The benefits of Environmental Control Units in everyday life, view of users and helpers

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Abstract
The Kuopio University Hospital (KUH) Device Centre in Finland has financed the installation of Environmental Control Units (ECU) for 31 disabled people. The Centre would like to further develop their services and obtain client feedback about the benefits and usability of these devices. The objectives of the study were to describe the benefits of the ECU use in everyday life and to describe the situations where the ECUs can be used. A questionnaire was sent to all 31 ECU users who were also asked to forward the questionnaire to their helpers. Twenty-four users (77%) and 26 helpers (42%) returned the questionnaire. The results of the questionnaires were analysed by descriptive statistics and content analysis. The door opening command was evaluated as one of the most important commands helping independence and social relationships of disabled people. The users stated that without ECUs they would be less independent and need more personal help.

1. Background
The public health care system in Finland provides assistive technology devices to disabled people. Kuopio University Hospital (KUH) Device Centre has financed the installation of Environmental Control Units (ECU) for 31 disabled persons. This process includes assessment of the future user needs and also the environment where the ECUs will be installed. Installation is also carried out by KUH, Department of Clinical Engineering and Information Technology in cooperation with the device centre.

The Centre regularly reviews its working strategies and part of that process involves obtaining feedback from the clients. The Centre has a quality assurance program which details the frequencies for collecting client feedback. [9] The Centre created a questionnaire form to collect feedback from the different assertive technology users about the benefits and usability of the devices. First the questionnaire was sent to the users of the ECU and communication devices.

A number of previous studies have investigated the use of ECUs and their benefits. These studies [1,2,3,4,5,6,7,8,10,11,12] have demonstrated that ECUs are well used and users are satisfied describing the benefits of ECUs as providing them with more independence and freedom.
2. Objectives of the study
The objectives of the study were to investigate first the benefits of ECU use and second how the users and helpers describe situations where ECU were used.

3. Method and sample
The used questionnaire was developed in the Centre. A questionnaire was sent on May 2002 to all 31 ECU users who were also asked to forward the questionnaire to their helpers/relatives. Twenty-four users (77%) and 26 helpers (42%) returned the questionnaire. Most of the ECU users have a large variety of different commands e.g. controlling their doors, electrical bed, lights, windows. Figure 1. One of the users questionnaires was omitted, because she had only one command, window opening, in use. Since she did not require any further commands. Furthermore, the responses of her two helpers questionnaires were also omitted. Thus the total sample was obtained from 24 helpers assisting 17 different users and as well as the 23 users themselves. There were 11 men and 12 women with age ranging from 20 to 67 years in the users group. Thirteen of the users lived in the service residence and 10 at home in different forms of housing. The helpers were mostly women i.e. 18 women and also 5 men in the age range 21 to 78 years old. The helpers were mostly professional helpers there were only 4 relatives answers in the respondents.

The questionnaires were analysed by descriptive statistics and content analysis.

Figure 1 Most common ECU commands programmed in users ECU in this group
Domestic appliance includes TV, radio, DVD, video etc. commands. Helper-alarm included in ECU is used mostly in the service residence.
4. Results

Environmental Control Units were in use every day. The users did not encounter any major difficulties in their use, only two users mentioned some difficulties. Most of the cases the helpers did not need to provide assistance with the ECU. Help was needed in a few cases to adjust the switch to the right place. The most frequently mentioned command in both groups was door opening with twenty-one out of 23 users and 21 out of 24 helpers mentioned the door opening. Users mentioned a greater number of different commands than helpers. Figure 2.

![Figure 2 Description of mentioned ECU commands by users and helpers.](image)

In the descriptions of the utility or usability of ECU, users described more the actual commands rather than their possibilities whereas helpers wrote more widely about the benefits of ECUs. For example, the door opening command was mentioned as providing possibilities to let guests in without help, to get out independently or to allow access to the helpers. In addition to those comments, helpers also stated that door opening by the user is one of the factors which makes independent living possible. Grouping the comments e.g. about door opening we could identify meanings such as independence and social relationships. Table 1.


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Table 1 Examples of expressions of ECU impact to users life

<table>
<thead>
<tr>
<th>Command</th>
<th>Independence</th>
<th>Social relationships</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door</td>
<td>&quot;possibility to go in and out&quot; &quot;independence in movement&quot;</td>
<td>&quot;neighbours can visit&quot;</td>
<td>&quot;needless transfers and the possibility of related falls&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;I can open the door to my friends&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Window</td>
<td>&quot;can open the window independently&quot; &quot;otherwise I would need help for opening the window&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECU general</td>
<td>&quot;I feel myself independent&quot; &quot;it gives equal possibilities for disabled people for independent living&quot;</td>
<td>&quot;I can meet my friends&quot;</td>
<td>&quot;I feel myself safe with ECU even though I am a severely disabled person&quot; &quot;possibility to check who is behind the door with the door intercom&quot;</td>
</tr>
</tbody>
</table>

Both groups agree that the ECU is very much in use and the users could not cope without it. If they did not have ECUs they would need more help and assistance. Some people said that they would require round-the-clock assistance if they did not have their ECUs.

5. Discussion

This study supports results of the previous studies which have investigated the ECU use. [1,2,3,4,5,6,7,8,10,11,12] All of them have established that ECUs are well used and that they have beneficial effects on the user’s quality of life. The most important issues seem to be the possibility for independent activity, the possibility to enjoy social relationships and the feelings of security. All of the answers stress the fact that without ECUs, users would not be living as independently as they do now and they would need much more help and assistance. In other words all the users and their helpers are satisfied with the ECU use and recommend strongly that ECUs should be installed more often to disabled people.

This study is a small sample of ECU users. However it does provide the necessary feedback to KUH device centre and its assessment team to develop these services further. It has had already impact on the services and follow-up e.g. those who asked have received a reassessment of their ECUs.

Further studies are needed to review the assessment and installation process and also to evaluate the economical benefits of the ECUs. In the future it may be possible to complete the questionnaire by email or via the Internet. Then the users would have better opportunity to fill in the form themselves. Since some of them may have difficulties in writing by hand and require their helpersto help them writing with written form. To obtain a better appearance of ECU use we would need to perform interviews and a different type of approach. However this study does give an overall picture of clients satisfaction with ECUs in the Kuopio University Hospital region.
References