

Abstract

Nowadays three-quarters of all sailing yachts are equipped with chart plotters and almost half of all sailors own a tablet PC with a sea chart application. Müller-Plath (2015a) has found that 25 % of these users complain about usability problems, which could cause serious risks for a safe operation and navigation of the yacht. In 2016 Jung (2016) presented a design guideline to enhance the usability of chart plotters and sea chart applications. The present master's thesis presents a primary revision of Jung's (2016) design guideline 1.0 and investigates its validity and applicability for today's established chart plotters and sea chart applications. Twelve sailors as domain experts participated in a standardized field test. With various devices 14 different tasks in three scenarios *configuration of the system*, *route planning* and *navigation* were solved by the participants so that they were able to evaluate the implementation of the required design guidelines using a checklist. Data for *effectiveness*, *efficiency* and *satisfaction* as measures for usability were collected simultaneously to relate the results to the number guidelines items met. However, the investigation has shown that a high number of implemented guidelines items did not affect *effectiveness*, *efficiency* and *satisfaction* sufficiently. Methodological constraints and reservations are discussed for a better understanding of the results.

Based on qualitative data from user and expert evaluations the design guideline has been verified and revised. The final version 2.0 resolves the restricted scope and limitations which Jung (2016) has postulated and is ready for practical use.