Welcome to *Research Methods*

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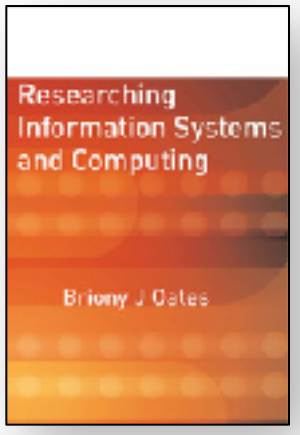
2016–2017

Radboud University

Usability Testing Essentials
Basics of Qualitative Research
Research Methods for Education
RESEARCH METHODS IN EDUCATION
business research methods
social research methods
Social Research Methods
SCIENCE TEACHING
REAL WORLD RESEARCH

Study Materials

- Oates, B. J. (2006). *Researching information systems and computing*. Los Angeles etc.: Sage. ISBN 9781412902243.



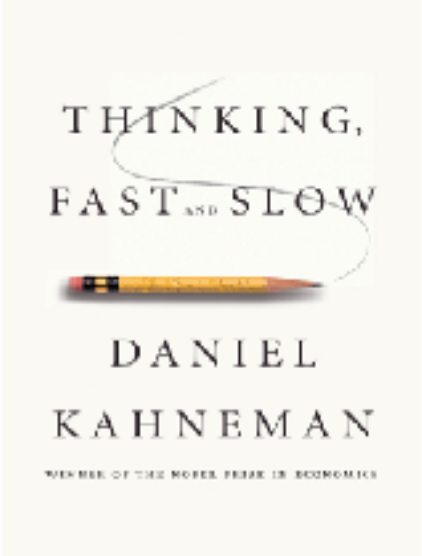
- Papers, examples
- Lab (*Elektronische Werkplaats*)

Course deliverables

- Individual research plan
- Written exam
- 2x peer feedback moments
- Assessment criteria available via rubrics
- https://lab.cs.ru.nl/algemeen/Onderzoeksmethoden

Everyday Thinking vs. Research Thinking

- What comes to mind when you think of research?
- How does it differ from everyday thinking?
- What are the pros and cons of both?
- ‘Levels’ of research truth…



Why Mobile Devices Might Mean Shorter Attention Spans

JULY 9, 2013 | 10:15 AM

BY JOHN O'CONNOR

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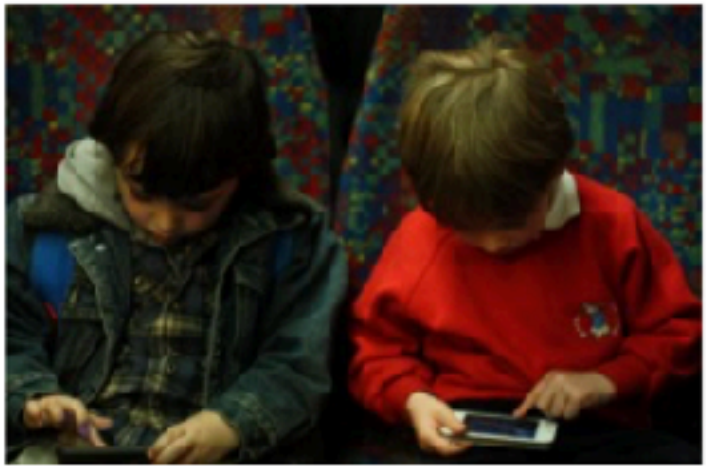


SCRIBBLETAYLOR / FLICKR

Electronic devices, such as mobile phone or tablets, may be reducing kids' ability to focus on tasks.

Mobile gadgets such as phones and tablet computers may be eroding kids' attention spans and contributing to a rise in attention-deficit/hyperactivity disorder diagnosis, **according to researchers in this *Time* magazine piece.**

That's because mobile devices condition their users to expect constant, electronic stimulus. When kids put down those devices, the real world can seem slow-paced and less interesting.

NCBI Resources How To

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed

Advanced

NCBI will begin redirecting all HTTP traffic to HTTPS on Thursday, November 10 at 9 AM EST (2 PM UTC). Read more.

Format: Abstract

Send to

Hum Nat. 2002 Sep;13(3):383-9. doi: 10.1007/s12110-002-1021-6.

Chickens prefer beautiful humans.

Ghirlanda S[1], Jansson L[2], Enquist M[2].

Author information

Abstract

We trained chickens to react to an average human female face but not to an average male face (or vice versa). In a subsequent test, the animals showed preferences for faces consistent with human sexual preferences (obtained from university students). This suggests that human preferences arise from general properties of nervous systems, rather than from face-specific adaptations. We discuss this result in the light of current debate on the meaning of sexual signals and suggest further tests of existing hypotheses about the origin of sexual preferences.

KEYWORDS: Facial attractiveness; Handicap principle; Receiver bias; Sexual selection

PMID: 26192929 DOI: 10.1007/s12110-002-1021-6

[PubMed]

LinkOut - more resources

Chickens prefer beautiful humans.

By Seriously Science | January 6, 2016 6:00 am

704

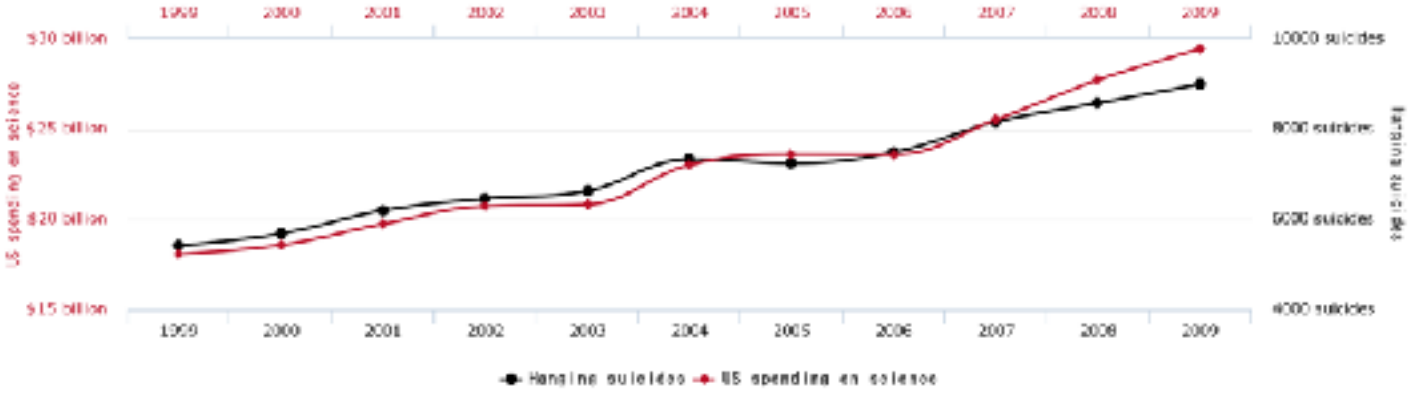
Photo: flickr/zoetnet

Many people believe that our perceptions of human beauty are primarily determined by societal norms. But could there be something innate in our brains that influence whether we think a face is beautiful? Here, a group of researchers tested this hypothesis by determining whether chickens have any innate preferences for certain human faces. To do so, they trained chickens to react to either an average human male or female face. They then showed the chickens a series of faces of different levels of attractiveness (see Figure 1 below) and measured how much the chickens pecked at each face (a measure of their preference for the face). Surprisingly, they found that the chickens preferred the same faces as did human volunteers (in this case university students asked to rate the faces for attractiveness), suggesting that something about these faces makes them inherently more attractive to our nervous systems. So there you have it: the next time you want to know which photo to use for your profile picture, consider asking a chicken.

US spending on science, space, and technology

correlates with

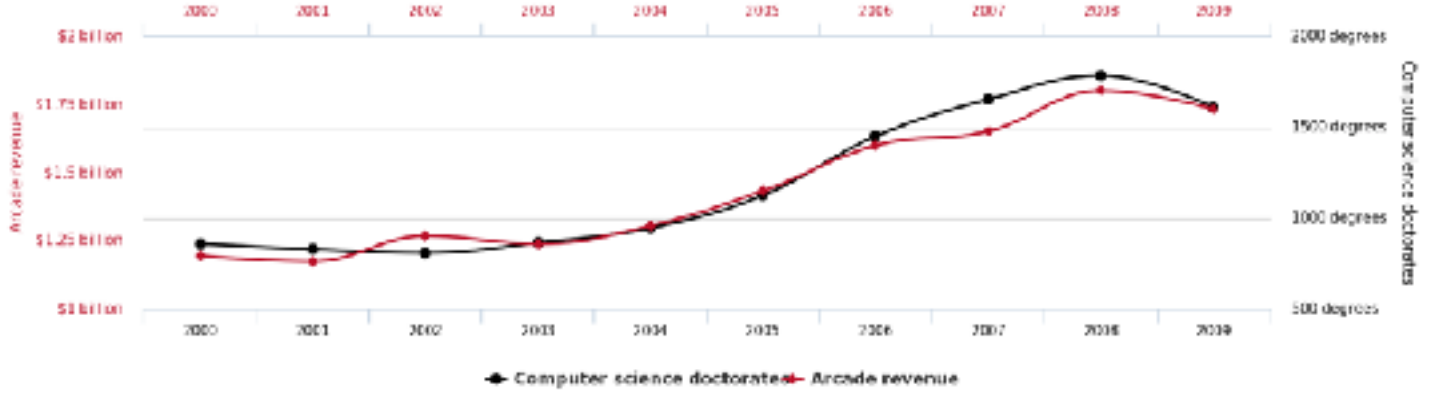
Suicides by hanging, strangulation and suffocation



Total revenue generated by arcades

correlates with

Computer science doctorates awarded in the US



What is Research?

Identifying, analyzing, solving problems
based on a precise research question
using justified methods
such that the result is trustworthy

Everyday thinking is often characterized by:	Good academic research is characterized by:
• Poor data • Incomplete data • Hasty thinking	• Sufficient data sources • Appropriate data sources • Accurately recorded • Properly analysed • No hidden assumptions • Conclusions well-founded • Properly presented As judged by the users of the research

Figure 1.2 Everyday thinking versus good research

Definition of research (Oates)

Research is the creation of new knowledge,
using an appropriate process,
to the satisfaction of the users of the research

- Sufficient data sources
- Appropriate data sources
- Accurately recorded
- Properly analysed
- No hidden assumptions
- Conclusions well-founded
- Properly presented

Assembling and defending an argument
(using logic, other peoples' work, own fieldwork)

Research in IS and Computing

- **Evidence-based practice**
  - For example… are Agile practices as useful as they are made out to be? Precious little actual research….
- **Empirical (field) research**
  - What happens if systems are requested, developed and used by people
- **Design & creation research**
  - Developing computer based products
  - Developing methods we use to build such products
- **Empirical assessment of systems**
  - What happens if products are implemented in the real world
  - What happens if methods are put into use in the real world
  - Why does this happen

Theoretical CS Research

Theoretical Computer Science

Volume 653, 15 November 2016, Pages 97–107

Ideal regular languages and strongly connected synchronizing automata

Rogério Reis[a], Emanuele Rodaro[b]

Show more

Theoretical Computer Science

Volume 653, 15 November 2016, Pages 1–14

The security number of strong grid-like graphs ☆

Ismael González Yero[a], Marko Jakovac[b,1], Dorota Kuziak[c]

Show more

Applied CS/IS Research

Article | OPEN

Long-Term Training with a Brain-Machine Interface-Based Gait Protocol Induces Partial Neurological Recovery in Paraplegic Patients

Ana R. C. Donati, Solaiman Shokur, Edgard Morya, Debora S. F. Campos, Renan C. Moioli, Claudia M. Gitti, Patricia B. Augusto, Sandra Tripodi, Cristhiane G. Pires, Gislaine A. Pereira, Fabricio L. Brasil, Simone Gallo, Anthony A. Lin, Angelo K. Takigami, Maria A. Aratanha, Sanjay Joshi, Hannes Bleuler, Gordon Cheng, Alan Rudolph & Miguel A. L. Nicolelis

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Software factories: assembling applications with patterns, models, frameworks and tools

Full Text: PDF Get this Article

Authors: Jack Greenfield Microsoft Corporation, Redmond, WA
Keith Short Microsoft Corporation, Redmond, WA

2003 Article

Published in:
· Proceeding
OOPSLA '03 Companion of the 18th annual ACM SIGPLAN conference on Object-oriented programming, systems, languages, and applications
Pages 16-27
ACM New York, NY, USA ©2003
table of contents ISBN:1-58113-751-6 doi>10.1145/949344.949348

Bibliometrics
· Downloads (6 Weeks): 21
· Downloads (12 Months): 137
· Downloads (cumulative): 4,864
· Citation Count: 28

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The added value of eye tracking in the usability evaluation of a network management tool

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Authors: Marco C. Pretorius Nelson Mandela Metropolitan University
André P. Calitz Nelson Mandela Metropolitan University
Darelle van Greunen Nelson Mandela Metropolitan University

2005 Article

Published in:
- Proceeding

SAICSIT '05 Proceedings of the 2005 annual research conference of the South African institute of computer scientists and information technologists on IT research in developing countries

Pages 1-10

South African Institute for Computer Scientists and Information Technologists , Republic of South Africa ©2005

table of contents ISBN: 1-59593-258-5

Bibliometrics

- Downloads (6 Weeks): 3
- Downloads (12 Months): 39
- Downloads (cumulative): 1,143
- Citation Count: 5

Epileptic seizure monitoring by One-Class Support Vector Machine

Purchase or Sign In to View Full Text

38 Full Text Views

9 Author(s) Koichi Fujiwara ; Erika Abe ; Yoko Suzuki ; Miho Miyajima ; Toshitaka Yamakawa ; Manabu Kano ;

Abstract | Authors | Figures | References | Citations | Keywords

Abstract:

Although refractory epileptic patients suffer from uncontrolled seizures, their quality of life (QoL) may advance. On the hypothesis that the excessive neuronal activity of epilepsy affects the autonomic ne

Design Principles of Next-Generation Digital Gaming for Education.

Squire, Kurt; Jenkins, Henry; Holland, Walter; Miller, Heather; O'Driscoll, Alice; Tan, Katie Philip; Todd, Katie.

Educational Technology, v43 n5 p17-23 Sep-Oct 2003

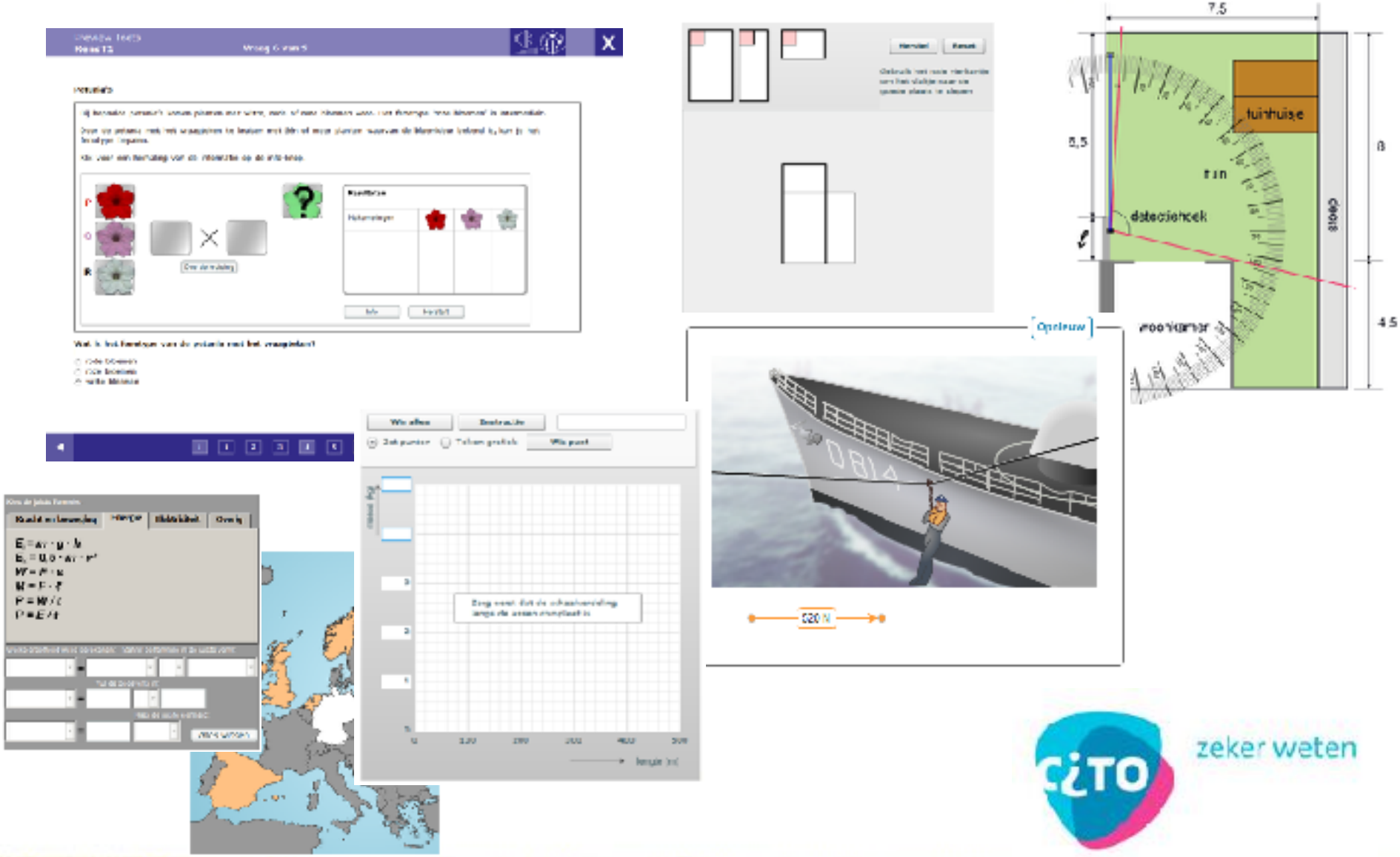
Discusses the rapid growth of digital games, describes research at MIT that is exploring the potential of digital games for supporting learning, and offers hypotheses about the design of next-generation educational video and computer games. Highlights include simulations and games; and design principles, including context and using information to solve complex problems. (LRW)

Title: Adoption of mobile internet devices and services: a multinational study

Author: Ravi S. Sharma; Eldon Y. Li; Rubie Govindraj

Addresses:
Wee Kim Wee School of Communication and Information, Nanyang Technological University, 31 Nanyang Link, Singapore
Department of Management Information Systems, College of Commerce, National Chengchi University, Taipei, Taiwan
The Walter Cronkite School of Journalism and Mass Communication, Arizona State University, 555 N. Central Ave., Suite #302, Phoenix, AZ 85004, USA

Journal: Int. J. of Information Systems and Management, 2014 Vol.1, No.1/2, pp.60 - 82

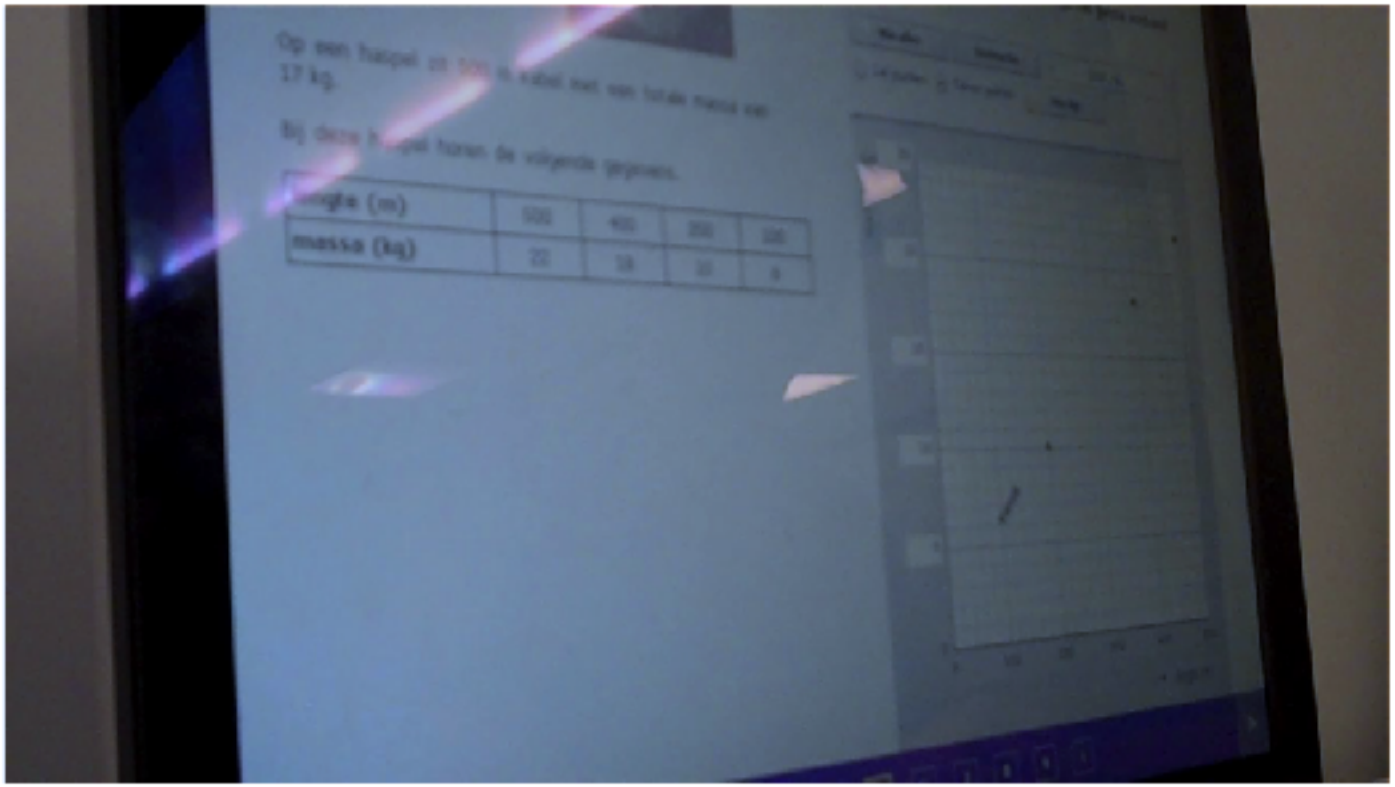


zeker weten

Naam interactie	Grafiektool
Onderdeel van	intwoord
Doel	Het tekenen van een grafiek
Samenvatting	Door middel van het invullen van waarden op de verticale as en vervolgens het zetten van punten en het tekken van lijnen tussen deze punten kan een grafiek worden getekend waarmee vervolgens een gevraagde waarde kan worden afgelezen.
Precondition	Een lege grafiek wordt weergegeven waarbij alleen het invullen van waarden op de verticale as mogelijk is.

Gebruikelijke acties	
	Gebruiker
1	Vul de waarden op de verti
2	Klik op locatie binnen de g
3	Kies voor de functie 'teken
4	Klik achtereenvolgens op t binnen de grafiek
Alternatieve acties	
	Gebruiker
1a	Ga direct door naar 'zet pu grafiek'
2a	Klik op [wis punt]
2b	Kies voor de functie 'teken
3a	Klik op [wis punt]
4a	Klik op [wis lijn]
*	Klik door naar de volgende

Regels	Er kunnen ingevuld. Als na het alle lijnen
Aandachtspunten	• Na • Fu • Inh • Fe • Sw • Mu • Bu • Vo • Nie • Kn • Verschijnen van slider(s)



Examples

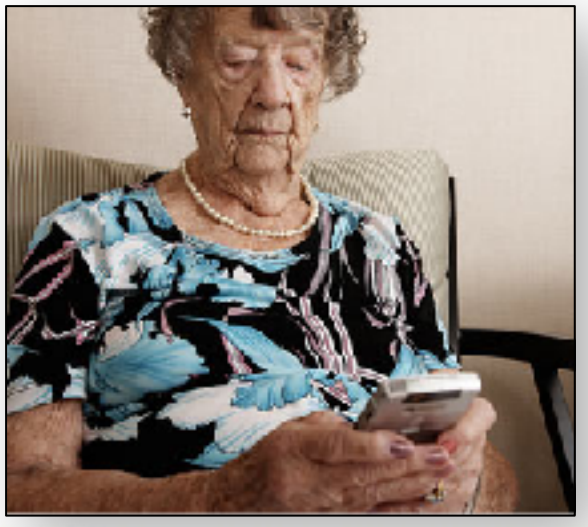
- Research papers
- Bachelor theses

Criteria for Research

- Rigour
  - systematic conduct
  - validity
- Relevance

"Voor het vijfde jaar op rij is het veiliger geworden in Amsterdam. Het aantal aangiften daalde in 2004 met 10 procent."

(Volkskrant)



Aspects of Research

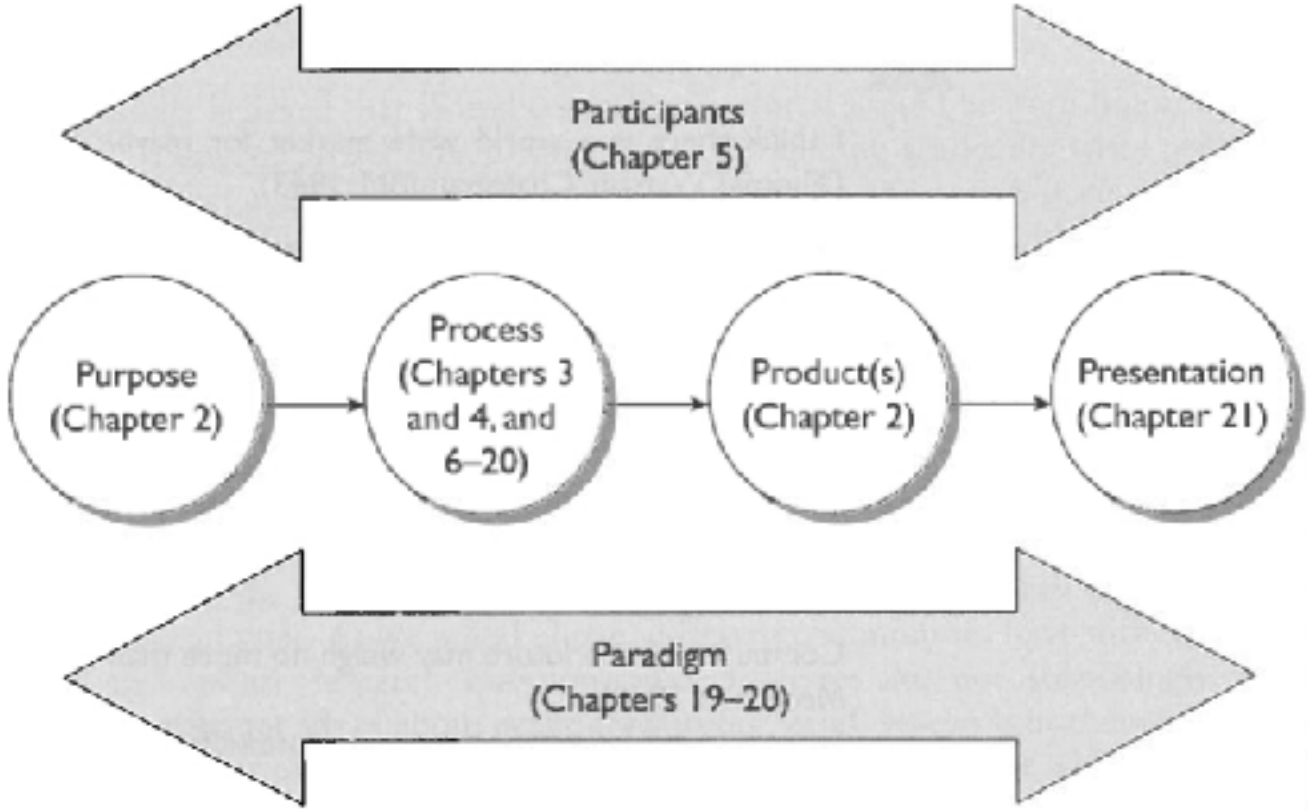


Figure 1.4 The 6Ps of research

Purpose: Reasons for Doing Research

- To add to the body of knowledge
- To solve a problem
- To find out what happens
- To find the evidence to inform practice
- To develop a greater understanding of people and their world
- To predict, plan and control
- To contribute to other people's well-being
- To contribute to personal needs
- To test or disprove a theory
- To come up with a better way
- To understand another person's point of view
- To create more interest in the researcher

Products: Possible Outcomes of Research

- A new or improved product
- A new theory
- A re-interpretation of an existing theory
- A new or improved research tool or technique
- A new or improved model or perspective
- An in-depth study of a particular situation
- An exploration of a topic, area or field
- A critical analysis
- Unanticipated outcomes

Process

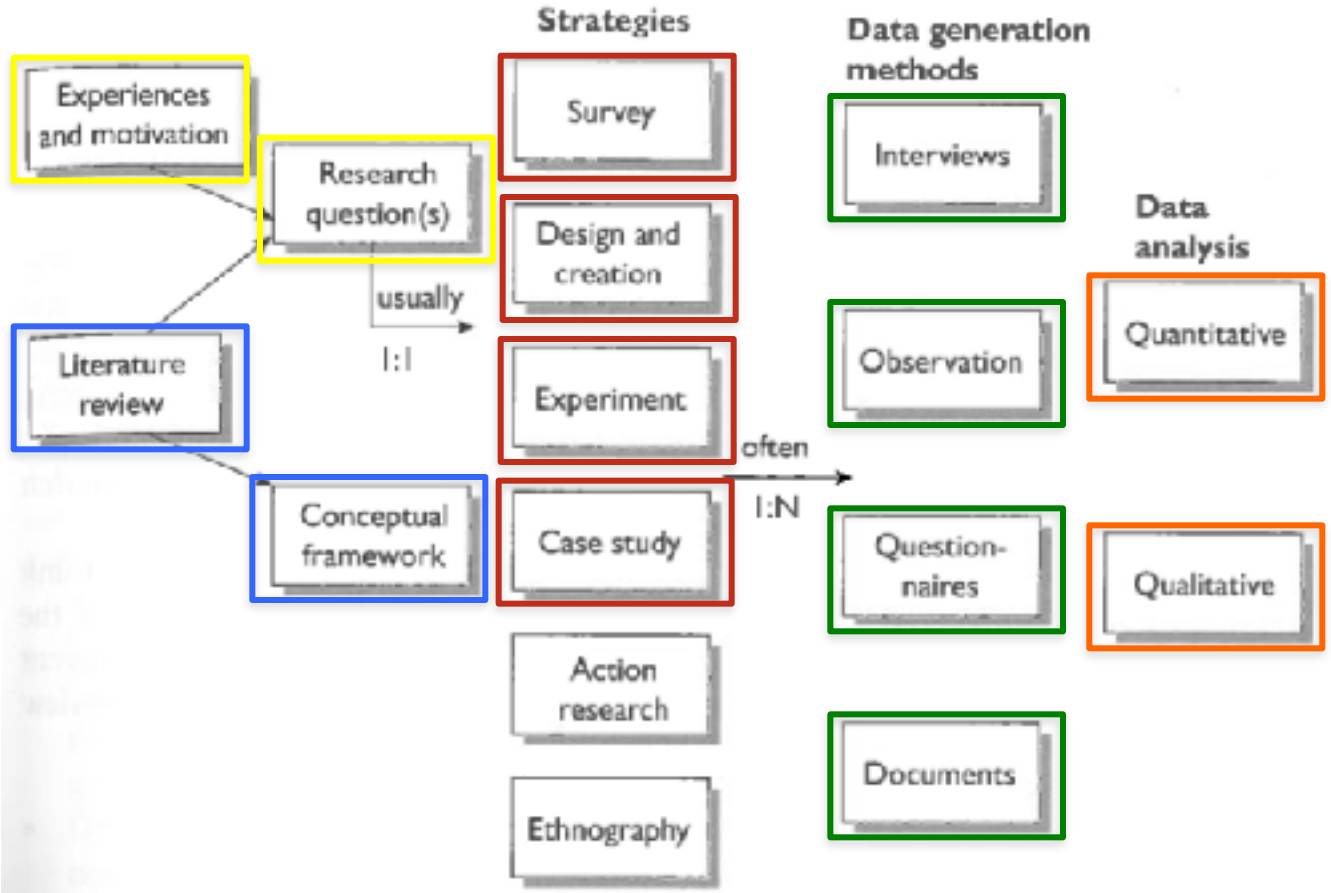


Figure 3.1 Model of the research process

Reclamecampagne warenhuis X

gezien:	advertentie en folder	alleen advertentie	alleen folder	geen advertentie, geen folder
iets gekocht:	65%	48%	46%	37%

gezien:	advertentie en folder	alleen advertentie	alleen folder	geen advertentie, geen folder
vaste klant:	49%	30%	31%	15%