

Masterseminar SoSe 2020

Human Factors in Health Care

Eva Oppel

Jakob Everding

Veronika Golubinski

Henrike Schmidt

Organisatorischer Ablauf

1. Themenvergabe
 - Wann? Donnerstag, 23. Januar 2020 von 18-20 Uhr
 - Wo? Raum 4030/32, Esplanade 36 (4. OG, Anwesenheitspflicht!)
2. Präsentation der Ergebnisse
 - Wann? Freitag, 15. Mai 2020 von 16-20 Uhr **und** Samstag, 16. Mai 2020 von 09-20 Uhr **und** Sonntag, 17. Mai 2020 von 10-18 Uhr
Hinweis: Genaue Zeiten werden am 23.01.2020 bekannt gegeben
 - Wo? Raum 4030/32, Esplanade 36 (4. OG, Anwesenheitspflicht!)
3. Abgabe der Seminararbeiten
 - Wann? Montag, 13.07.2020 bis spätestens 12.00 Uhr
 - Wo? Am Lehrstuhl für Management im Gesundheitswesen (Katja Sudmann)
Raum 4007, Esplanade 36 (4. OG)
 - Was? 1 x Papierform (gebunden) und 1 x in elektronischer Form (Word-Datei auf CD oder per Email an den Betreuer)

Summary

Health care professionals are among the most highly trained, driven and conscientious professionals. So, how is it that medical errors are a major public health problem and patients do not consistently receive evidence-based care?

Despite their education and desire to deliver the best care possible, health care professionals can be set up for mistakes by poorly designed medical devices, uncoordinated care processes and fragmented systems. Too often, these systems are designed in a way that do not account for how people actually interact with their work environment.

Human beings have limited attention spans. We perform worse when we are tired. We can only focus on one thing at time. We forget things. When systems ask us to go beyond these and other limits, failures can occur. Urging clinicians to “try harder” or “be more careful” will not safeguard them against errors. Likewise, efforts to improve care solely through education often have minor and fleeting improvements, if any. To reduce or prevent such harms, the health care environment must be designed with human limitations and abilities in mind.

This is the focus of human factors. Human factor is a multi-disciplinary science that sits at the intersection of psychology and engineering. The aim of human factor as a scientific discipline is to enhance understanding of the interaction among humans and other elements of a system within a given environment. Human factor research applies psychological and physiological principles and theories to the design of products, processes, and systems. Research insights can be used for improving safety, efficiency, quality, and reliability when applied effectively, while also reducing costs.

While human factors approaches have been used for decades in complex, high-risk fields such as aviation and nuclear power, their introduction to health care was limited until the Institute of Medicine's 1999 landmark report, "To Err is Human: Building a Safer Health Care System." Even today, these approaches are not widely adopted, and more work is needed to integrate human factors methods and tools into health care improvement work. Human factor research helps advancing our understanding on how systems can be redesigned to improve patient safety and team performance.

Learning objectives:

This seminar is designed to help participants build and extend their understanding of human factor research in health care. Through discussions and analyses of current conceptual and methodological developments in the human factor research and some of its main reference disciplines, participants will advance their skills of reflecting different approaches in human factor research. Further, this seminar is designed to offer participants the opportunity to learn and try out quantitative and qualitative research methods. We highly encourage students, who think about writing an empirical master thesis to seize the opportunity of using empirical research methods. Data sets for empirical secondary data analyses will be provided. In terms of language, students can decide on whether to present / write in German or English.

Prerequisites: None. Students from other disciplines (e.g. UFÜ Schwerpunkt) are welcome.

Themes (preliminary list, subject to change; final list will be published on Stine before Kick-off)

1. Integrated care

The role of human factors (e.g. relationships and communication) in developing integrated care
– A qualitative analysis

Human factors in implementing complex healthcare interventions – A systems thinking perspective for understanding unintended consequences

2. Mental health

Early risk detection of burnout among clinicians - A systematic literature review of measures

The impact of healthcare workers job environment on their mental health – A systematic literature review

The impact of clinicians workplace stress on clinical outcomes – How could human factor methods help?

3. Error management and Patient safety

Human factors engineering and patient safety - A systematic literature review

Human factor approaches in error management

Human factor approaches in error prevention – lessons from aviation

4. Minimizing clinician error

Application of machine learning techniques in the area of breast cancer screening. Modelling a classification algorithm to predict the severity of mammographic mass lesion

Can artificial intelligence help reduce clinician error? Application of machine learning techniques to predict heart disease

Friend or foe? Analyzing physicians' attitudes towards new technologies. The case of robot-assisted surgery