



1 of 1

[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More... >](#)
Theoretical Issues in Ergonomics Science • [Open Access](#) • Volume 20, Issue 4, Pages 507 - 531 • 4 July 2019
Document typeArticle • [Green Open Access](#)**Source type**

Journal

ISSN

1463922X

DOI

10.1080/1463922X.2018.1547458

[View more](#) ▾

The effect of cognitive and affective aspects on usability

 Prastawa H.^{a,b} [✉](#), Ciptomulyono U.^a, Laksono-Singgih M.^a, Hartono M.^c
[Save all to author list](#)
^a Industrial Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

^b Industrial Engineering, Universitas Diponegoro, Semarang, Indonesia

^c Industrial Engineering, University of Surabaya, Surabaya, Indonesia

4

Citations in Scopus

48

Views count [?](#)[View all metrics >](#)[Full text options](#) ▾[Abstract](#)[Author keywords](#)[SciVal Topics](#)[Metrics](#)**Abstract**

Studies on customer's needs, desires and preferences have become highly important in the product design and development process. One consideration in usability is the cognitive aspect, which is related to the accommodation and evaluation of human cognitive capabilities, limitations and tendencies. In addition to the cognitive aspect, a recent study has shown that the affective aspect has been considered in the evaluation of product usability. Thus, both cognitive and affective aspects are deemed to be important for product design and the development process. Inherently, both aspects deliver complete human and product interaction and experience. However, studies that consider the

Cited by 4 documents

Affective – Cognitive – Usability (ACU) Model Incorporating Eye Tracking Analysis for Redesigning the e-Commerce Website

 Hartono, M. , Hadi Kusumo, A. , Aprilin Asikin, D. (2022) *Lecture Notes in Networks and Systems*

Study of the Effect of Cognitive and Affective Aspects of Smart Governance in Ambon City

 Pariama, R.E. , Santoso, A.J. , Mudjihartono, P. (2020) *PervasiveHealth: Pervasive Computing Technologies for Healthcare*

Whether information source should be provided in the response of voice interaction system?

 Zhang, Y. , Zhou, R. , Sun, Y. (2020) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*
[View all 4 citing documents](#)

Inform me when this document is cited in Scopus:

[Set citation alert >](#)
Related documents

Perceived kansei and performance-based usability impact on satisfaction for web-based applications

 Hartono, M. (2019) *IOP Conference Series: Materials Science and Engineering*

Evaluation framework for user preference research implemented as web application

 Bartuskova, A. , Krejcar, O. (2013) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*



Source details

Theoretical Issues in Ergonomics Science

Scopus coverage years: from 2000 to Present

Publisher: Taylor & Francis

ISSN: 1463-922X E-ISSN: 1464-536X

Subject area: Social Sciences: Human Factors and Ergonomics

Source type: Journal

[View all documents >](#)

[Set document alert](#)

[Save to source list](#)

CiteScore 2021

4.5



SJR 2021

0.647



SNIP 2021

1.043



[CiteScore](#) [CiteScore rank & trend](#) [Scopus content coverage](#)

i Improved CiteScore methodology



CiteScore 2021 counts the citations received in 2018-2021 to articles, reviews, conference papers, book chapters and data papers published in 2018-2021, and divides this by the number of publications published in 2018-2021. [Learn more >](#)

CiteScore 2021

$$4.5 = \frac{664 \text{ Citations 2018 - 2021}}{148 \text{ Documents 2018 - 2021}}$$

Calculated on 05 May, 2022

CiteScoreTracker 2022

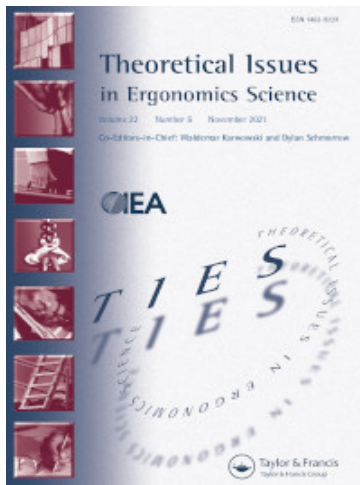
$$4.3 = \frac{615 \text{ Citations to date}}{144 \text{ Documents to date}}$$

Last updated on 05 October, 2022 • Updated monthly

CiteScore rank 2021

Category	Rank	Percentile
Social Sciences		
Human Factors and Ergonomics	#14/40	66th

[View CiteScore methodology >](#) [CiteScore FAQ >](#) [Add CiteScore to your site](#)



Theoretical Issues in Ergonomics Science

 [Publish open access in this journal](#)

Publishes interdisciplinary works on human factors and ergonomics theories and applications, including qualitative and quantitative methodological frameworks.

[Advanced search](#)

[Submit an article](#)  [New content alerts](#)  [RSS Subscribe](#)  [Citation search](#)

 [Current issue](#)  [Browse list of issues](#)  [Explore](#)

[Endorsed by the International Ergonomics Association](#)

[About this journal](#) 

[Browse this journal](#) 

 [Sample our Computer Science journals, sign in here to start your access, latest two full volumes FREE to you for 14 days](#)

 [Electronic Banner Advert for STAR: supporting authors in the Global South](#)



Waldemar Karwowski

- *Industrial Engineering and Management Systems, University of Central Florida, Orlando, Florida*
32816-2993, USA

Dylan Schmorrow

- *SoarTech, Ann Arbor, Michigan, USA*

Associate Editors:

Magdalena Fafrowicz - *Jagiellonian University, Malopolska Centre of Biotechnology - Neurobiology, Poland*

David Kaber - *North Carolina State University, USA*

William Krebs - *Office of Naval Research, USA*

Sae Schatz - *Independent Consultant, USA*

Redha Taiar - *University of Reims, France*

Editorial Board:

Tareq Ahram - *University of Central Florida, USA*

Ashraf Alhujaili - *University College, Saudi Arabia*

Awad Aljuaid - *Taif University, Saudi Arabia*

Pedro Arezes - *University of Minho, Portugal*

Rick Arnold - *Aeromedical Research, USA*

Sebastiano Bagnara - *University of Siena, Italy*

Ann Bisantz - *University at Buffalo, USA*

Deborah A. Boehm-Davis - *George Mason University, USA*

Amanda Bond - *Soar Technology, USA*

Robert Bridger - *Independent Consultant, UK*

Paulo Carvalho - *Instituto de Engenharia Nuclear, Brazil*

Don Chaffin - *University of Michigan, USA*

Roberto Champney - *Design Interactive, Inc., USA*

[Issue 4](#)
[Issue 3](#)
[Issue 2](#)
[Issue 1](#)



Browse by section (All) ▾



Display order (Default) ▾



Download citations



Download PDFs

Theoretical Issues in Ergonomics Science, Volume 20, Issue 4 (2019)

Articles



Article

[The usual suspects? A novel extension to AcciMap using accident causation model tenets](#) >

Eryn Grant, Paul M. Salmon & Nicholas J. Stevens

Pages: 397-418

Published online: 15 Nov 2018

267	2	1
Views	CrossRef citations	Altmetric



Article


[A comprehensive tool for developing new human-centred and social inclusion-oriented design strategies and guidelines](#) >

Emilio Rossi

Pages: 419-439

Published online: 05 Dec 2018

255	0	0
Views	CrossRef citations	Altmetric

 [Individual differences in human-machine trust: A multi-study look at the perfect automation schema](#) >

Joseph B. Lyons & Svyatoslav Y. Guznov

Pages: 440-458

Published online: 26 Nov 2018

919	22	0
Views	CrossRef citations	Altmetric


 Article
[Using fuzzy coding with qualitative data: example with subjective data in human-computer interaction](#) >

Pierre Loslever, Taisa Guidini Gonçalves, Káthia Marçal de Oliveira & Christophe Kolski

Pages: 459-488

Published online: 27 Feb 2019

277	1	0
Views	CrossRef citations	Altmetric


 Article
[Evaluating and designing procedures in safety critical environments: a framework and taxonomy based on a critical review and synthesis](#) >

Deepti Surabattula, Steven J. Landry & Barrett S. Caldwell

Pages: 489-506

Published online: 28 Jan 2019

170	1	0
Views	CrossRef citations	Altmetric

 Article
[The effect of cognitive and affective aspects on usability](#) >

▼ **Published online:** 12 Jan 2019

381	4	0
Views	CrossRef citations	Altmetric

Explore

Most read articles

Most cited articles

 Open access articles

Article

Human factors and ergonomics methods in practice: three fundamental constraints >

Steven T. Shorrock et al.

Volume 17, 2016 - Issue 5-6

Published online: 10 May 2016

Views: 11719



Article

A multi-level model on automated vehicle acceptance (MAVA): a review-based study >

Sina Nordhoff et al



The effect of cognitive and affective aspects on usability

Heru Prastawa^{a,b}, Udisubakti Ciptomulyono^a, Moses Laksono-Singgih^a and Markus Hartono^c

^aIndustrial Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia; ^bIndustrial Engineering, Universitas Diponegoro, Semarang, Indonesia; ^cIndustrial Engineering, University of Surabaya, Surabaya, **Indonesia**

ABSTRACT

Studies on customer's needs, desires and preferences have become highly important in the product design and development process. One consideration in usability is the cognitive aspect, which is related to the accommodation and evaluation of human cognitive capabilities, limitations and tendencies. In addition to the cognitive aspect, a recent study has shown that the affective aspect has been considered in the evaluation of product usability. Thus, both cognitive and affective aspects are deemed to be important for product design and the development process. Inherently, both aspects deliver complete human and product interaction and experience. However, studies that consider the affective process as a complement to the cognitive process for usability are relatively rare. To address this gap, this study discusses how an integrative framework of the cognitive and affective aspects can be applied to a product for usability assessment via empirical studies on e-commerce and e-learning platforms. The sample involved 230 respondents, using purposive sampling. The result shows that both cognitive and affective aspects have a significant effect, although with different weights. The affective aspect has been shown to improve product usability and user's acceptance.

ARTICLE HISTORY

Received 18 March 2018
Accepted 8 November 2018

KEYWORDS

Cognitive aspect; affective aspect; usability; e-commerce web; e-learning web


Relevance to human factors/Relevance to ergonomics theory

This study takes the form of both cognitive and affective ergonomics associated with usability. One consideration in usability evaluation is the cognitive aspect, which is related to the accommodation and evaluation of human cognitive capabilities, limitations, and tendencies. In addition to that, a recent study has shown that the affective aspect has been considered in the evaluation of product and service usability. It shows both cognition and affect as the main focus in human centered design have been taken into account for product and service interaction.

This research offers significant contributions. First, the findings can be used to determine the proportion of cognitive and affective aspects in product and service design, particularly those are related to usability evaluation. Product and service designers can gather feedbacks



The usual suspects? A novel extension to AcciMap using accident causation model tenets

Eryn Grant, Paul M. Salmon and Nicholas J. Stevens 

ABSTRACT

Previous examination of the most widely used systems based accident causation models identified a series of core accident causation tenets. It is believed that these core tenets, referred to as 'systems thinking tenets', are the first step to a proactive approach to system safety. The article examines the Kimberly Ultramarathon fire and the extent that the systems thinking tenets can be applied using Rasmussen's AcciMap technique. The findings suggest that indeed the tenets can be identified and further expose the specific system vulnerabilities that led to the Kimberly Ultramarathon accident. The tenets are a beneficial addition to the AcciMap technique providing the analyst a means to classify system properties leading to accidents. Implications for practice and future research steps are discussed.

ARTICLE HISTORY

Received 19 June 2017
Accepted 5 August 2018

KEYWORDS

Accident analysis;
AcciMap; accident
prediction; methods and
approaches; systems
thinking tenets

Relevance to human factors/Relevance to ergonomics theory

The research presents a novel adaptation to AcciMap. Using the combined principles of accident causation, derived from multiple accident models, an analysis was completed. This analysis provided insight into how contributing factors within incidents are related as systems properties over and above incident characteristics. Understanding how core principles of accident causation are interrelated within incidents may provide a broader systems view exposing what safety management requirements are needed for future protections.

1. Introduction

The systems approach is underpinned by the idea that both safety and accidents are emergent properties of sociotechnical systems. All behaviour is affected by the complexity of the system in which it occurs drawing from social contexts, value systems and work processes (Leveson 2011). This is characterised by interactions that are non-linear and produce emergent behaviours that are hard to predict (Rasmussen 1997). Accident causation methods underpinned by the systems approach apply a holistic analysis to identify the interconnected web of relationships involved in an adverse event. This approach relies on retrospective accident data to improve system performance, over time the system is maintained by iterative corrections and improvements based on analysis of past performance. While this strategy has been effective, recently safety critical domains that employed the use of retrospective accident



A comprehensive tool for developing new human-centred and social inclusion-oriented design strategies and guidelines

Emilio Rossi^{a,b}

^aEmilio Rossi Design Consulting, Ortona (CH), Italy; ^bDepartment of Architecture, University of Chieti-Pescara, Pescara (PE), [Italy](#)

ABSTRACT

While Human-Centred Design is by the time considered a consolidated design methodology, emerging social inclusion-oriented theories need to be more comprehended in order to understand their potential applications in the development of new design solutions. This sort of discrepancy often generates contradictory phenomena: solutions developed using such approaches cannot be considered, at the same time, fully human-centred and social inclusion-oriented. The purpose of this article is to describe a new comprehensive tool, conceived both for designers and researchers, able to develop human-centred and social inclusion-oriented design strategies and guidelines. The tool, which is called 'HSDT' (Human-Social Design Tool), is an easy-to-use methodological instrument useful to identify focused results oriented toward Human-Centred Design and Social Inclusion. Using logical sequences, it allows to develop new conceptual definitions for both design and non-design subjects into new human-centred and social inclusion-oriented records. Theoretical foundations, methodological approaches, development stages and applications in design and non-design areas are presented and discussed to demonstrate real benefits resulting from the introduction of a new type of interdisciplinary tool and, later, the opportunity for designers and researchers to adopt new problem-solving approaches to bridging the gaps within Design literature.

ARTICLE HISTORY

Received 24 November 2017
Accepted 16 August 2018

KEYWORDS

human-centred design;
social inclusion; new tool;
interdisciplinary; design
strategies and guidelines

Relevance to human factors/Relevance to ergonomics theory

While Human Factors and Ergonomics (HF/E) methods and tools are often used in Design discipline to conceive new performance-oriented user-centred solutions, only few approaches investigate the relation between end-users, solutions and the social context where they will operate, and its direct and indirect impacts. This paper introduces a new comprehensive tool, conceived both for designers and researchers, to develop human-centred and social inclusion-oriented design strategies and guidelines. The tool is therefore in line with HF/E tradition due to it suggests an extension of own disciplinary applications with new social insights, which contribute to give a more holistic perspective to the notion of Human-Centred Design (HCD).