaire could improve the reliability.

Preliminary conclusions

In this stage of the development of the instruments, tests had to be limited to some of the most essential aspects of validity, feasibility and reliability. The results of the first field tests support the theory and principles behind the instruments and are promising with respect to their validity and reliability. The results of this study emphasise the importance of an integrated perspective in service delivery. People do not have isolated problems that easily fit into theoretical categorisations. However, further research is necessary before drawing final conclusions. Given the results this is considered as worthwhile. The consortium believes that the right direction was chosen with developing an adapted version of Euroqol and with focusing on assessing the degree of solving individually identified problems. On the basis of this study recommendations can be given for improvement of the instruments and for further validation studies.

International conference

On the **International Conference on outcome assessment in assistive technology on 24 –26 November 1999 in Oslo, Norway** the EATS Consortium will present the results of the study.

The program of the conference is sent with this newsletter.