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Jorge Frascara

**Data,  
information,  
design,  
and traffic injuries**

## Some premises about design: creating a common ground

1

Design is not concerned with objects,  
but with the impact that those objects have on people

2

Operational impact and cultural impact

3

Not transmitter-receiver, but producer-interpreter

4

Partnership - Negotiation

5

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Planning and self-organization

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Problem solving vs. problem reducing

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Reducing problems vs. identifying problems

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Form, materials and self-expression vs.  
content and context

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Design as product vs. design as process (iterative design)

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Debate vs. conversation

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The hidden dimensions of the economy:  
design as investment

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From the design of objects to the design  
of situations and activities:

The dematerialization of design

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## Some premises about information design

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### Defining information design (User centred design / Ethics)

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Information design helps make information easier to read, to understand, to remember, and to use (things such as forms, legal documents, signs, non-prescription drugs leaflets, computer interfaces, control panels, technical information, user manuals, and operating instructions).

Information design uses evidence-based methods and strategies to make information accessible, appropriate, attractive, believable, complete, concise, relevant, timely, understandable, and usable.

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Bad information design produces forms that are wrongly completed and costly to process;  
instructions that cause frustration and even danger;  
education materials that do not help learning;  
ambiguous scientific and technical data;  
websites difficult to navigate;  
or even control displays that do not alert operators about dangers.

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Information design design does not focus on looks,  
but on *users*, tasks, contexts, and purposes.

The main point is not *what one has to say*,  
*but what people must understand, remember, and use.*



## The design process: *Alternating design methods and research methods*



## Data without context is not information

Information design can help make decisions,  
*but there must be a context*

- 1) 43,100 deaths
- 2) 43,100 deaths per year (2007)

Data with context becomes information

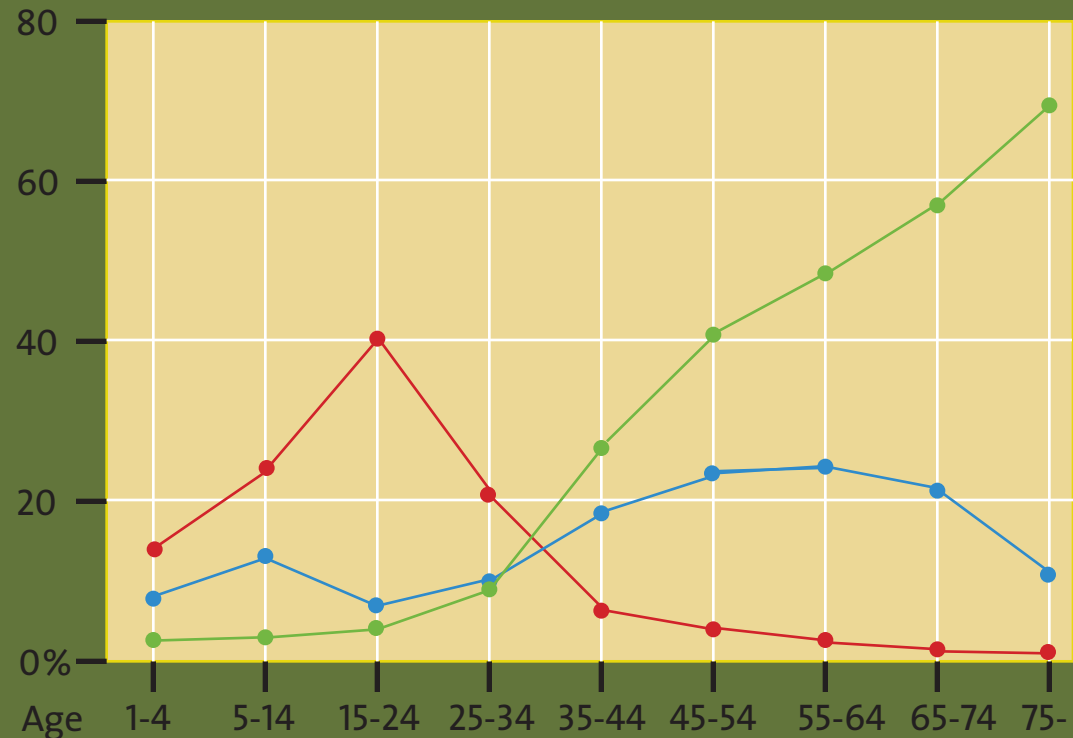
- 3) 43,100 deaths were caused in the USA  
by traffic collisions in 2007

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*Is that lots, little, normal?  
Is it significant?*

## Significance of the problem

Traffic collisions are the leading cause of death for people under 35 years of age.



Percentages of heart disease ●  
 cancer ●  
 and traffic incidents ●  
 of all the death causes within each age group  
 in the USA (WHO)

## Traffic fatalities

Absolute numbers for USA,  
Canada and Norway

(Good information avoids  
deception)

Population in millions

USA	304
Canada	34
Norway	4.8



## Is the USA traffic fatalities rate good or bad compared with other countries?

Data with more context creates more (accurate) information, helps value judgements and assists action planning

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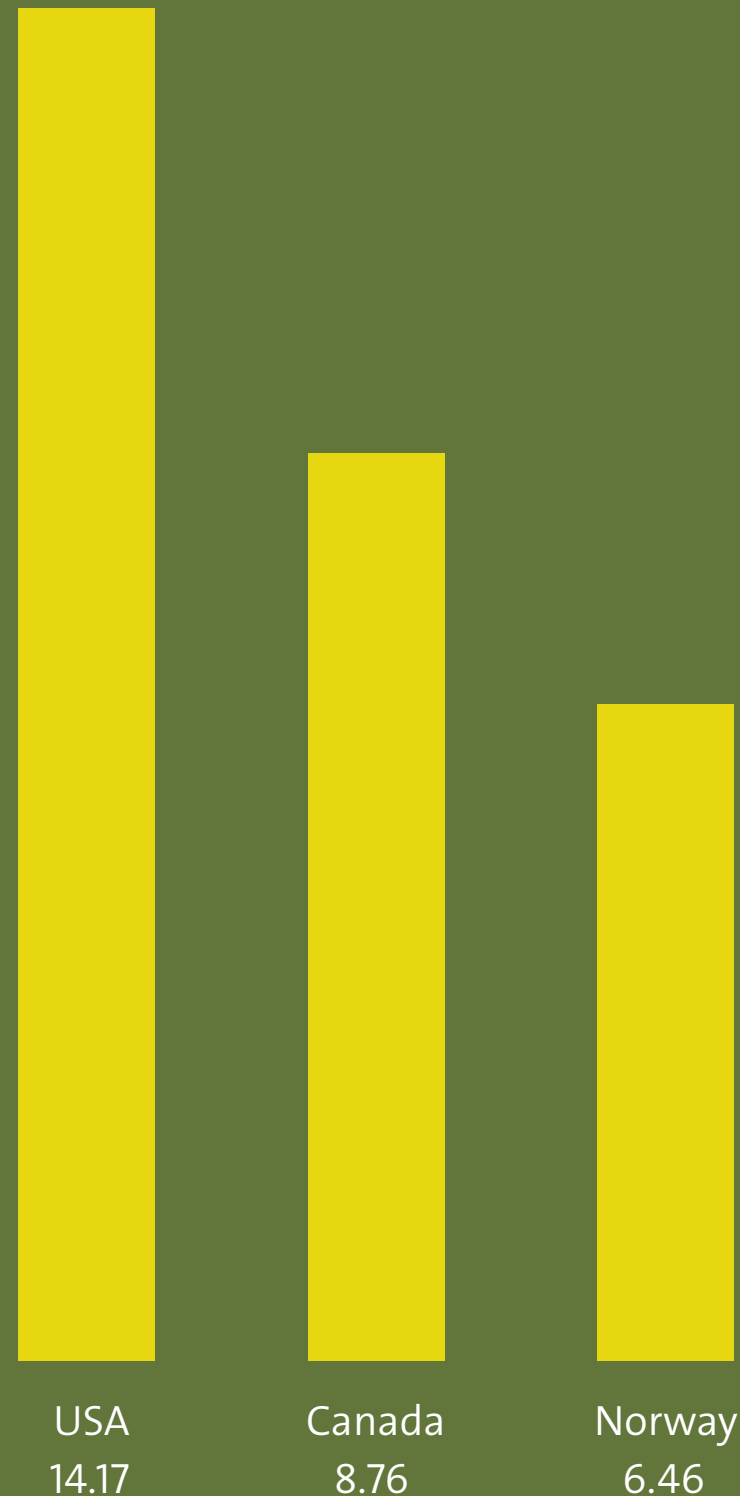
43,100 deaths were caused in the USA by traffic collisions in 2007

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As a rate per population:  
1.6 times that of Canada  
and  
2.2 times that of Norway

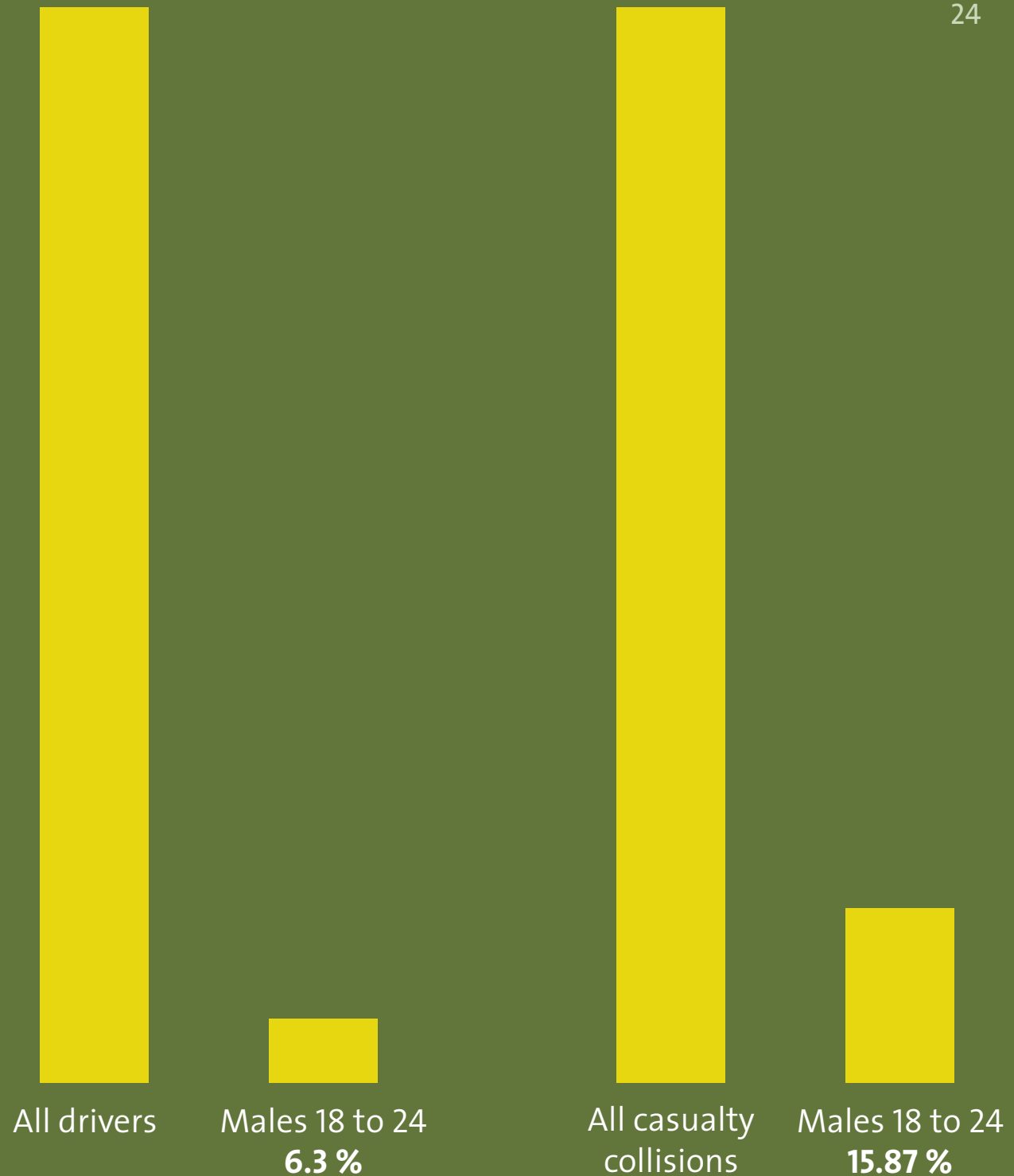
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Fatalities per 100,000 people:



## Highest risk group for involvement in injury collisions

This narrows the scope of audiences to address and promises a high return on investment



## Contexts for data may belong to different categories

Number of people and severity of injury

Traffic injuries are 36% of all unintentional injuries in the USA

**All** unintentional injuries in the USA in 2006 amounted to:

27.6 million hospital emergency ward visits

3.0 million hospitalizations

120,500 deaths

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Costs

Cost of all unintentional injuries in the USA:

**684 Billion US\$**

Cost of injuries are 4.82 %  
of the USA Gross Domestic  
Product (2008: 14,200.3 B)

The Health Care industry  
(The problems of privatization)

Can injuries be avoided?

Why is there no organized action in  
so many countries?

Is it because data have not become  
information in the public's mind?

*(Bateson defined information as  
"difference that makes a difference")*

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## Facts and the media

Media hype:

The swine flu killed less than 50 people in the USA

Traffic injuries kill 118 people every day

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A feasible reduction of traffic injuries:

50% reduction in the USA =

165,000 new hospital beds and

62,000 new teachers,

improving health, health care and general education

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A 50% reduction of traffic injuries

would save 123 B per year.

**Data design helps decision making processes**  
(to invest in an injury prevention campaign)

How to turn injury data into compelling information?

Data should be not only clear, but convincing.

**Information design always has a persuasive component**

The language has to be right:  
tables for accountants,  
prose for politicians,  
charts for statisticians,  
and diagrams for designers.

But this only refers to the form:  
The content must be crafted  
to foster the adoption of the proposed action.

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## Summing up (at the macro scale)

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Information design does not use universal recipes: it must consider purpose, content, context and audience.

### Purpose

Cognitive tasks support:  
to help acting on the basis of *information*  
Judgment tasks support:  
to help acting on the basis of *evaluation*

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### Content

Scientific, economic, academic, technical, medical, journalistic, etc.

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### Context

(*physical, conceptual, cultural, linguistic, etc.*)

Macro scale:  
national policy, county, city, NGOs, etc  
Micro scale:  
professional, business, personal, etc

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### Audience

Accountants, demographers, economists, politicians, secondary school students, general public, peasants, illiterate people, diverse cultures, seniors, army officers, etc.

# The importance of contexts: Some examples

## 1 - Physical contexts



# The importance of contexts

## 1 - Physical contexts



# The importance of contexts

## 2 - Cognitive contexts



## The importance of contexts

### 3 - Maintenance contexts



## CONCLUSION - 1

Information design relates to:

1) cognitive tasks; and 2) changes in public behavior.

Facilitating cognitive tasks is more possible:

- if the audience is of a definable culture;
  - if it is in their best interest to cooperate in the development of the project;
  - if one has access to observe all the situations of use;
  - and if one can combine structured interviews with performance tests and anthropological observation, and engage in an iterative approach to designing.
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## CONCLUSION - 2

Changes in public behavior are difficult to achieve and require that:

- The audience be significant, reachable, reactive, and measurable.
  - the content be connectable to things the audience already understands;
  - it must be presented in their “language,” and, where action is needed, the audience must see a personal benefit in the adoption of the action.
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## CONCLUSION - 3

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Data without context is not information,  
and the contexts at play can partly be created by the designer,  
but are also brought in by the audience, the objective, and the situation of use.

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Design, to be truly good and effective, must be ethical;  
it must acknowledge and understand the users,  
their needs, their possibilities, and their wishes.

Only working *with* the people and not *for* the people,  
one can use design for its highest end:  
to change an existing reality into a better one.

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*Thank you*

*Jorge Frascara*