

Extending HCI Principles to Other Cultures and Countries

CSE 510

Katharina Reinecke
reinecke@cs.washington.edu

Google

Google Search

I'm Feeling Lucky

Buy the unlocked, no-contract Nexus phone. [Now available direct from Google Play](#)



NAVER

지구의 날, 작은 실천을 약속하세요

SmartFinder 휴대폰 | 영화 | 자동차 | 게임 | 300만 화소 블루투스 휴대폰?

검색

메일 카페 블로그 지식N 쇼핑 부동산 | 사전 뉴스 증권 지도 영화 더보기 ▾ 실시간 급상승 검색어 1 신성우 ↑ 273

AD캐스트 ?

NHN

< ▢ >

한자마루

1,000원에 만나는 한자학습 완벽체험

연명한 학부모라면 클릭

아이디 ID저장 보안 2 단계

비밀번호 로그인 1 2 3

회원가입 | 아이디/비밀번호 찾기 | P보안 ON

뉴스캐스트 ?

언론사별 보기 ▾

mbn TV
경향신문
중앙일보
국민일보
KBS TV
일간스포츠
문화일보

<< >> < || >

연합뉴스 > [긴급] 北"임금등 개성공단 특혜 재검토" 뉴스홈 | 경제 | 스포츠 | 연예

· 남북접촉서 문건교환...22분만에 종료 · "고맙다, 한류" 어깨퍼는 재일동포들

· '盧의 집사' 정상문 결국 구속수감 | 비아그라 먹고...
· 김태희 닮은 씨야 새멤버 | 에이즈男 수년간 동성 성폭행
· 석유수출 코리아 맞네!! | 람보르기니에 업힌 싘타페
· 달탐사대원 "외계생명체있다" | 태양·바람·물로 4억 벌어
· '마이너스손' 조갑경, 사활건 창업 | '건달 옷' 대박

중앙일보 | 최종편집 : 04.21. 23시 21분 My뉴스 설정 ↓구독

2009.04.22. (수) < >

날씨 > 쾌청하나 평년보다 조금 쌀쌀해요
TV편성 > 오늘의 텔레비전 프로그램 편성표
스포츠 > EPL 예고 04:00 리버풀 vs 아스날
증시 > 다우 7,842.84 -1.11 조회

< 스포츠 | 날씨 | 환율 | 시계 | 달력 >

오픈캐스트 ?

추천 캐스트 ▾

생활의 발견
요즘 뜨는 이야기
끝나지 않는 여행 이야기
삼매의시네마천국

<< >> < >

· 자막에 주목해주세요, 다비치 '8282' 코믹 립싱크
· 분명히 아는 사람인 거 같은데 기억이.. 어, 반가워
· 바람과 함께 사라진 초등학생들, 그들은 용감했다?
· 직접 만든 '이상한 나라의 엘리스' 인형 옷

스타들의 웨딩사진

1/2 < >

ET675 | 요즘 뜨는 이야기 No.141 | 2009.04.21 ↓구독

NAVER Opencast:

네이버캐스트

오늘의 스토리

한국인
오늘의 과학
오늘의 뮤직
오늘의 책
오늘의 웹툰
오늘의 키친
트렌드 차트

<< >> < >

오늘의 영화	오늘의 문학	오늘의 책
공효진 & 신민아 개봉 영화 장편 예고편 자매로 만난 그녀들 [지금, 이대로가 좋아요]	승자는 혼자다 10회 The Winner Stands Alone 파올로 코엘료의 신작 장편 소설 독점 연재	하워드 진의 만화 미국사 하워드 진 미국의 또 다른 얼굴?

< >

쇼핑 핫세일 뜨는쇼핑 럭키투데이

G마켓·옥션·11번가·인터파크·롯데닷컴·GS이숍
Hmall·롯데몰·디앤샵·OTTO·CJmall·신세계·AK몰

우리 딸이랑 커플 샌들	요즘~유행! 박시~셔츠!	명품스타일 럭셔리코디	자외선심어 1만원 할인
에고이스트 앵글 75%↓	헤지스단독 40%↓+10%	봄신상반값! 단독17,800	눈꼬리 훌릭 한정8,000원
봄옷이야기	오늘은	스의원피스	예쁜어니들

Google™



[웹문서](#) | [이미지](#) | [뉴스](#) | [지도](#) | [사전](#) | [더보기 »](#)

Google 검색

I'm Feeling Lucky

전체 웹 한국어 웹 [고급검색](#) | [환경설정](#) | [언어도구](#)

[Gmail](#) [캘린더](#) [틀바](#) [데스크톱](#) [Picasa](#) [YouTube](#) [크롬](#)

[광고 프로그램](#) | [채용정보](#) | [Google 정보](#) | [Google.com in English](#)

©2009 - 개인정보



Adapting user interfaces to a user's geographic background can increase ...

- user satisfaction
- efficiency
- market share

We design technology for WEIRD users



Learning goals

Be able to answer

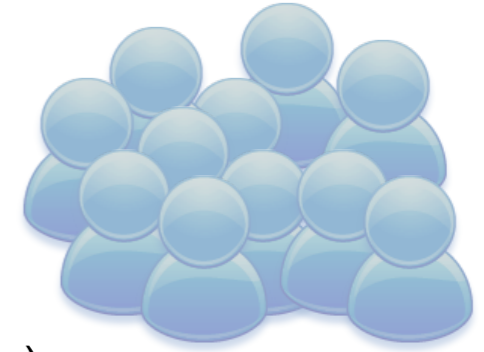
- What is culture?
- What are its effects on perception, preferences, and performance?
- What can go wrong if I don't know about this?
- So how do I design for different cultures?

What is this intangible beast called culture?

What is culture?

- culture of shared values
- national culture: culture = country?
- organizational culture
- individual culture

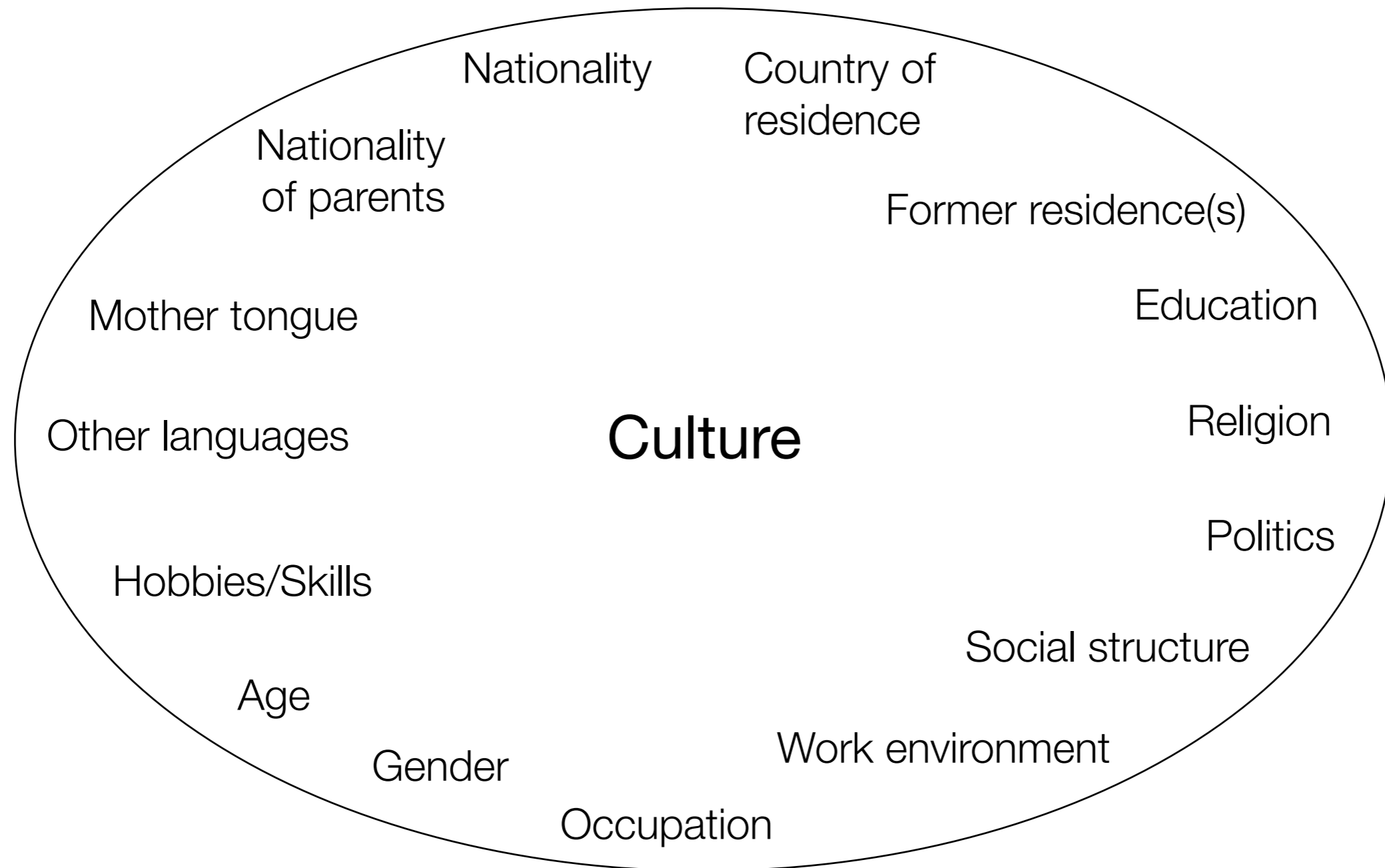
shared culture
(within or across
countries and
subcultural groups)



individual culture



Some dimensions of individual culture



Cultural classifications

- goal: find a system of regularity to the way that ideas, information and concepts are shared
- does not define the individual
- shows tendencies within cultural groups
- cultural groups can be national, organizational, unions of national cultures...

Edward T. Hall

- investigated cultural differences in communication styles

High context cultures

- include much of the Middle East, Asia, Africa, and South America
- emphasis on interpersonal relationships
- development of trust before any business transaction
- words are less important than context (tone of voice, gestures, status)
- communication is more indirect and formal

Low context cultures

- North America and much of Western Europe
- communication is straightforward, and action-oriented
- “trust is good, a contract is better”

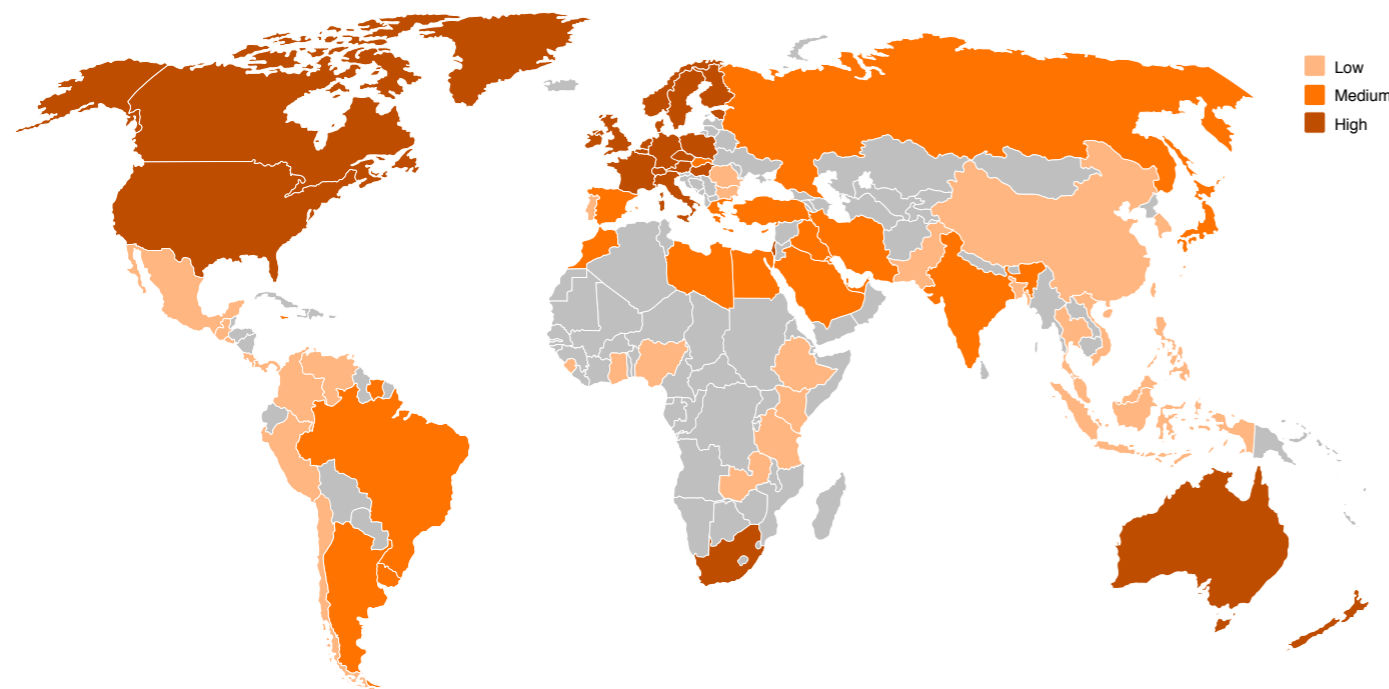
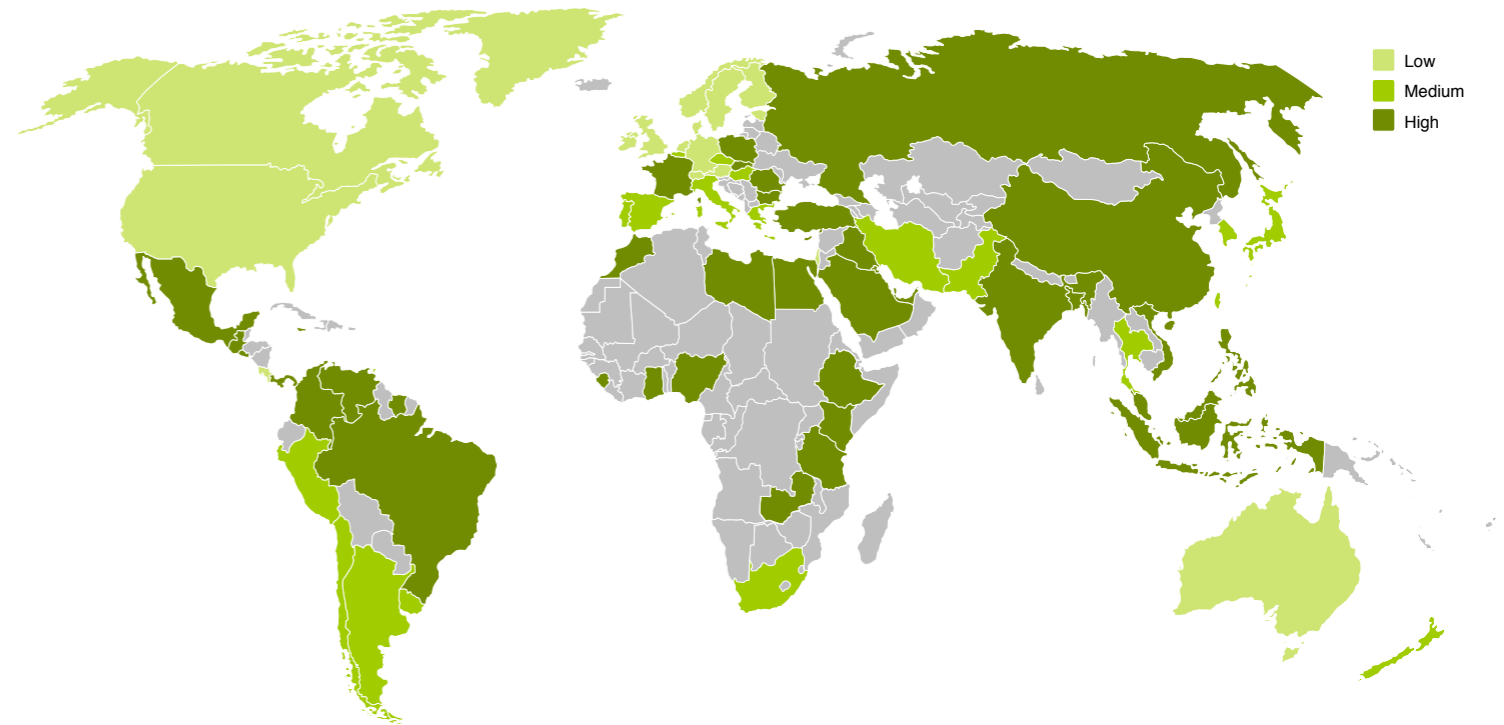
Geert Hofstede

- investigated national culture and work-related cultural values
- measured differences across a multinational corporation (IBM)
- Outcome: four (later five) cultural dimensions
- Each country is represented by five scores, one for each of these dimensions
- Facilitates a comparison of national cultures, e.g., for intercultural business communication
- describes tendencies, not individuals!

Hofstede's cultural dimensions

Small versus large Power Distance

- equality
- power and status
- upward mobility



Individualism versus Collectivism

- individualists are expected to develop and show their personality
- collectivists define themselves and act as members of a group

How does culture affect our perception?

Information perception and processing

- early in life our brains are particularly malleable
- cultural exposure affects how our brain develops
- this leads to measurable neuro-anatomical changes in the brain
- as a result, we differ in how we perceive, process and reason about information

Cognitive styles

Analytic thinkers (common in Westerners)

- detachment of objects from the context
- tendency to focus on objects' attributes
- categorical rules to explain and predict behavior

Holistic thinkers (most East Asians, Mid-Easterners, South Americans, Africa, ...)

- context, attention to relationships between the focal object and the field
- explain events on the basis of such relationships

Effects:

- cultural routines seem to encourage the reliance on one system
- determines whether we scan web sites in a circular manner (East Asians), or sequentially traverse different areas (Westerners)

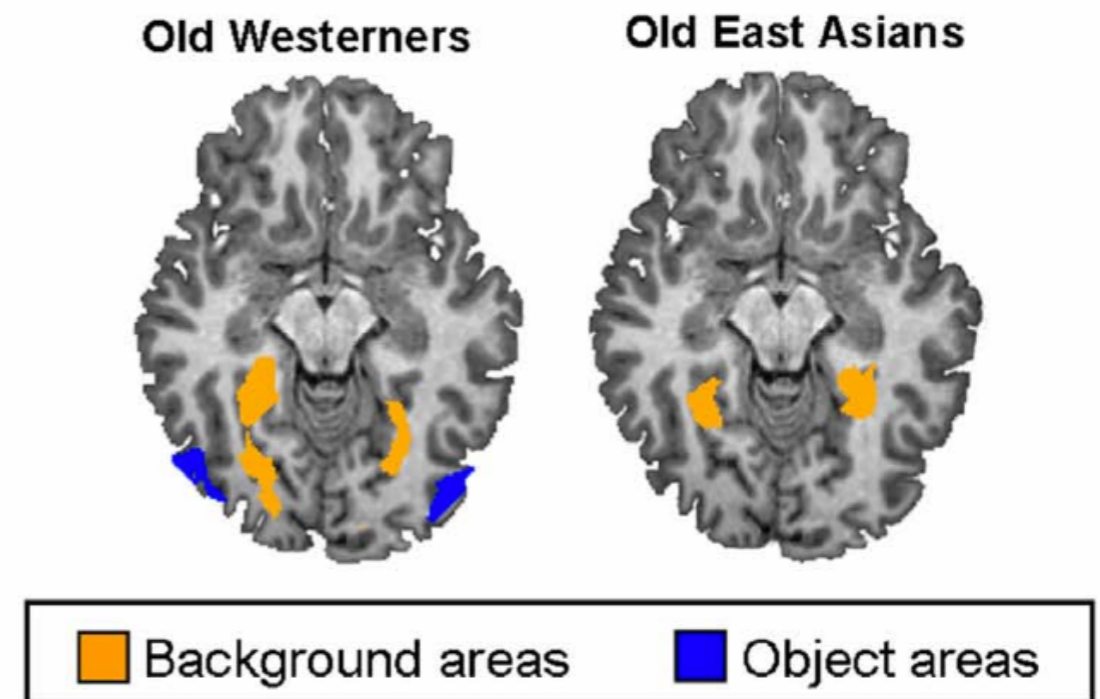
Object recognition and focus

Westerners...

- attend to individual objects more than East Asians
- show increased activity in the lateral occipital complex, responsible for object recognition

East Asians...

- show greater neural engagement if the background of an image is changed
- can memorize foreground objects better than Westerners despite changes in the background

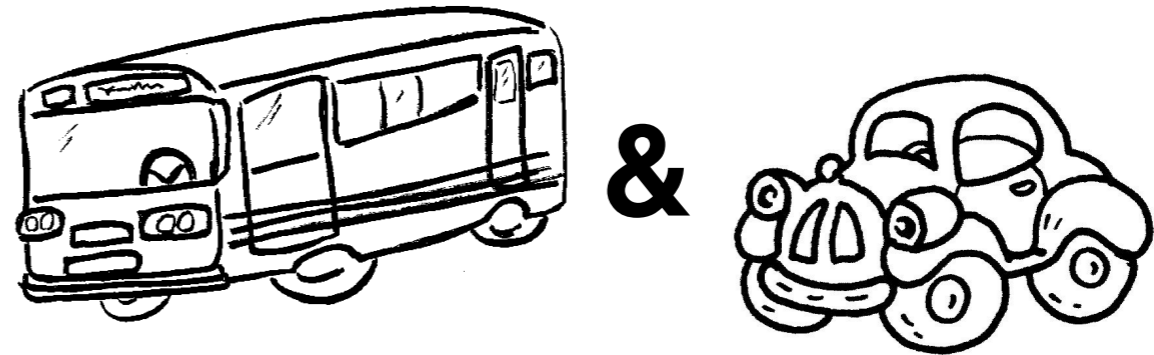


[Gutchess et al. 2006; Goh et al. 2007; Norenzayan et al., 2007; Nisbett, 2003]

Object classification

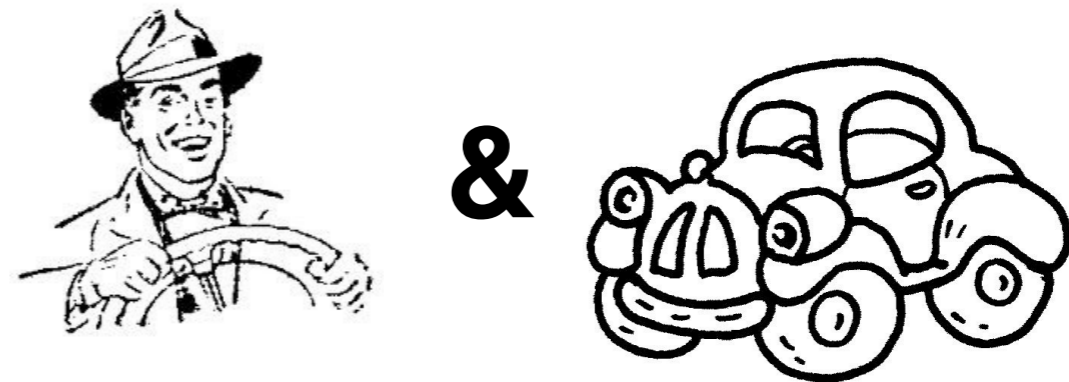
Westerners...

- are taught nouns first
- emphasize categories
- usually group objects according to their taxonomic classification



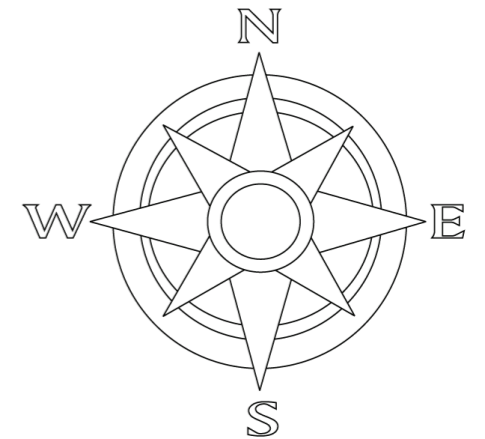
East Asians...

- acquire a broad vocabulary of verbs first
- organize objects based on their relationships to another (e.g. car and driver)



Object arrangement and spatial cognition

- people usually arrange objects according to their reading direction (e.g. for temporal ordering)



Geocentric frame

- base references on cardinal directions (“the student in the east of the classroom”)
- temporal ordering follows cardinal directions (e.g., East to West)
- most populations in the world

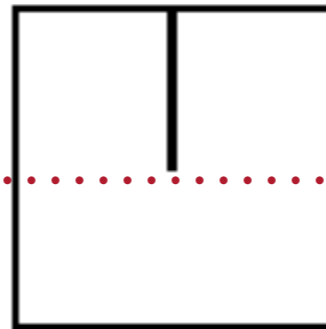
Egocentric frame

- describe objects relative to the self (“the student on my left side”)
- temporal ordering usually follows the reading direction
- industrialized populations (e.g., Japanese, English, Dutch...)

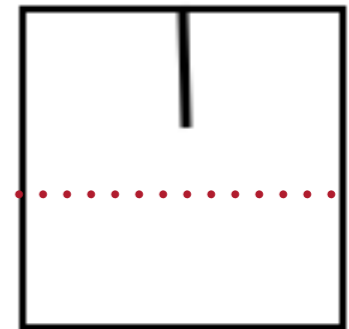
Stimulus



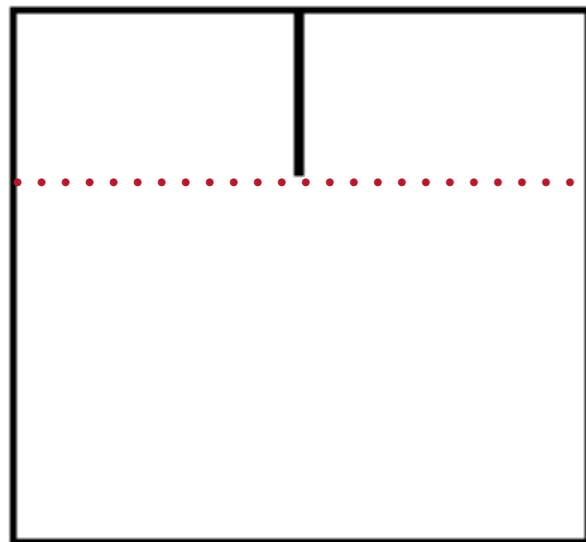
absolute length



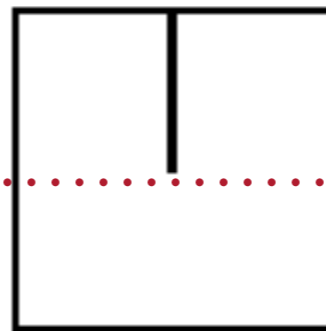
relative length



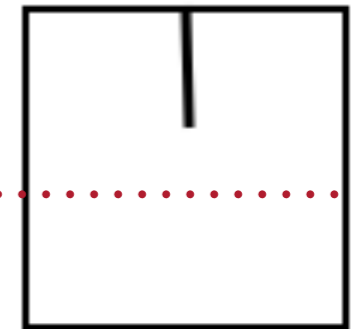
Stimulus



absolute length

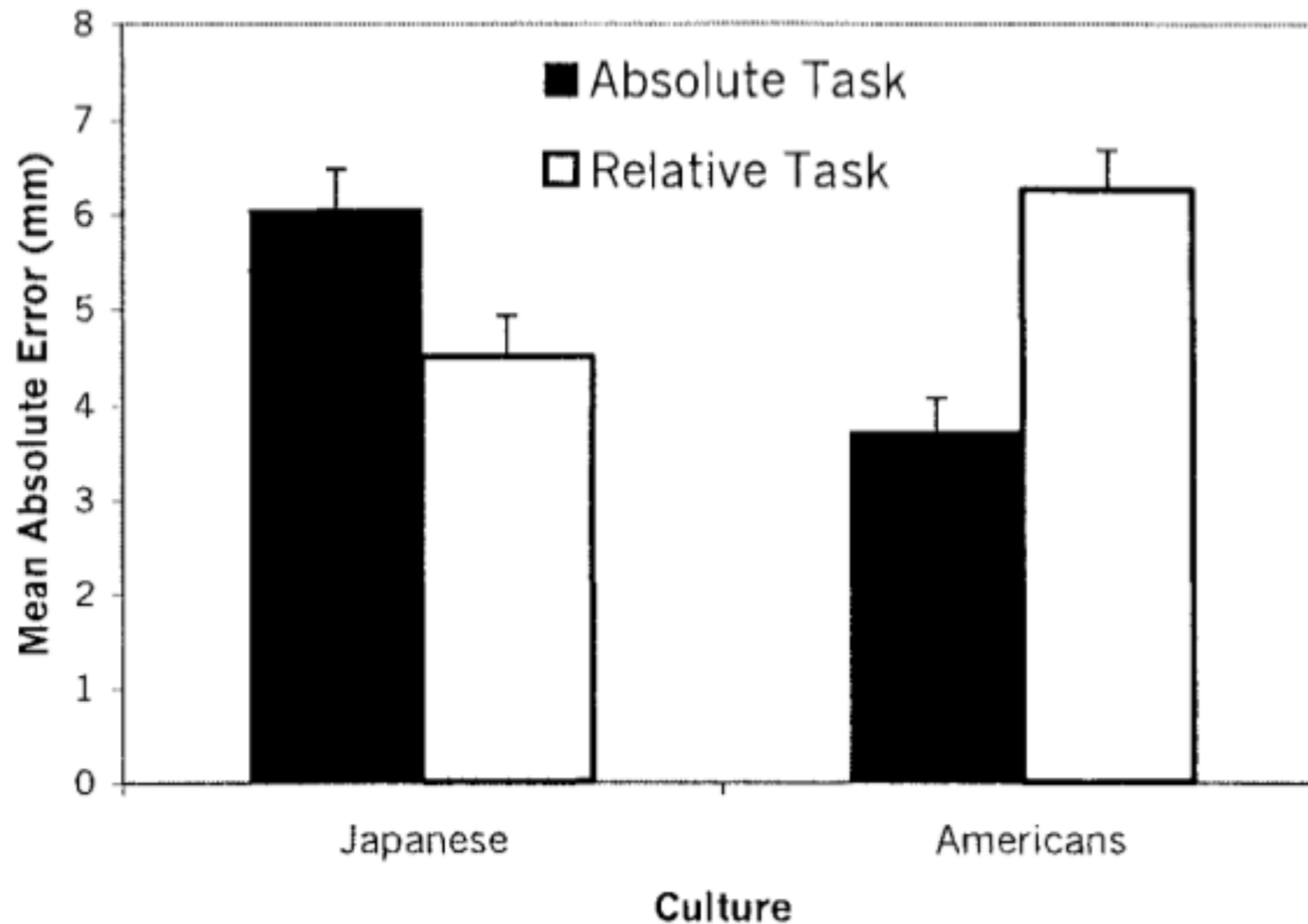


relative length



- Are Americans and Japanese both equally good or bad at reproducing the line with a relative and absolute length?
- Is one cultural group better at one condition than the other?
- Why?

- Japanese were better in reproducing the line in proportion to the size of the frame.
- Americans were better in ignoring the frame and reproducing the absolute length of the line.



How does culture affect
our user interface preferences?

Effects of culture on design preferences

- it is likely that our environment influences our user interface preferences (e.g. for orderliness, colorfulness, information density...)
- national culture can be a good predictor for preferences (to a certain extent)



Seoul, South Korea



Bangalore, India



Kigali, Rwanda

Do user preferences really differ across countries?

Thailand



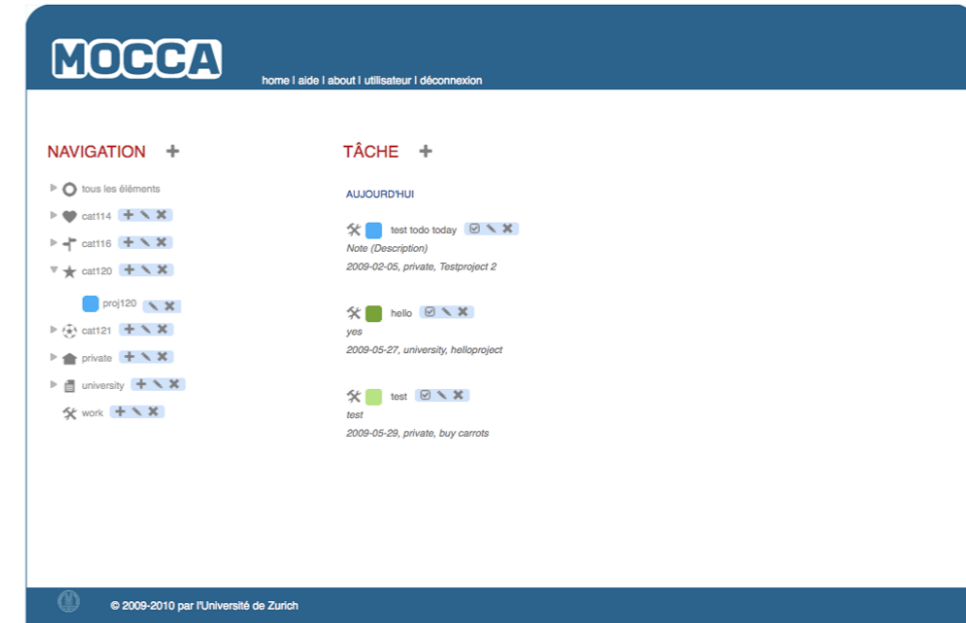
- bright colors
- interface areas color-coded
- high image-to-text ratio
- medium support
- step-by-step guidance through dialogs

Rwanda



- saturated, contrasting colors
- interface areas color-coded
- high image-to-text ratio
- wizard/maximum support
- nested tree navigation

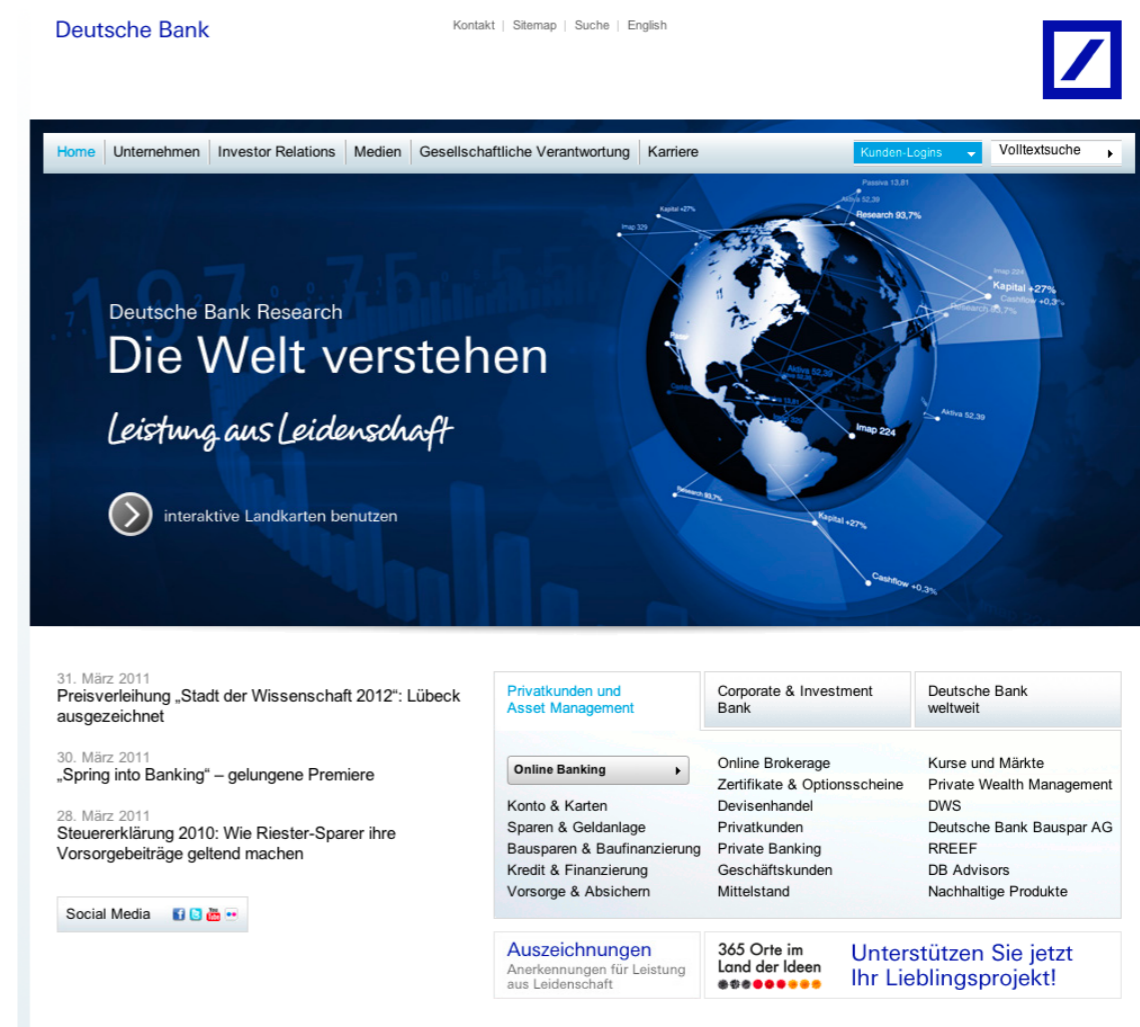
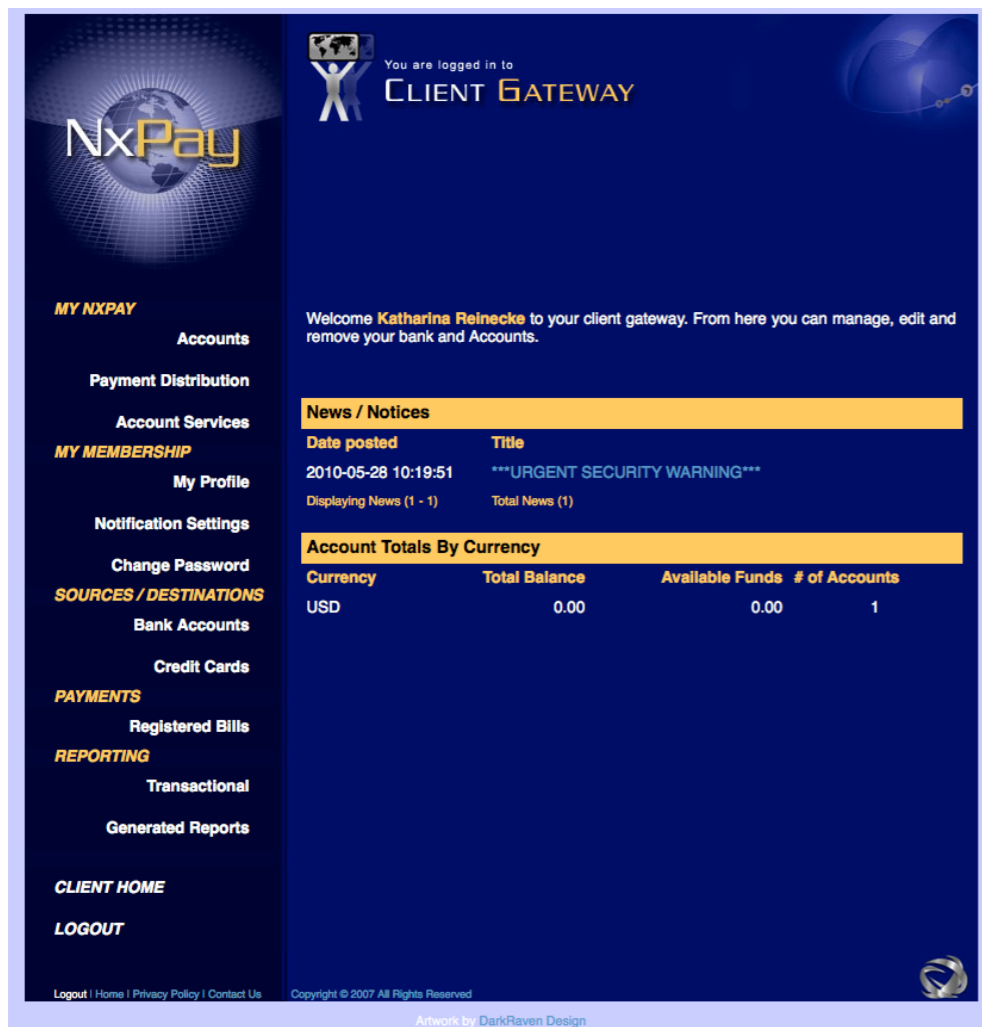
Switzerland



- monotone colors
- minimalist
- low image-to-text ratio
- low support
- nested tree navigation

Effects of culture on trust

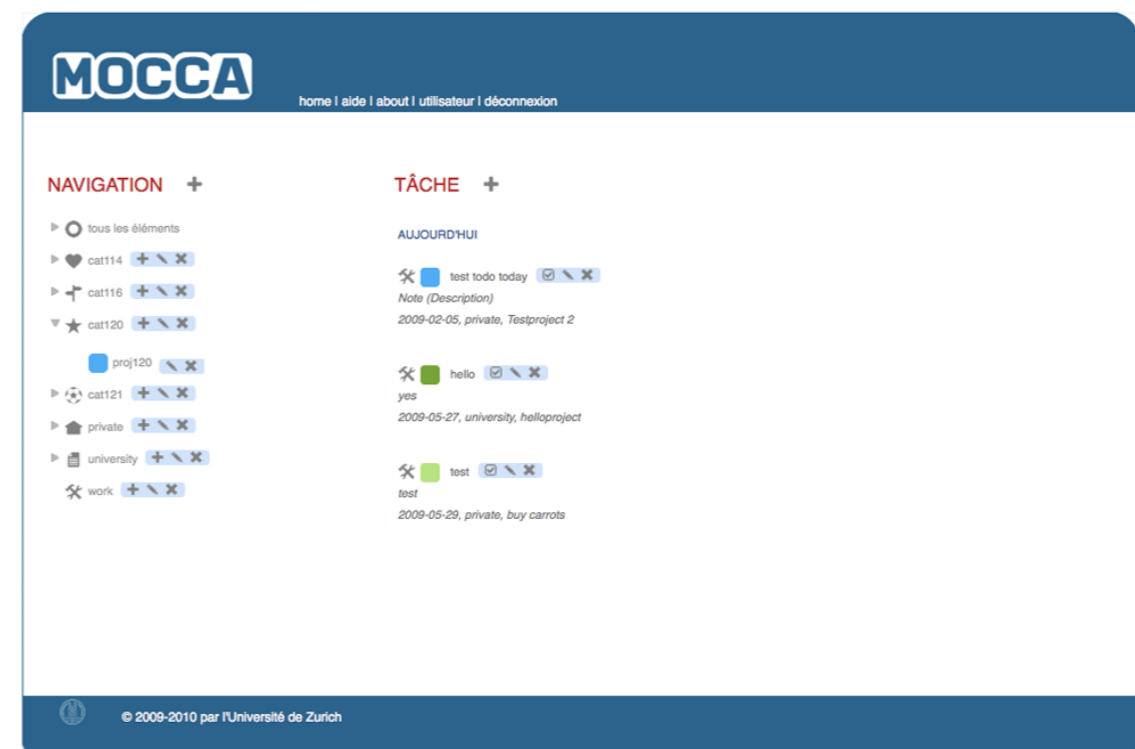
- visual appeal and perceived usability is a first step towards trust
- both are dependent on culture!
- we trust web sites that correspond to our understanding of a professional look



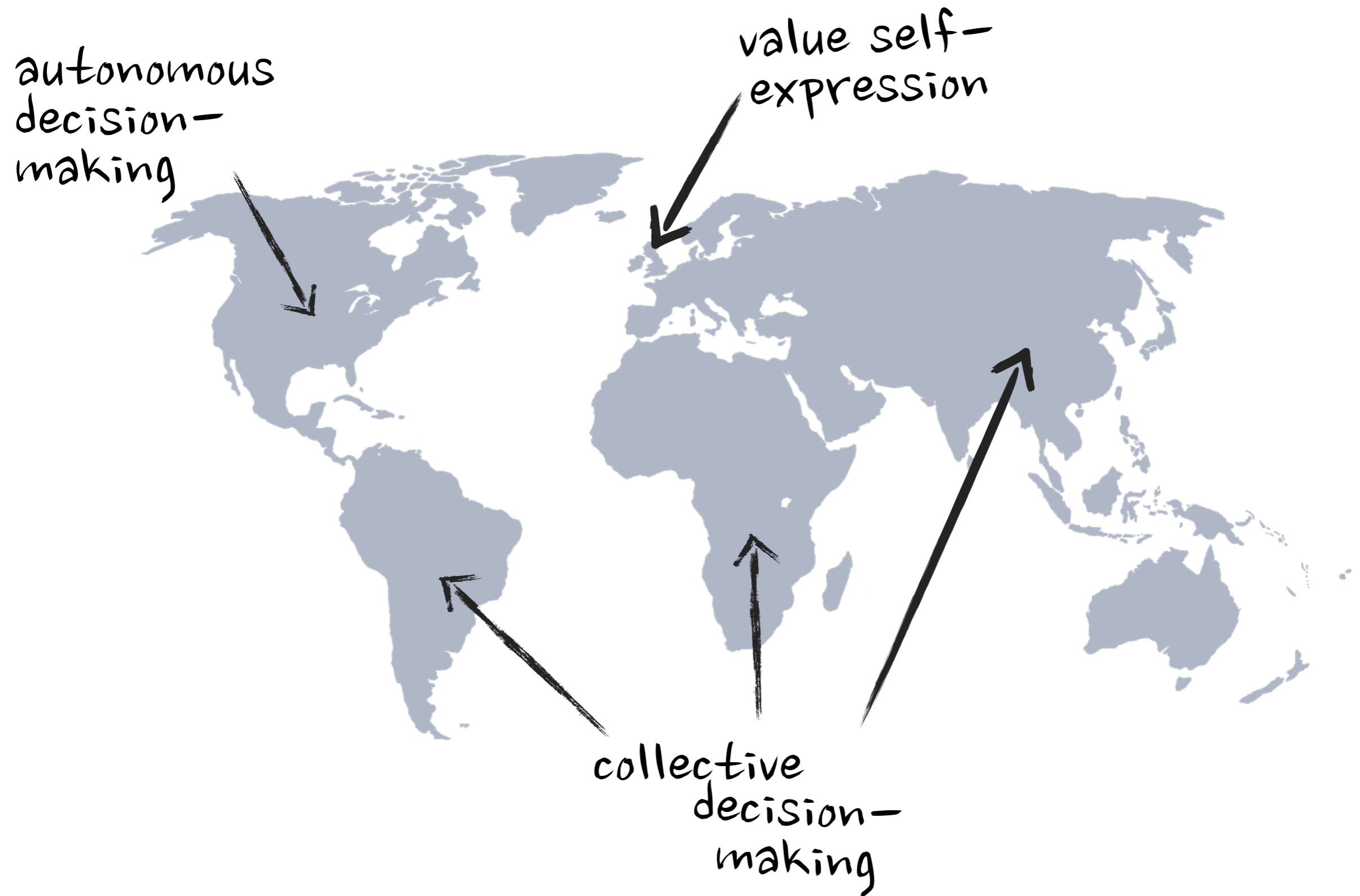
If culture affects perception and preferences,
does it also affect our performance?

Effects of culture on performance

- US users were found to perform better with the US version of a website than with a Greek or Italian version
- multinational users perform better with interfaces that cater for their ambiguous cultural background, than if presented a US interface



How does culture affect
our behavior?



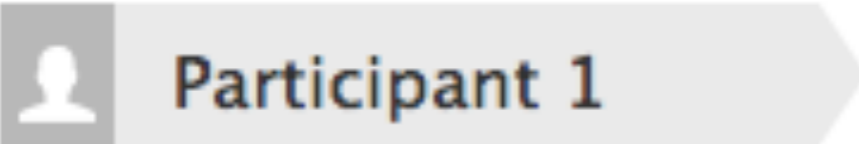
Doodle®

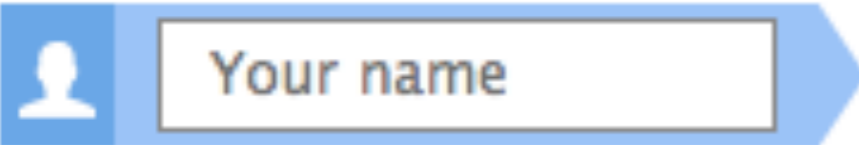
3 participants

	Fri 9 2:30 PM	Mon 12 over lunch	Tue 13 10:45 AM	Thu 15 5:00 PM	Tue 20 afternoon
David		✓		✓	✓
Alice	✓	✓			
Richard		✓		✓	
Your name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	3	0	2	1

[Reinecke et al., CSCW'13]

1 participant

 Participant 1

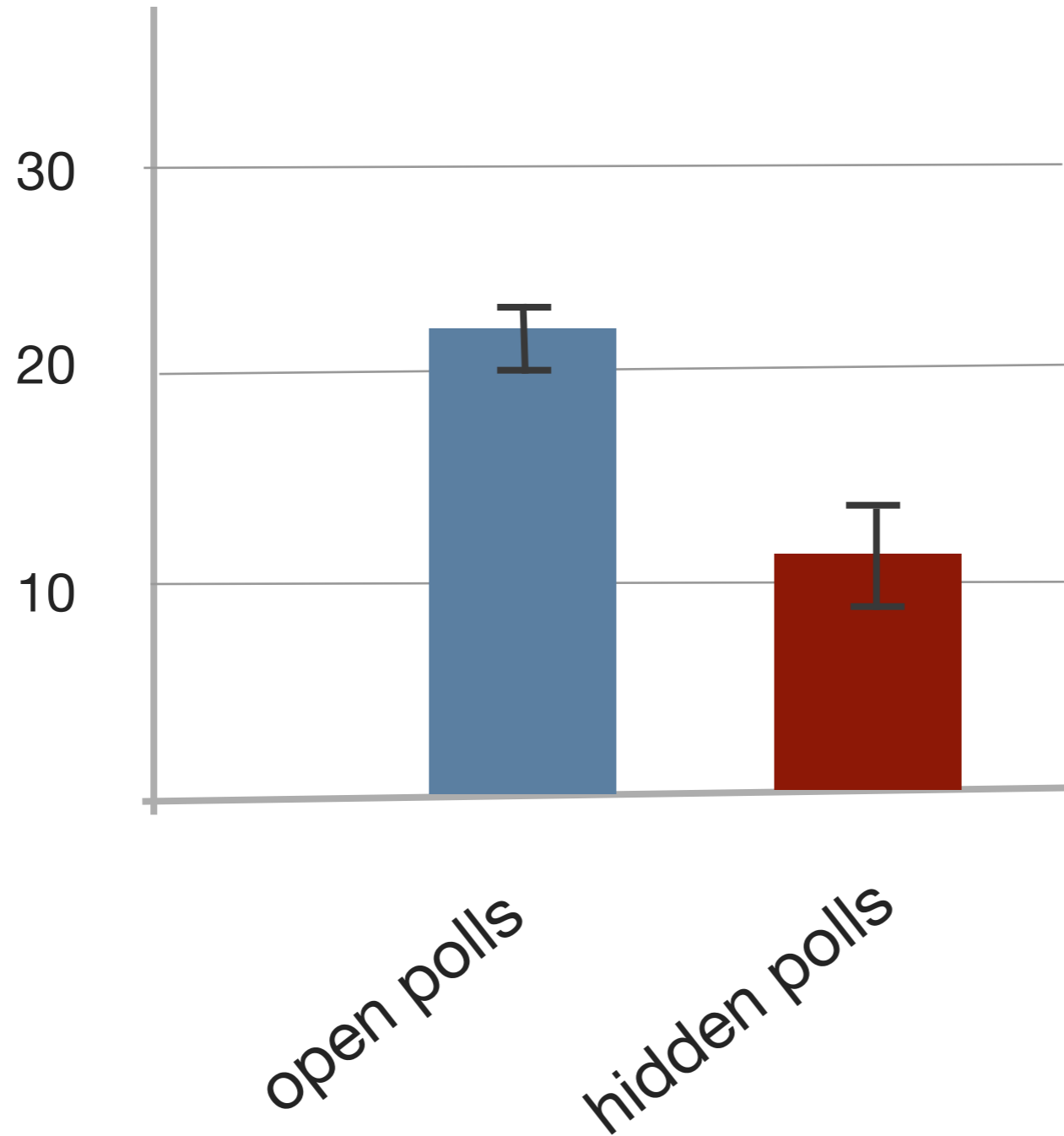
 Your name

NOVEMBER 2012		
Wed 21	Thu 22	Fri 23
		
		

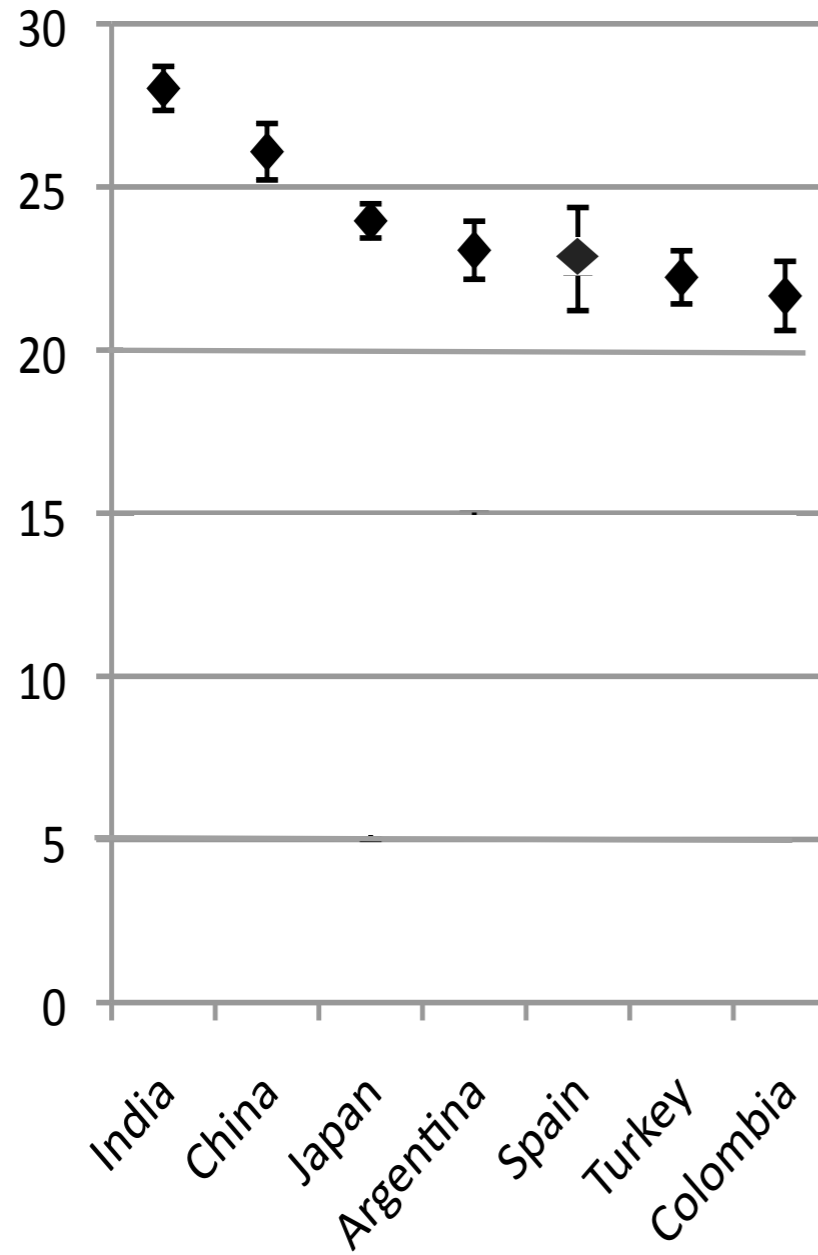
[Reinecke et al., CSCW'13]

Seeing others' answers affects choices

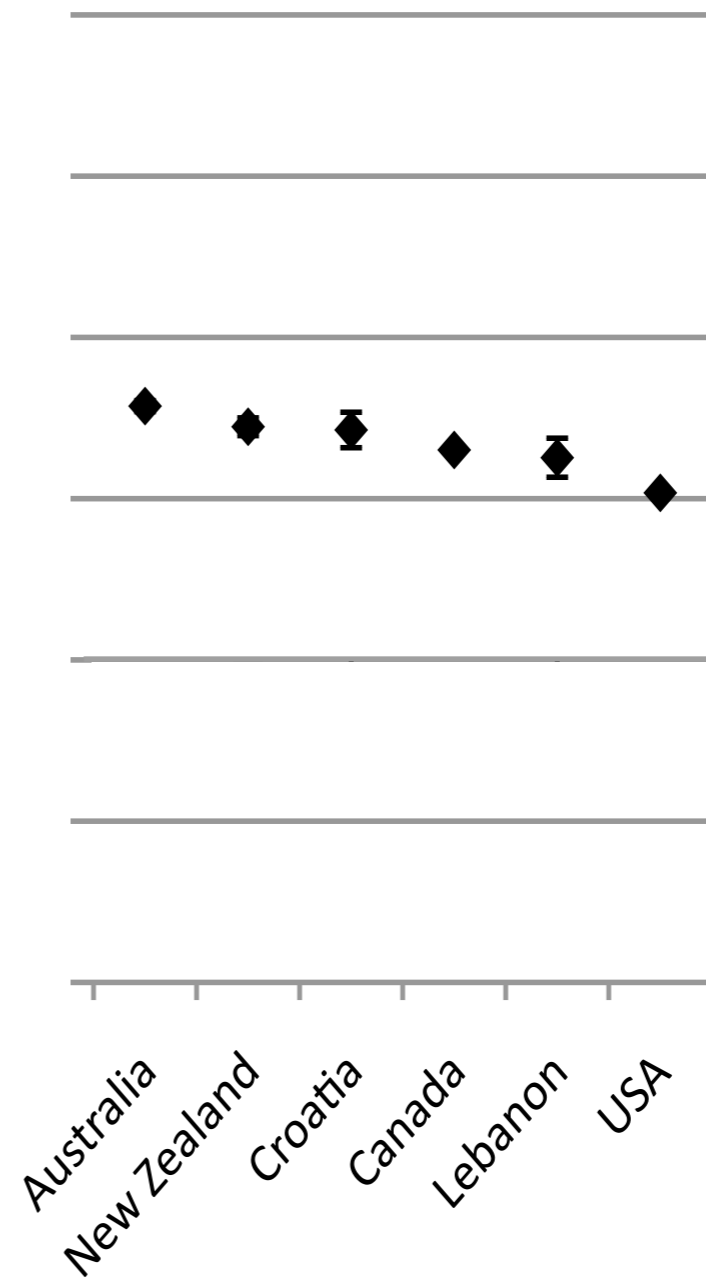
Average fraction of consensus options



fraction of consensus options



Collectivists



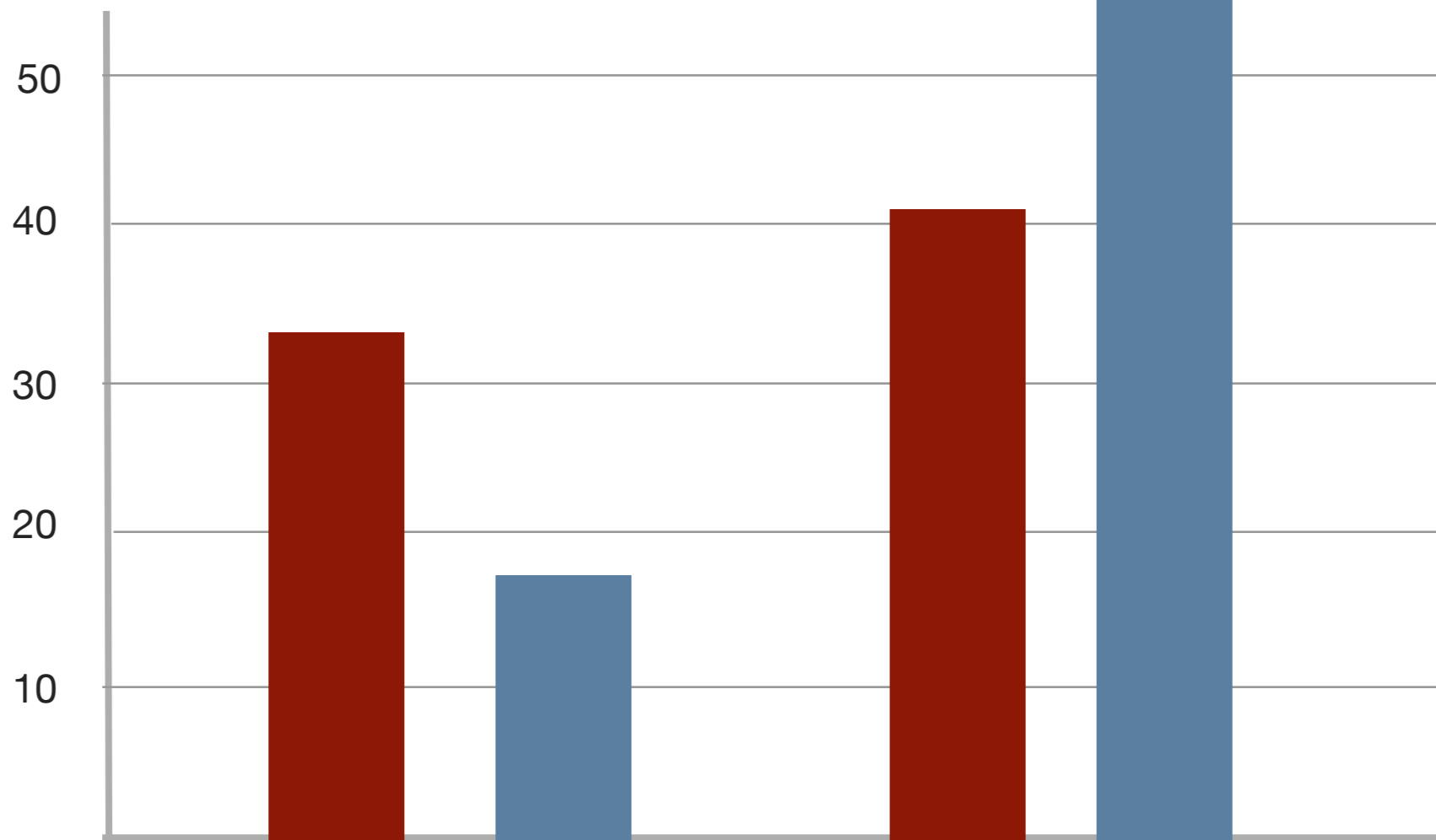
Individualists

[Reinecke et al., CSCW'13]

Consensus

Availabilities

Percent



Collectivists

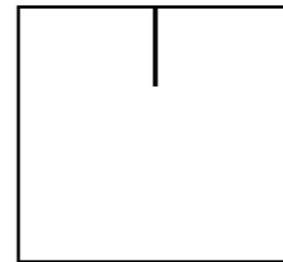
Individualists

Collectivists

Individualists

Culture influences ...

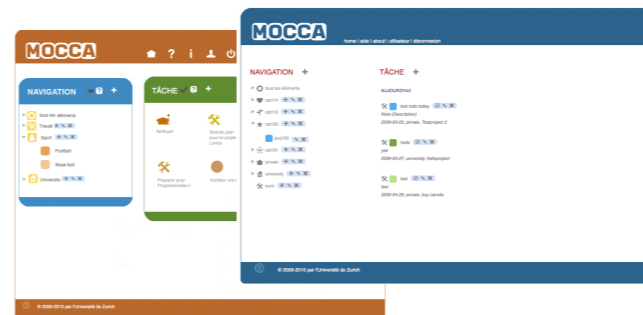
▶ perception



▶ visual preferences



▶ performance



▶ behavior



What happens if we don't design for culture?

Problems gaining market share



[Advanced search](#)
[Language tools](#)

Google Search

I'm Feeling Lucky

[Advertising Programs](#)

[Business Solutions](#)

[About Google](#)

© 2011 - [Privacy](#)

Problems gaining market share

The image shows a screenshot of the Naver Korean homepage from 2009. At the top, there are navigation tabs for 'Culture', 'Perception', 'Preferences', 'Performance', 'Behavior', 'Consequences', and 'How-to'. The main header features the Naver logo with the slogan '자구의 날, 작은 실천을 약속하세요' and a search bar. Below the header, there are several sections: 'AD캐스트' with an advertisement for '1,000원' Hanja learning; '뉴스캐스트' with a news article about a '남북접촉서 문건교환'; '오픈캐스트' with a '스타들의 웨딩사진'; and '네이버캐스트' with '오늘의 영화', '오늘의 문학', and '오늘의 책'. On the right side, there is a login section, a date '2009.04.22', and a shopping section with various product listings and discounts.

Problems gaining market share



Problems persuading users

- Less than 2% of Japan's online population uses Facebook
- In the US it is more than 60%.



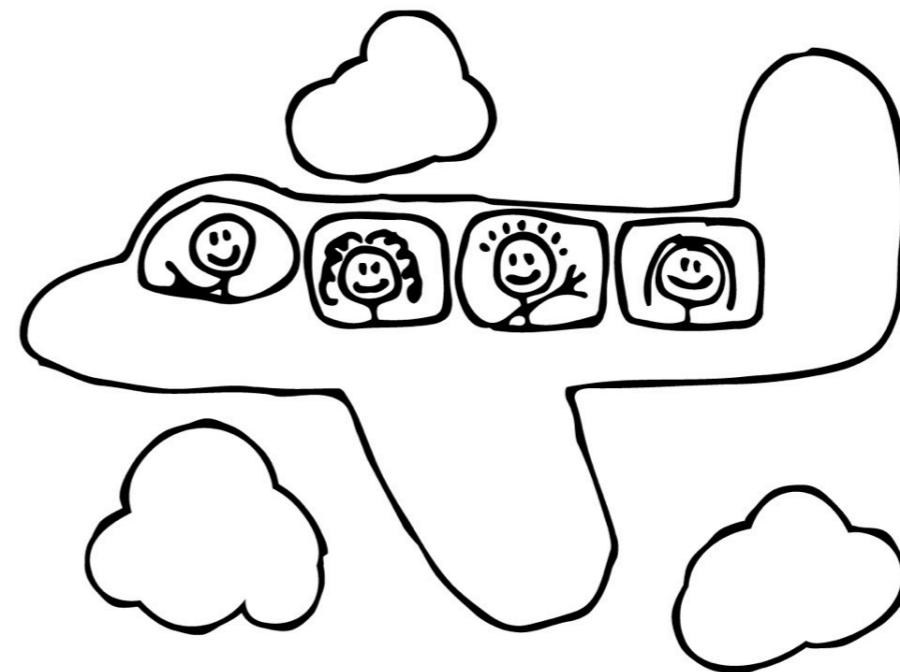
Convincing users to like your site



- people leave your web site much easier than your room in real life
- if your user interface is not intuitive and trustworthy to them, they won't use it
- different cultures have different expectations about the buying process
(anonymity vs. personal advice, building a relationship, etc.)
- credit cards are not everywhere as common as in the US (Islamic law even forbids their use)

Safety Problems

- developers unconsciously embed their own cultural values into software
- problems occur if users and developers differ in their cultural background
- Eastern Minds in Western Cockpits [Li et al., 2007]
- Columbian Avianca Airlines crashes: partly a result of national culture [Helmreich 1994]



So how DO we design for different cultures?

So how DO we design for different cultures?

Two problems:

- status quo
 - lack of access to diverse participant populations ->
 - not knowing how UIs should look like

Internationalization & Localization

Localization: adaptation of the software application to meet the language, cultural and other requirements of a specific target market (the “locale”).

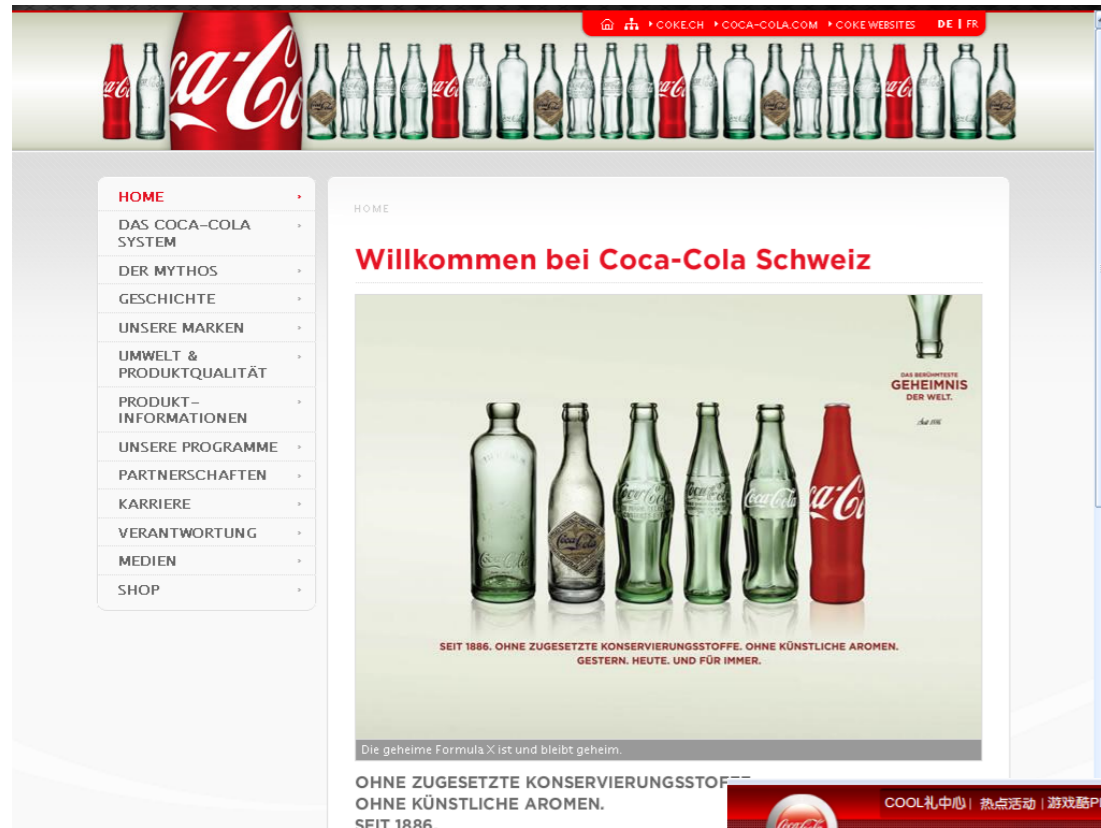
- numeric, date and time formats
- use of currency
- symbols, icons and colors
- text and graphics
- varying legal requirements

Internationalization: enable the software application to be easily localized.

- use of Unicode
- avoid dependence of code on user interface string values
- CSS support for vertical text or other non-Latin typographic features

Localization

Switzerland



Uganda



China



HCI research on designing for diverse cultures and countries is still in its infancy.

Why?

Solution #1

Travel. Get direct access to diverse participant populations.



Testing in different cultures

Think aloud method

- Bollywood method: Indian users are asked to imagine a dramatic situation similar to those in Bollywood movies [Chavan, 2005]
- thinking aloud affects the performance of Easterners more than Westerners [Kim 2002]

Providing choices

- Easterners chose a moderate middle version when asked to provide reasons for their choice more often than if they didn't have to provide reasons [Briley et al. 2000]

Solution #2

Mechanical Turk



Your Account **HITS** Qualifications

197,710 HITS available now

[Sign In](#)

All HITS | **HITS Available To You** | HITS Assigned To You

Find containing that pay at least \$ for which you are qualified require Master Qualification

All HITS

1-10 of 3138 Results

Sort by:

[Show all details](#) | [Hide all details](#)

1 2 3 4 5 > [Next](#) >> [Last](#)

Extract summary information from 6 shopping receipts	View a HIT in this group
Requester: Jon Brelig	HIT Expiration Date: Sep 21, 2014 (6 days 23 hours)
	Reward: \$0.05
Time Allotted: 24 minutes	HITS Available: 26250
Product Categorization	View a HIT in this group
Requester: PriceGrabber.com	HIT Expiration Date: Oct 8, 2014 (3 weeks 3 days)
	Reward: \$0.01
Time Allotted: 20 minutes	HITS Available: 10777
Type the text from the images, carefully. Productivity and bonuses guaranteed.	View a HIT in this group
Requester: CopyText Inc.	HIT Expiration Date: Sep 21, 2014 (6 days 22 hours)
	Reward: \$0.01
Time Allotted: 10 minutes	HITS Available: 6995
Input tags to describe the GIF (WARNING: This HIT may contain adult content. Worker discretion is advised.)	View a HIT in this group
Requester: Giphy	HIT Expiration Date: Sep 17, 2014 (3 days 6 hours)
	Reward: \$0.05
Time Allotted: 60 minutes	HITS Available: 4578
Customer List Email Fetching	View a HIT in this group
Requester: Rachel Scott	HIT Expiration Date: Sep 18, 2014 (4 days 6 hours)
	Reward: \$0.40
Time Allotted: 3 hours	HITS Available: 4165
Input tags to describe the GIF (WARNING: This HIT may contain adult content. Worker discretion is advised.)	View a HIT in this group
Requester: Giphy	HIT Expiration Date: Sep 17, 2014 (3 days 6 hours)
	Reward: \$0.05
Time Allotted: 60 minutes	HITS Available: 4578
Customer List Email Fetching	View a HIT in this group
Requester: Rachel Scott	HIT Expiration Date: Sep 18, 2014 (4 days 6 hours)
	Reward: \$0.40
Time Allotted: 3 hours	HITS Available: 4165
Transcribe up to 25 Seconds of Media to Text - High Priority	View a HIT in this group
Requester: Crowdsurf Support	HIT Expiration Date: Oct 12, 2014 (3 weeks 6 days)
	Reward: \$0.12

Turkers are not that diverse.



Your Account | **HITs** | Qualifications | **197,710 HITs** available now

[Sign In](#)

All HITs | **HITs Available To You** | HITs Assigned To You

Find containing that pay at least \$ for which you are qualified require Master Qualification

All HITs

1-10 of 3138 Results

Sort by:

[Show all details](#) | [Hide all details](#)

1 2 3 4 5 > [Next](#) >> [Last](#)

Extract summary information from 6 shopping receipts	View a HIT in this group
Requester: Jon Breliq	HIT Expiration Date: Sep 21, 2014 (6 days 23 hours)
Time Allotted: 24 minutes	Reward: \$0.05
	HITs Available: 26250
Product Categorization	View a HIT in this group
Requester: PriceGrabber.com	HIT Expiration Date: Oct 8, 2014 (3 weeks 3 days)
Time Allotted: 20 minutes	Reward: \$0.01
	HITs Available: 10777
Type the text from the images, carefully. Productivity and bonuses guaranteed.	View a HIT in this group
Requester: CopyText Inc.	HIT Expiration Date: Sep 21, 2014 (6 days 22 hours)
Time Allotted: 10 minutes	Reward: \$0.01
	HITs Available: 6995
Input tags to describe the GIF (WARNING: This HIT may contain adult content. Worker discretion is advised.)	View a HIT in this group
Requester: Giphy	HIT Expiration Date: Sep 17, 2014 (3 days 6 hours)
Time Allotted: 60 minutes	Reward: \$0.05
	HITs Available: 4578
Customer List Email Fetching	View a HIT in this group
Requester: Rachel Scott	HIT Expiration Date: Sep 18, 2014 (4 days 6 hours)
Time Allotted: 3 hours	Reward: \$0.40
	HITs Available: 4165
Transcribe up to 25 Seconds of Media to Text - High Priority	View a HIT in this group
Requester: Crowdsurf Support	HIT Expiration Date: Oct 12, 2014 (3 weeks 6 days)
Time Allotted: 15 minutes	Reward: \$0.12
	HITs Available: 3887
Input tags to describe the GIF (WARNING: This HIT may contain adult content. Worker discretion is advised.)	View a HIT in this group
Requester: Giphy	HIT Expiration Date: Sep 17, 2014 (3 days 6 hours)
Time Allotted: 60 minutes	Reward: \$0.05
	HITs Available: 4578
Customer List Email Fetching	View a HIT in this group
Requester: Rachel Scott	HIT Expiration Date: Sep 18, 2014 (4 days 6 hours)
Time Allotted: 3 hours	Reward: \$0.40
	HITs Available: 4165
Transcribe up to 25 Seconds of Media to Text - High Priority	View a HIT in this group
Requester: Crowdsurf Support	HIT Expiration Date: Oct 12, 2014 (3 weeks 6 days)
	Reward: \$0.12
	HITs Available: 3887

Solution #3


LabinthetheWild.

Our Experiments


About Us

Blog

English ▾


LABINTHEWILD


2,530,246
 total participants



Trust us; you will love this test!

Take this test to see how well you can spot (un)trustworthy websites. This experiment takes around 12 minutes.


Participate now!



How fast is your memory?

See how quickly you can retrieve information you have just memorized. This experiment takes around 10 minutes.


Participate now!



What is your website aesthetic?

Compare your visual preferences to people around the world. This experiment takes around 10 minutes.

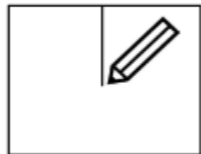
Participate now!



Test your social intelligence!

Test how well you can read emotions of others just by looking at their eyes. This experiment takes around 10 minutes.


Participate now!



Are you more Eastern or Western?

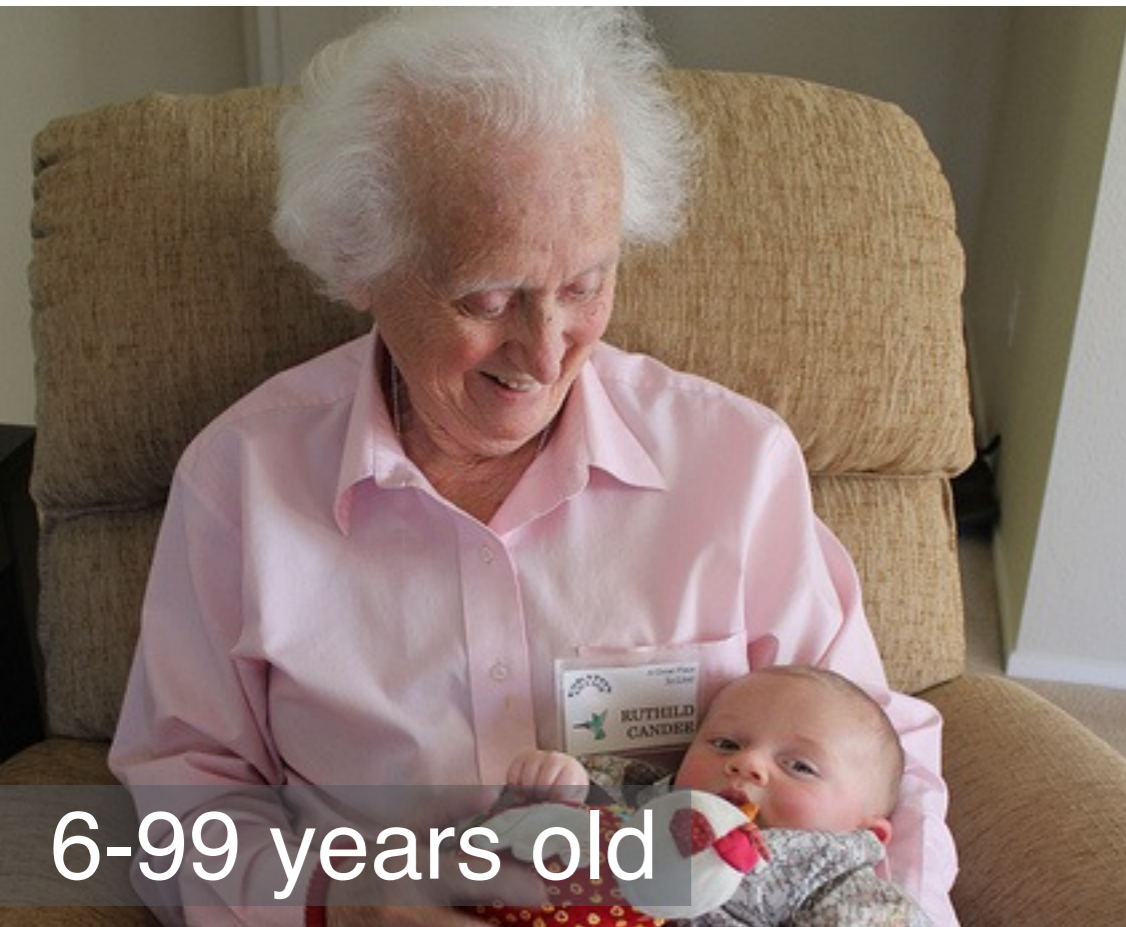
In this test, you will learn whether you are more sensitive to a focal object (as most Americans) or more attuned to the context (as many Japanese). This experiment takes around 8 minutes.

Participate now!



Looking for more studies?

We have joined forces with [TestMyBrain](#) and [GamesWithWords](#)! Learn about your brain, test your language sense, and participate in other studies on [LessWeird.org](#).



6-99 years old



> 200 countries



diverse occupations



73% attend(ed) college

With the help of LabintheWild, we've been able to find differences in

- visual preferences (website design)
- website trustworthiness
- motor abilities
- perception
- attitudes
- color differentiation abilities

Discussion of instance papers:

- Quick summary of both papers including research questions
- What did we find?
- What would we have found if we had only studied WEIRD users?
- Which demographics matter? (country, age, education level?)
- What do the findings enable us to do? (Design implications)
- What other methods would be appropriate to use to answer the research questions posed in these papers?
- How would the findings differ if we used other methods?

Keep in mind that you are a most likely very WEIRD :)

Katharina Reinecke

reinecke@cs.washington.edu