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Implementing human centred design in the context of a graphical user interface redesign for ship manoeuvring

N. Costa ^{a*}, E. Holder ^b, S. N. MacKinnon ^c

^a Division of Maritime Human Factors and Navigation, Department of Shipping and Marine Technology, Chalmers University of Technology, Hörnelgängen 4, SE-412 96 Gothenburg, Sweden

^b Man-Machine Systems, Fraunhofer FKIE, Fraunhoferstraße 20 | 53343 Wachtberg, Germany

^c School of Human Kinetics and Recreation, Memorial University of Newfoundland, St. John's, NL A1C 5S7, P.O. Box 4200, Canada

*Corresponding author. Tel.: +46 (0)31-772 36 96. nicole.costa@chalmers.se

1. Abstract

Human Centred Design (HCD) has been well-established in industrial and interaction design since the 1990's. HCD has a significant role to play as maritime industries struggle to retain the best crews and decrease risk in terms of human and environmental safety. This case study describes a test of an HCD approach, conducted within the European Commission project Crew-centred Design and Operations of Ships and Ship Systems (CyClaDes) under its Seventh Framework Programme. The HCD case study was undertaken by a design team at a partner firm for the redesign of a bridge wing conning display (a ship manoeuvring system) in their full mission ship bridge simulator. This paper summarizes the findings from the case study and discusses them from the perspective of the challenges, benefits, and most effective ways to introduce and use HCD in firms in the maritime sector unfamiliar with the concept. The authors of this paper performed observations, interviews and focus groups at regular intervals, augmented with reports and a resource survey completed by the design team. The conclusions highlight the impact of industrial context and constraints on the application of the HCD approach, as well as the impact of who applies HCD, of how it is depicted in literature and perceived by HCD-novice teams.

Keywords:

user centered design; usability; human factors/ergonomics; ethnography; activity theory; graphical user interface

2. Introduction

For the last sixty years, designers and manufacturers have increasingly focused on designing for the end-users of their products and defining these products on the basis of users' expected tasks, existing problems, and needs (Sanders and Stappers, 2008). Human Centred Design (HCD) and Usability are examples of this practice and have been well-established constructs in general design research within industrial and interaction design (Koskinen et al., 2011).

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