Computers as team players

Heart disease 26%
Cancer 23%

Human error
User error vs use error
Never events vs near miss
Safety I vs Safety II

Safety II means making the good stuff bigger
Who should embrace human factors?

We argue that designers should take more responsibility. Here are some eye opening examples …
What percentage of the world lives in Manchester?

Population of Manchester is 514,417
Population of the world is 7 billion
AC \( \frac{514417}{7000000000} \times 100 = \)

Enter 1.75

"I thought I'd entered 1.75
I just don’t understand it.
I guess I must have made a mistake."

Overdose of CaCl₂

Hiatt was escorted from the hospital,
put on administrative leave,
then fired

and

- Nursing Commission $3,000 fine
- 80 hours of new coursework
- 4 years probation

The suicide of Kimberly Hiatt, a nurse at Seattle Children’s hospital,
has opened wounds for her friends and family members.

The Seattle Times
Nurse’s suicide follows tragedy

The suicide of Kimberly Hiatt, a nurse at Seattle Children’s hospital,
has opened wounds for her friends and family members.

As a result, the Nursing Commission
closed its investigation...

Peter Sheppard, Institution of Engineering and Technology, said:
"It is disappointing to see two recent major incidents (France and Spain)
where there has been a significant loss of life. However [...]
it would seem that both are as a result of human error and not the technology involved.”

Human error is system and culture failure

July 2013
78 dead

Reported 20 April, 2011

As a result, the Nursing Commission
closed its investigation...
- 100% confused by setup or selection of mL/hr
- 100% pressed Start incorrectly
- 40% confused by user interface
- 60% needed hints to use it
- 60% confused by decimal point

\[ \text{AC } \frac{5250}{45.57}/4 = 28.80 \]


UCD

efficiency-thoroughness trade-off

procurement  manufacturer  consultancy

sharp  end

thick  end

ISO 9241

UCD
1. INTRODUCTION

Number entry is ubiquitous: it is required in many fields including science, healthcare, education, and business. Despite its commonality, the task of entering numbers is often not designed with the user in mind. This can lead to a range of problems, from simple typing errors to more serious issues such as incorrect calculations or data entry mistakes. The cost of these errors can be high, both in terms of financial loss and in terms of patient safety.

Numerous studies have demonstrated the prevalence of number entry errors in a wide range of systems. For example, in the healthcare domain, errors in drug dosing and other medication-related tasks can have serious consequences, leading to patient harm or even death. In the finance sector, errors in account balances and transactions can result in significant financial losses for both individuals and organizations.

To address these problems, there is a growing emphasis on human-centred design (UCD) principles. UCD aims to design systems that are intuitive, easy to use, and that meet the needs of the users. This involves understanding the context in which the system will be used, designing for usability, and prioritizing user needs over technological requirements.

In this paper, we explore the extent of number entry errors in a wide range of systems and discuss how UCD principles can be applied to reduce these errors. We present a new approach to managing number entry errors, which we argue can be more effective than existing methods.

We start by reviewing the existing literature on number entry errors. We then present a case study from a healthcare setting, where we observed a high rate of errors in the drug dosing process. We discuss the context in which the errors occurred and the factors that contributed to them.

Next, we present our new approach to managing number entry errors. This approach is based on the principles of UCD and involves designing number entry interfaces that are intuitive and that minimize the error rate. We demonstrate the effectiveness of our approach through a series of experiments and case studies.

Finally, we discuss the implications of our findings for the design of future systems. We argue that the new approach can be a practical solution to the problem of number entry errors, and that it should be adopted by designers and developers.

Take homes

"User error" doesn't make sense
Don't be a second victim
Manage error to reduce harm
Computers don't help...
... unless there is UCD

• Ask for more human factors at the blunt end

http://www.harold.thimbleby.net

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