

## Audio Editing with a Game Controller for Blind Users

# Nothing to See Here

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### Introduction

One could regard blind people as predestined for professions in which digital audio material is processed, e.g. at radio stations. Even when using assistive technology, **editing audio files can be difficult for blind people**, because the interfaces of established audio editing software are optimized for visual perception. We concentrated on the development of an operating concept that allows a blind person **without prior knowledge** of the application to quickly complete basic tasks in audio editing by means of an **acoustical user interface (AUI)**.

### Methods

The prototype is used with an **Xbox 360 controller**. The shoulder buttons can be pressed gradually, allowing the user to fast-forward and rewind at the desired speed. In addition, the prototype uses **text-to-speech synthesis** to communicate information. The application provides **basic audio editing functions** like copying, pasting and deleting audio sections by means of an **acoustical actions menu**.

Age	Gender	Controller Experience	Processing Time
39	male	yes	5 m 19 s
51	male	no	6 m 52 s
35	female	yes	7 m 39 s
25	female	yes	8 m 21 s
47	male	no	10 m 30 s

Table 1: Time required for solving tasks



Figure 1: A blindfolded user solving the test tasks

### Results

All testers (figure 1) were able to solve the test tasks (i.a. cutting, copying, pasting, saving audio material) in **5 to 10 minutes** (table 1). Experience with game controllers was not in any case an advantage. It was noticeable that after a short time all testers developed routine in repeating the similar steps necessary to complete the tasks.

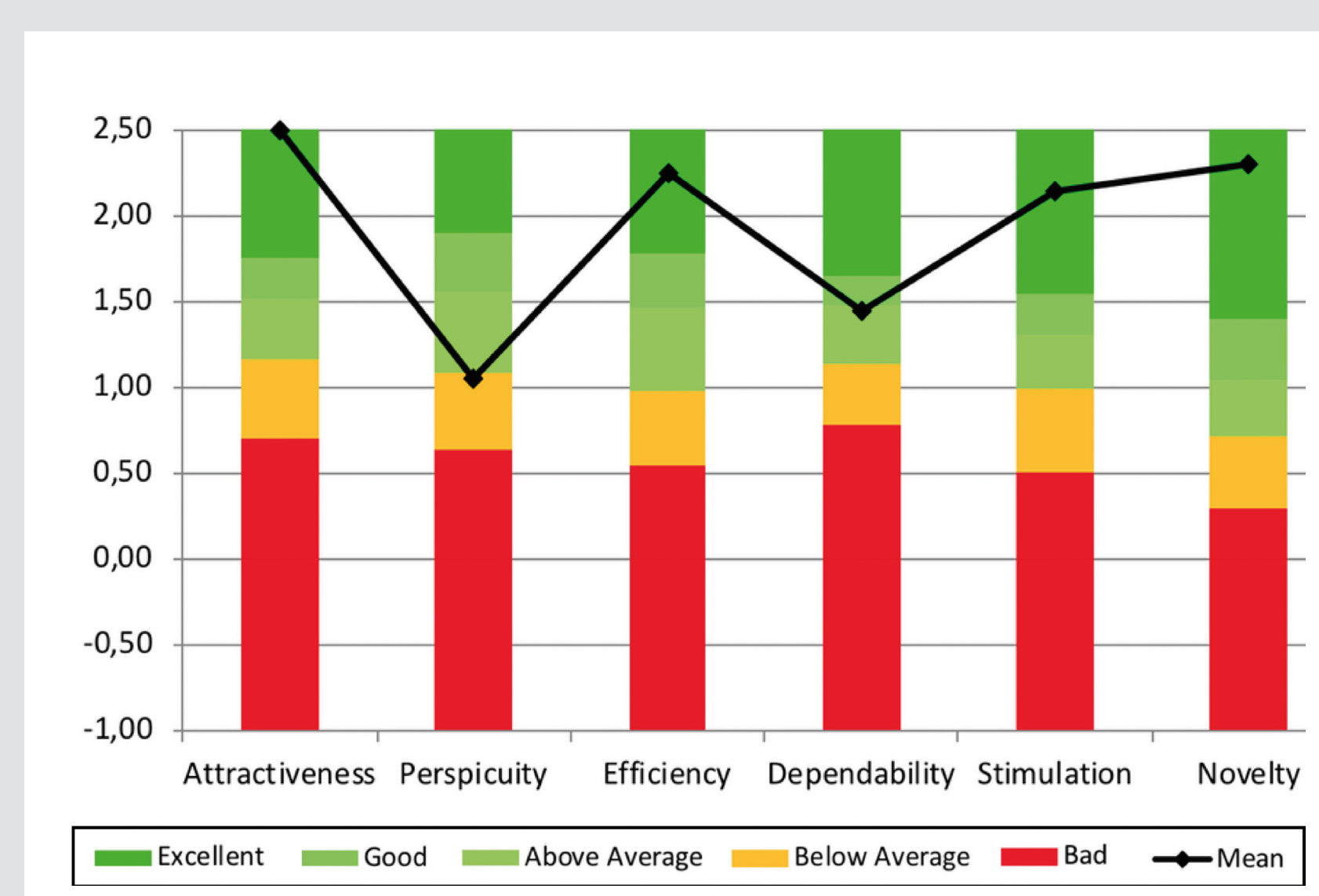


Figure 2: UEQ results

### Discussion

Our results (figure 2) show that **we have succeeded** in implementing an operating concept that people describe as **intuitive to use**. It can be assumed that people who are actually blind can get used to such a control concept even faster than our test persons. To improve the concept, actions from the menu could be assigned directly to unassigned buttons of the controller. Further tests could be used to find out when the operating concept is becoming too complex for users who are inexperienced with controllers or with which measures one could counteract emerging overloads. Another approach would be to introduce a beginner and an expert mode.

