Human Computer Interaction

Taslima Akter

International and Mobile User Interfaces

International User Interfaces

International User Interfaces

- *Note: These are in addition to all the previous recommendations / guidelines*

- Used in more than one country

- Not just language translation

- English versions of products may be used all over the world

- Reviews of products may mention international usability issues

Web Sites Accessed World-Wide

- Internationalization
  - All web sites are globally accessible
  - Providing multiple language versions
  - Making the English version more accessible
- About 8.4% of Internet users are in US *([cite](#) – 2016 data)*
- Internationalization
  - One design that can be used world-wide
- Localization
  - Different designs customized to different languages

Icon International Design Issues

- Mailbox icons?

- No icons with fingers or feet or other gestures

- Light switches on or off?

- No visual puns
  - Table of numbers as:
  - (In Danish, use *bord* and *tabel)*

- Arbitrary icons are even harder
  - Red cross for help

Translation Issues

- Standard terms for "File", "Edit", etc. in each language
  - There are probably hundreds of computer words
- What about "Viewport", "Canvas", "Front"
  - Across the industry, and in a company's other products
  - Keep glossaries of words to be used
- Often need to know the rationale behind why names were chosen
  - E.g. "Find" vs. "Find File" both translated to "Rechercher" in French

Wording issues

- Character Sets
  - Supporting extra characters, like ¿ Á ñ æ ç ß Å, and many accents: ć ĉ ċ č ö
  - Asian alphabets
  - Sort order?

- Avoid abbreviations and slang
  - "MI" for middle initial
  - "N/A" for not available or not applicable

- Avoid idioms
  - No baseball metaphors
  - "Under the hood" for how something works
  - "No cows on the ice"

- Ask for child's age not school grade
  - Brazil restarts the name for grades at "Primeiro Ano" at ages 15-16
  - Japan restarts the name for grades at "Year 1" for ages 12-13 and again at 15-16
  - http://en.wikipedia.org/wiki/Educational_stage

Wording issues, cont.

- Holidays can be different
  - Mother's day, Thanksgiving, Independence Day can be at different times
- People's names: "First" name, "Last" name
  - Which is which? -- cite
  - Also, sometimes, First+Last not very unique
    - 1/5th of Korean's have "Kim" as their surname.
      - Kim, Lee, and Park account for nearly half the surnames in Korea.
        - cite
    - Email address usually globally unique
- Paper size issues for printing
  - A4 vs. 8.5"x11" vs. ???

Number issues

- Paying in international currency
  - Currency symbols: $1000 (US, Canada), vs. ¥1000
- Weights and sizes and clothing sizes in metric and U.S. units
- Billion: thousand million or million million? - *cite*
- Number formats: 4.567 vs. 4,567
  - Ask if ambiguous (not "illegal number")
- Time formats: 2:30 pm vs. 14:30; time zones: EDT
- Date formats: 10/11/12? use October 11, 2012 instead
  - Europeans say "Week 25"
- Telephone number formats
  - +45 47 17 17 17   vs. (412) 268-5150 vs. 1-412-268-5150
  - Allow +, (), -, . etc.
- Locations: England is on both sides of 0° Longitude
 - US software couldn't deal with negative positions

Localization

- Not just translating the interface
  - Web sites may have different content
    - e.g. German yahoo has "Kino" (movies) and "Stars" on front tab, compared to US Yahoo "Entertainment", "Politics" etc.
  - Different sizes of language may require redesign
    - But automatic layout can help
- Indicate content that is *not* translated
  - Bad example: News stories on https://www.uni-hamburg.de/en.html
- When there is a choice of language
  - Don't use flags to indicate language (UK vs. US vs. Canada, etc.)
  - Use language's own name for itself (ENGLISH, ESPAÑOL,   ) 한국어
    - See: https://de.yahoo.com/ - flag actually means the country, not the language
  - Good place for pictures of text (if fonts aren't loaded)
- First page in default language first so many won't need extra click
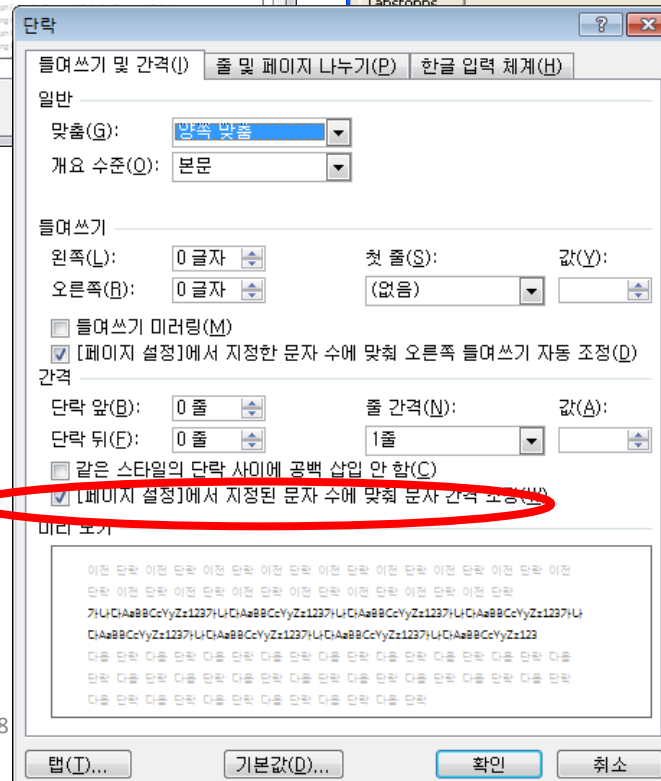 - Make links for other languages easy to find (e.g., www.knto.or.kr/)
  - Not: http://thai.tourismthailand.org/home

Dialog Box Layouts: Print
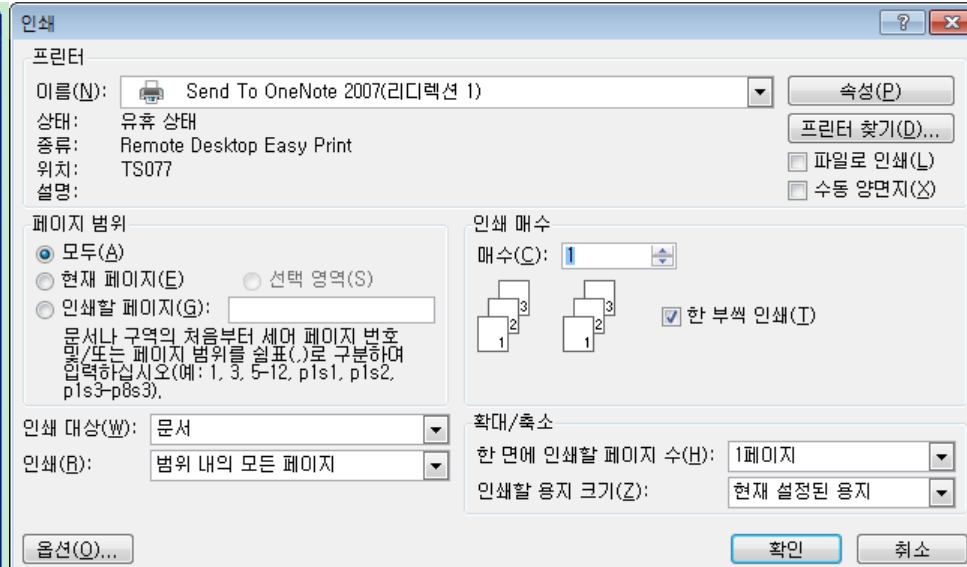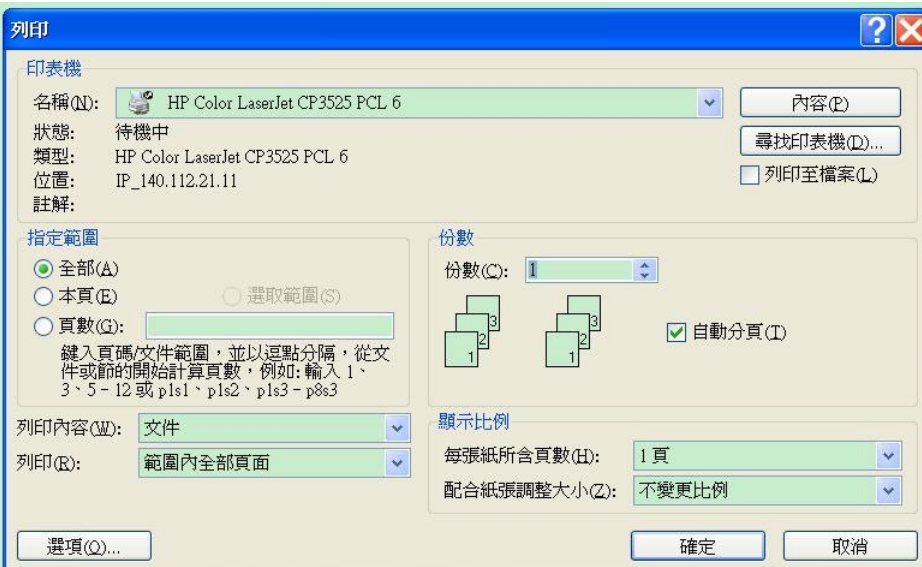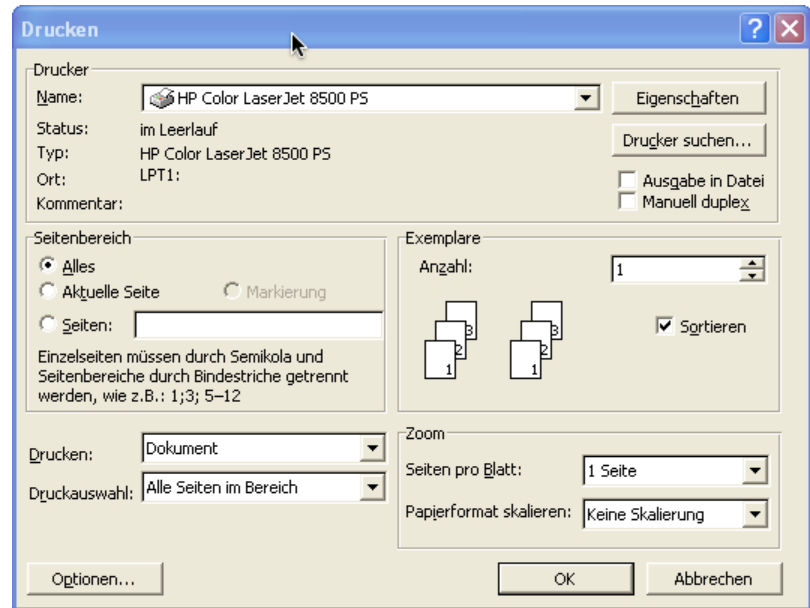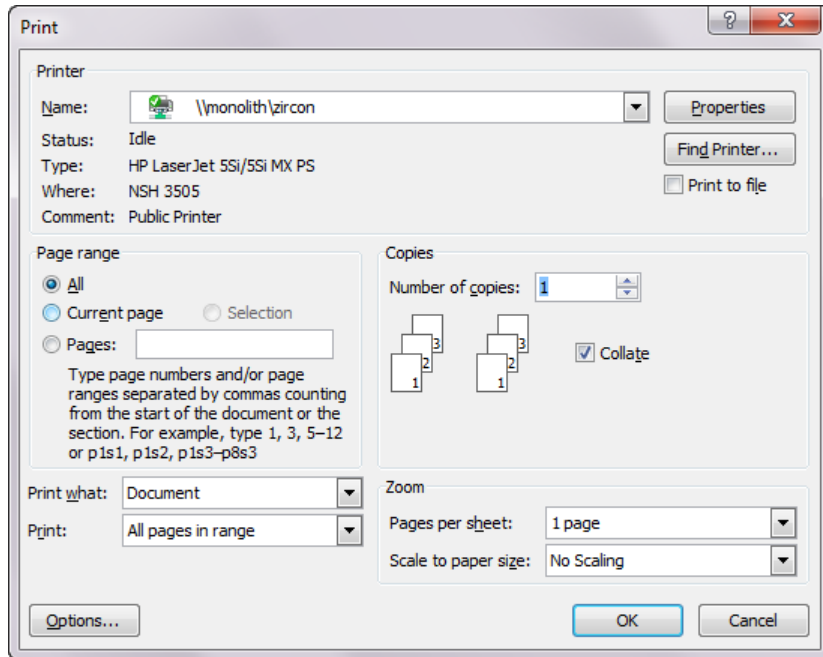
Dialog Box Layouts: Fonts
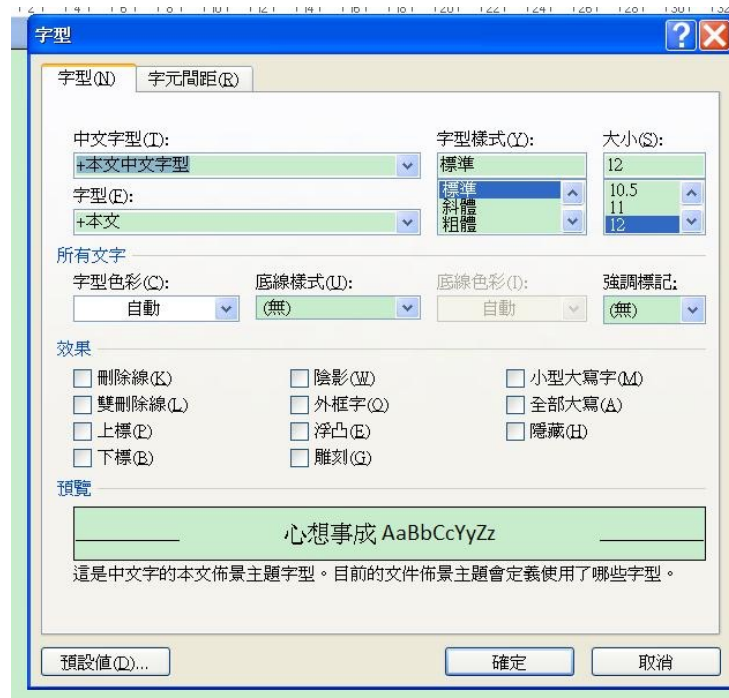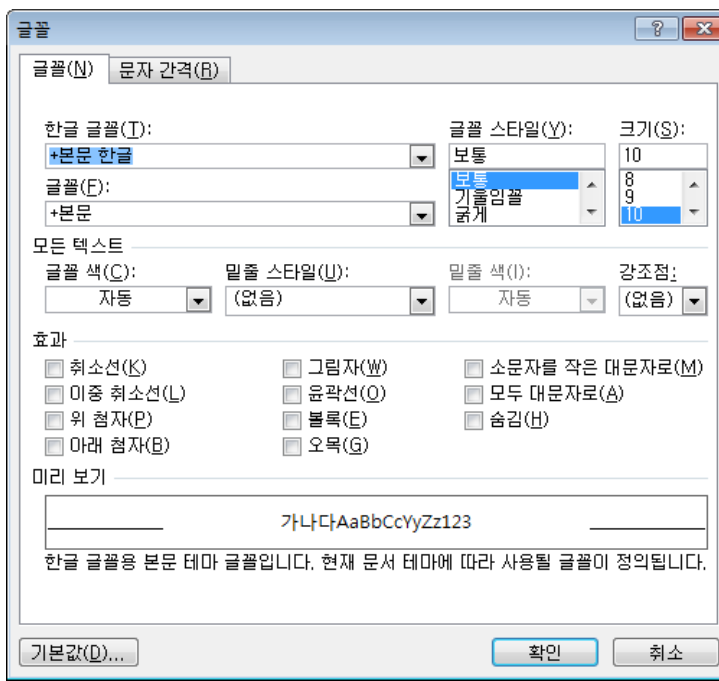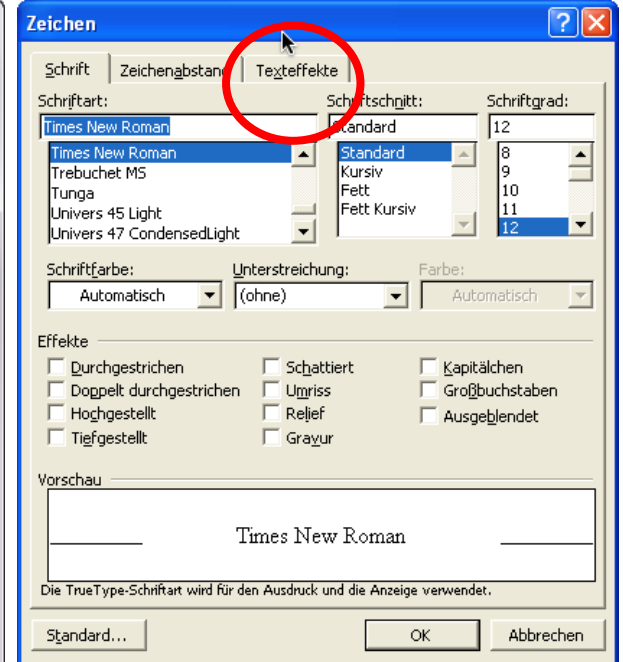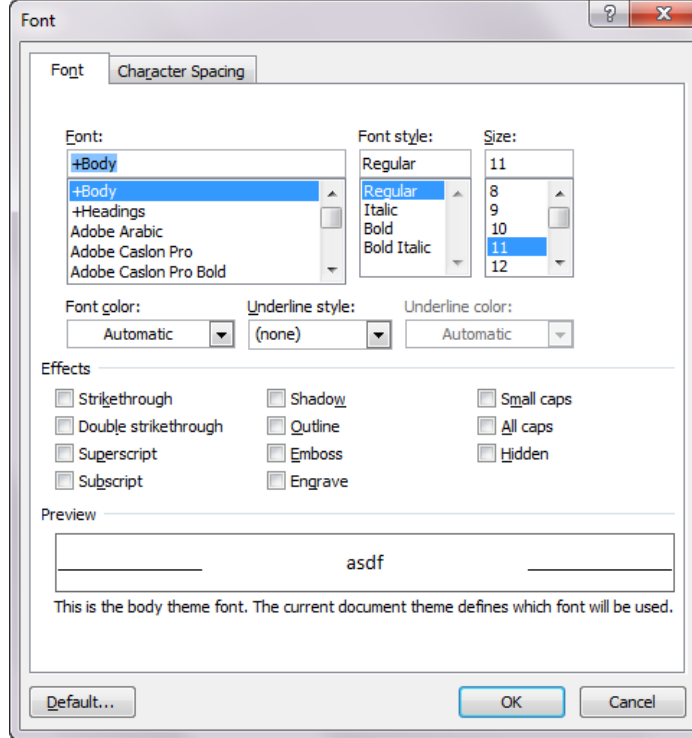
Dialog Box Layouts: Paragraph

© 2018

13
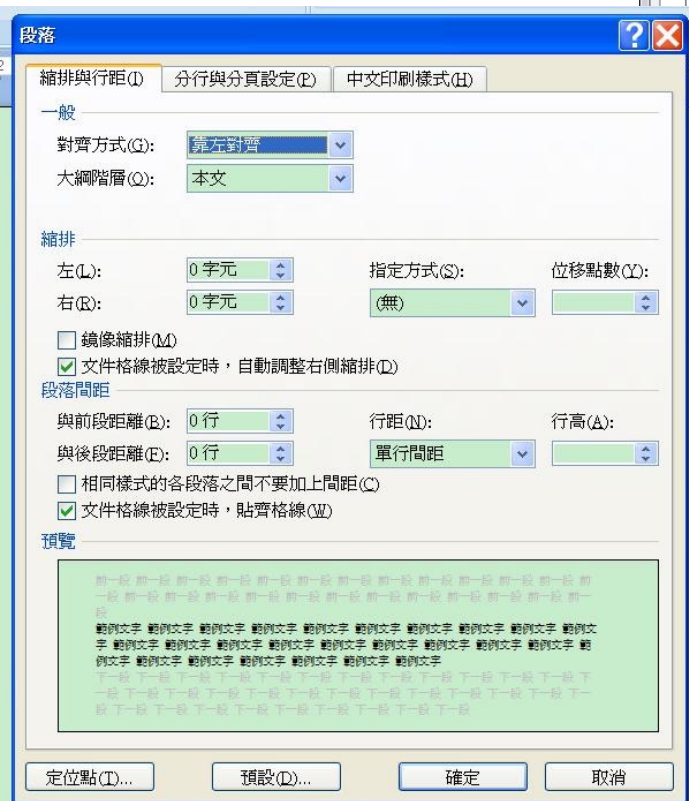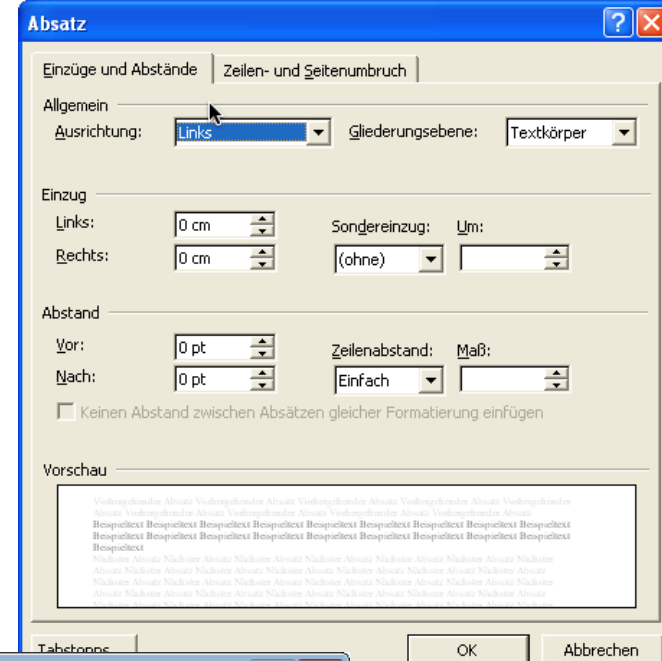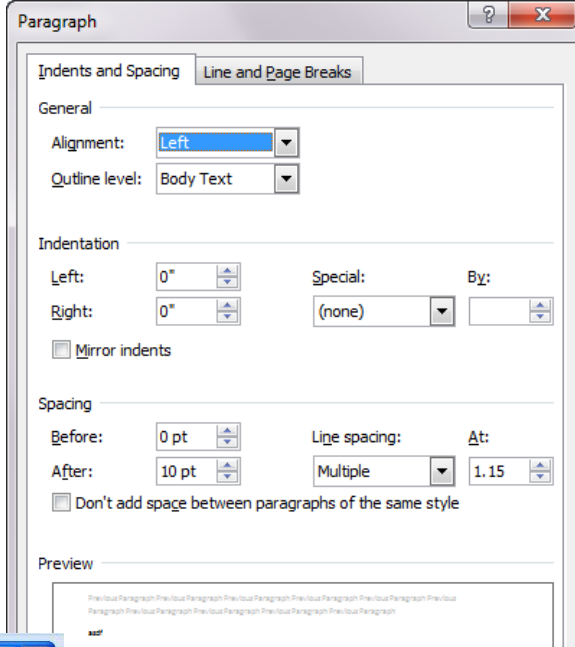
Shipping Issues

- Shipping charges and options for overseas
  - Sales taxes?
- Accept entry of non-US characters in fields
  - May be an issue for sorting, etc.
- Consider have separate US and overseas shipping pages
- Otherwise:
  - Use "zip / postal code" as prompt
  - Different organization of postal address (postal code after city or after state?)
  - In "state/province" field,
    - Full-length state names
    - Option for "other countries" in *state* field

Implementation Issues

- Separate "resource files"
  - Put strings, etc. in separate file so can be easily changed without recompiling
  - Not as part of the code
    - Including error messages, etc
    - Difficult due to constructed messages
      - "Cannot copy file <#1> to directory <#2> due to <#err>"
      - Even the *order* of the words may need to be different
  - Also put in locations and sizes, since may change with the language
- OS features help
  - Automatic formatting and input for dates, etc.
  - Toolkit support for layout, conversions, Unicode, etc.
  - "Locale"
  - But does changing it *convert* values or just show them differently?
    - OK for date, not for currency!

Windows "Region and Language"

- Formerly called "Locale"
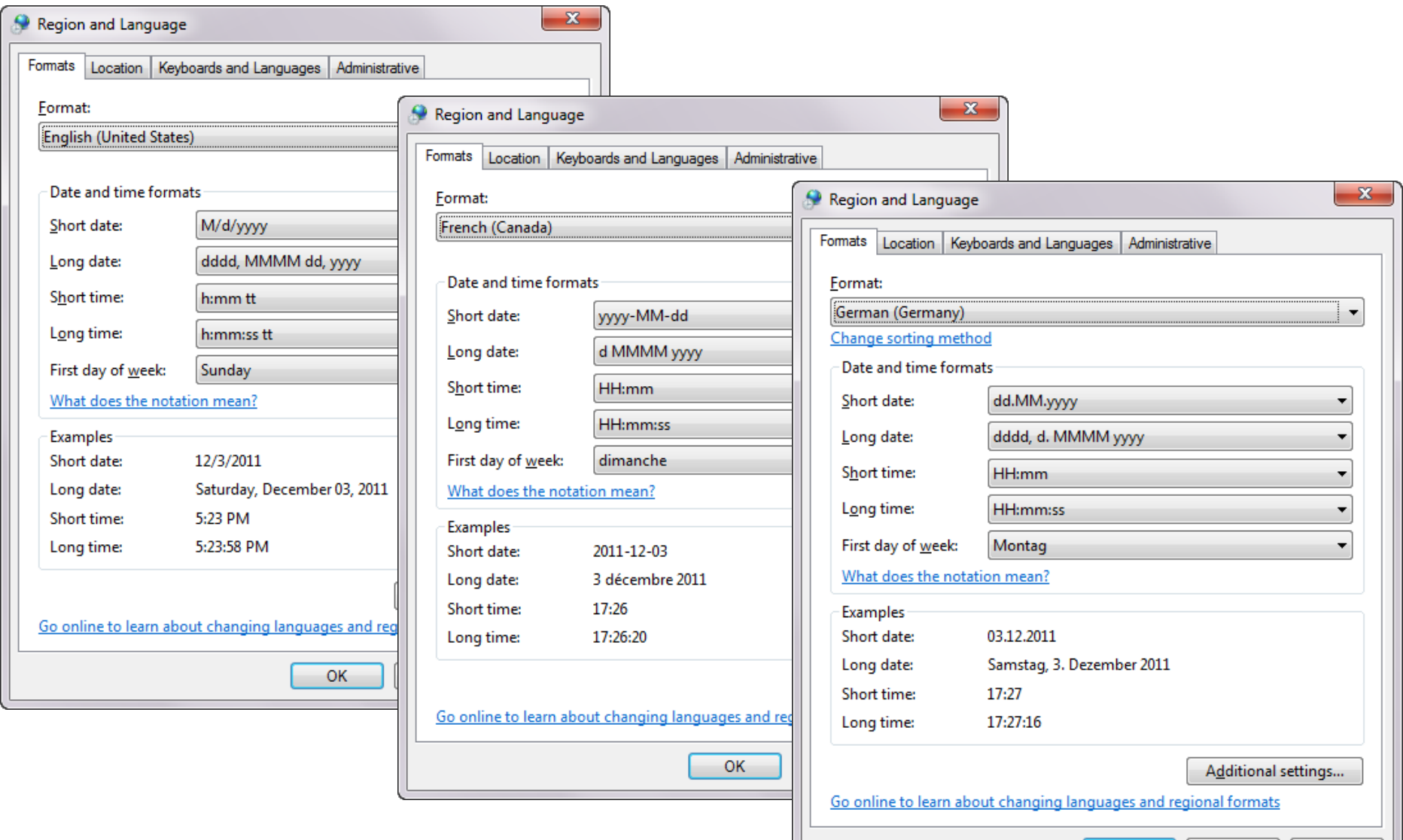
International User testing

- Localized interface can have new and different usability problems
  - Not sufficient to test one version and then translate
- Should perform heuristic analysis by usability specialists familiar with target culture and language
- Should test with native speakers in different countries
- Use international or national usability consultants
- Use "remote testing" with instrumented web sites

CANVAS

>10 minutes

A21: Project 3 Check In

〉 Complete the P3 Check-in survey

〉 Submit the screenshot of the completion to Canvas

Mobile User Interfaces

Why Important?

- Now: Handheld = Mobile = Cell Phone
  - Old: PDA = Personal Digital Assistant
- Tablets: iPads, Android's, e-readers
- Big numbers of mobile phones
  - Over 7 billion mobile phones in use (Wikipedia)
  - About 70% of Americans now own smartphones (cite)
  - "Mobile phones are rapidly becoming the preferred means of personal communication, creating the world's largest consumer electronics industry."
  - More mobile devices purchased each year than PCs and cars combined!

"Computers"

Re-Imagination of Computing Operating Systems - iOS + Android = 45% Share vs. 35% for Windows

Global Market Share of Personal Computing Platforms by Operating System Shipments, 1975 – 2012E

1983 Wintel - 25%   **1998 – 2005** Wintel – 96%   **2012E** Wintel – 35%
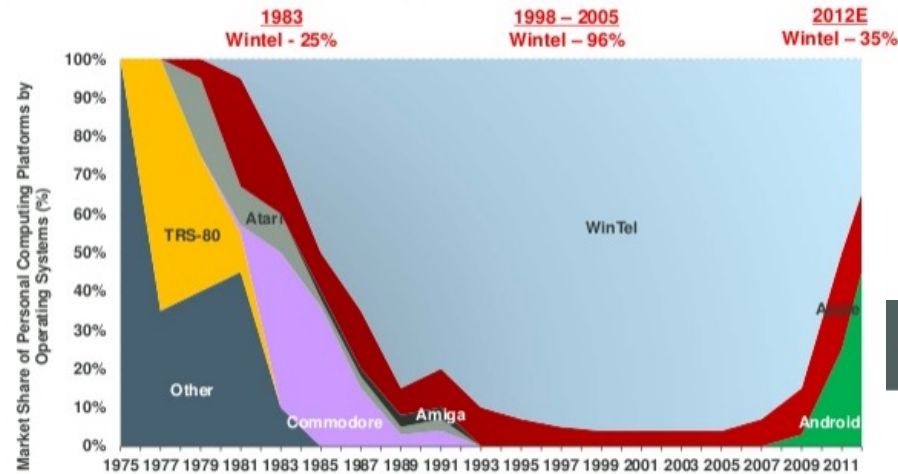
Source: Asymco.com (as of 2011), Public Filings, Morgan Stanley Research, Gartner for 2012E data. 2012E data as of Q3:12.

KPCB

(cite,
slide 24, 25)

Cite for lots of statistics

Global Smartphone + Tablet *Shipments* Exceeded PCs in Q4:10

Global Unit Shipments of Desktop PCs + Notebook PCs vs. Smartphones + Tablets, 2005-2015E

Q4:10: Inflection Point
Smartphones + Tablets > Total PCs

■ Desktop PCs   ■ Notebook PCs   ■ Smartphones   ■ Tablets
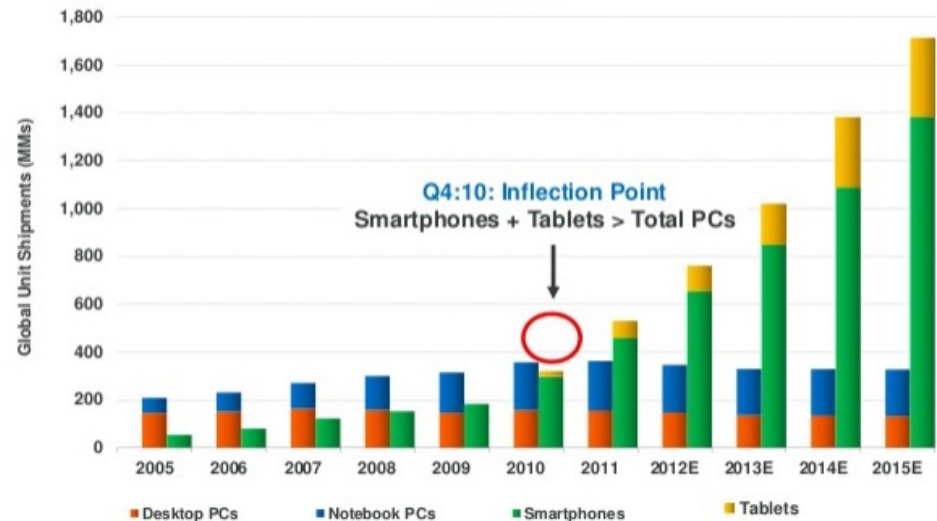
Note: Notebook PCs include Netbooks. Source: Katy Huberty, Ehud Gelblum, Morgan Stanley Research. Data and Estimates as of 9/12.

KPCB

25

mCommerce Importance

- Nielsen: "Mobile access [are] the third 'killer app' for the Internet, after email and web browsing"
  - "Anyone, anytime, anywhere, *connected*"

- Mobile Devices are "Life Accessories"
  - --Panu Korhonen, Usability Group Lead, Nokia
  - Interact with mobile devices in a more "intimate" way than regular PCs

Mobile Usability

- In 2009, was really bad - *citation*
  - Tested various tasks on 36 websites
  - Average success rate was 59%
    - vs. 80% for regular desktop UIs
- "2017: Mobile UX Still Bad, but Slightly Better"
  - https://www.nngroup.com/articles/m-commerce-terrible-ux/
  - Cyber-Monday sales:
  - Usability:
    - Have 10 years of experience with designing for mobile
    - More standard idioms
    - More adapted displays

2017 data	Traffic	Revenue	Ratio revenue/visit
Desktop computers	53%	67%	1.27
Mobile phones	40%	24%	0.60
Tablets	8%	9%	1.18

Usage Model Different for Handhelds than PCs or Web

- Immediate requests

- Short interactions, frequently interrupted

- Public use

- Fashion statement
  - Less business-oriented
  - More value to design

- Little engagement

- Must always be able to answer the phone

Design for Mobile First

- Consultants recommend web sites designed for mobile first
  - Why?

Design for Mobile First

- Consultants recommend web sites designed for mobile first
  - Understand users' most important tasks
  - Focus on key elements
  - Harder to get a good user experience
  - Easier to spread out and add menu items, etc. versus removing them

Focus on Navigation or Content?

http://static.lukew.com/mmdd_workshop_11142012.pdf, slides 107-8
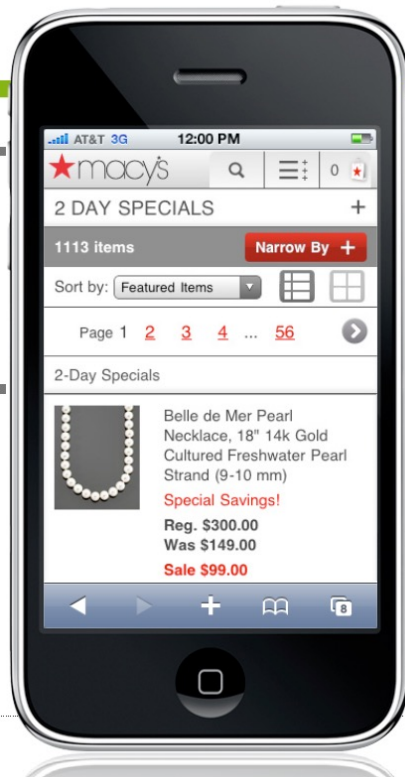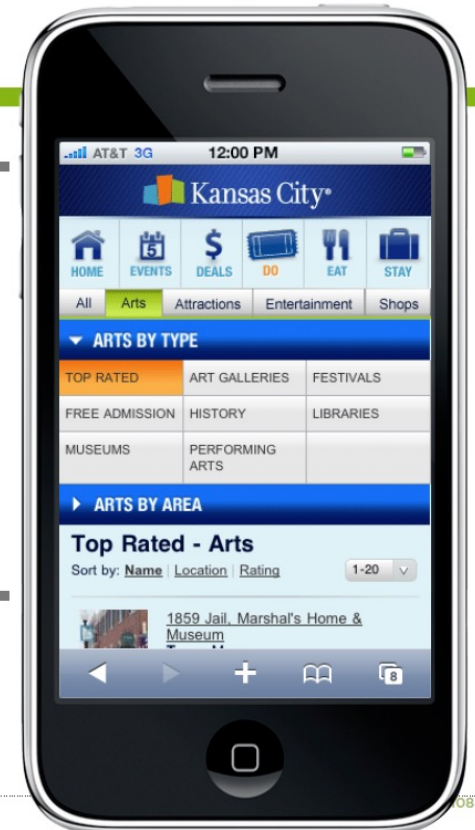
Key Issues with Mobile

- Smaller screen sizes
- Inconsistent hardware

Android Devices

681,900 different devices over six months

© 2018 - Brad Myers

http://static.lukew.com/mmdd_workshop_11142012.pdf, slide 198

Design for Small Devices

- Principles from the Palm's designers

  "Designing the Palm Pilot: A conversation with Rob Haitani", by Eric Bergman and Rob Haitani, chapter 4 in *Information Appliances and Beyond*, Eric Bergman, ed. (2000)

 - Fast access to key features on small screens ->
    - Only a few commands used a lot
    - Leave commands off main screen, even if not symmetric
      - new vs. delete
      - (think stapler and stapler remover)
    - Note that violates consistency
    - Tap and then type in schedule and to-do
    - Only four buttons – which ones?
    - Vs. Windows CE -> if know PC, this is familiar
      - But usage models are different
        - PC: infrequent long usage
        - Palm: frequent short bursts of usage

Confirmed by recent study

- https://www.nngroup.com/articles/better-mobile/
- "What's Important to Mobile Users"
  - Immediate access to the important information
  - Location-related information
  - Time-based or time-sensitive information (e.g., events, deadlines)
  - Emergency information
  - Phone numbers
- Take advantage of phone
  - Location-based
 - Augmented Reality (camera)
  - Other sensors
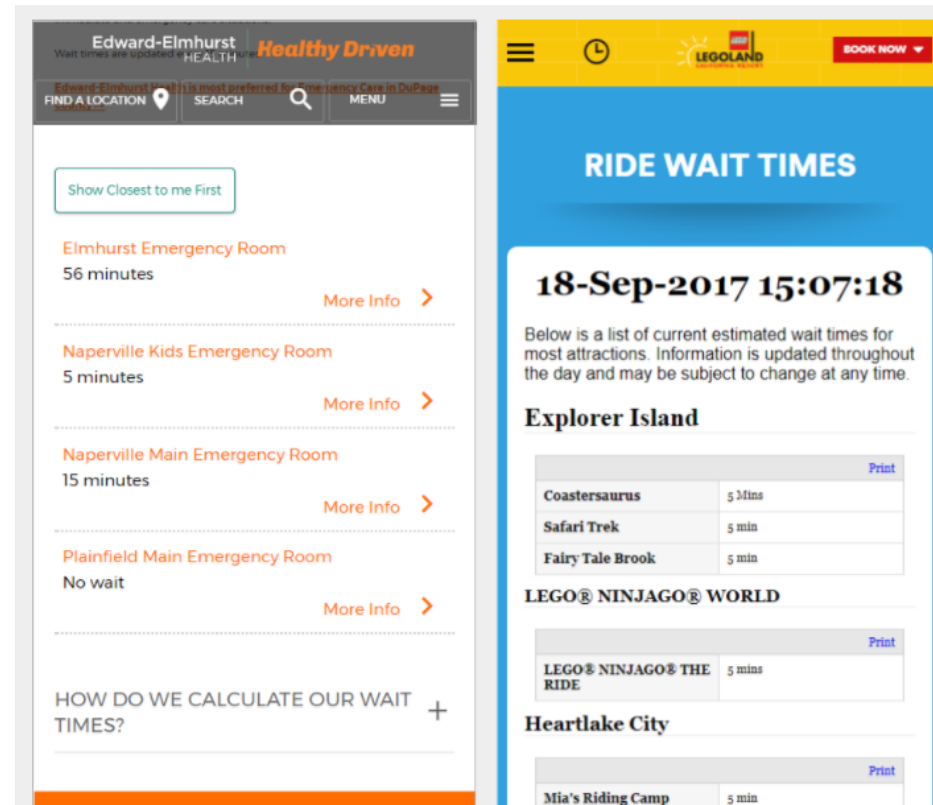
Enhancing an experience for mobile can be as simple as providing easy access to information important to a user on-the-go, such Edward-Elmhurst Health's Emergency Room wait-time information (left), or ride wait times from the Legoland California amusement park (right).

Mobile Navigation

- Navigation especially important on mobile
  - Larger barrier to search (typing costs)
    - Shorter phrases generally work worse

- Need fewer options
  - Hide in a "hamburger" icon (origins)
  - Provide a few options in navigation bar or "tab bar"
   - Top or bottom – depending Android or iOS
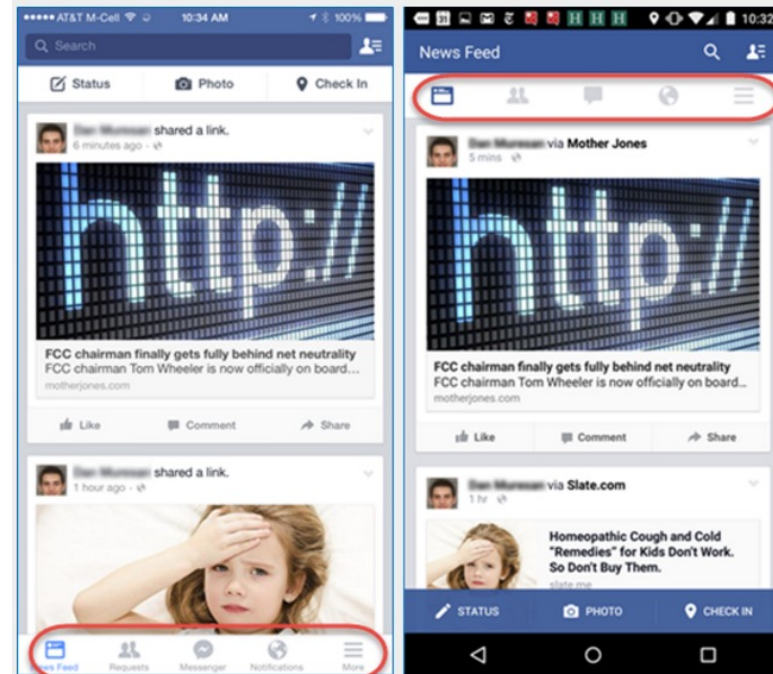
citation

Gestures on Mobile

- If more options – scrolling menus, swipe from side, etc.

- Advantage – no screen space required

- Proliferation of "gestures"
  - Swipe from left edge vs. left-to-right over an object
  - Swipe from bottom/top
    - See esp. iPhone X – *citation*
    - Inconsistency (e.g., with iPad)
  - Tap
  - Press and hold
  - Press hard ("3D" press)
  - Often no "affordances" for
    what gestures are available or where can tap

- Force on iPhone - *citation*
  - Previews, "quick-actions" or "peek-and-pop"
  - Hard to differentiate between press hard and press long
    - E.g., main screen preview vs. edit
  - Can't see what is under the finger while pressing

- Can't tell if did gesture wrong or no gesture available
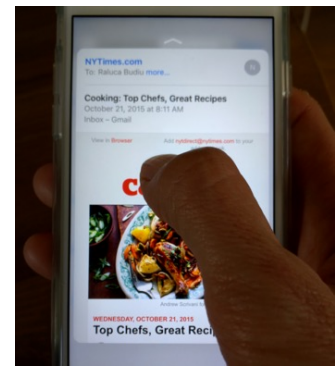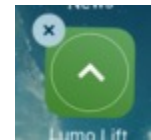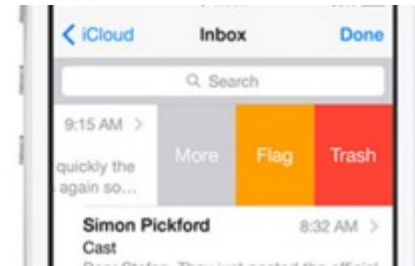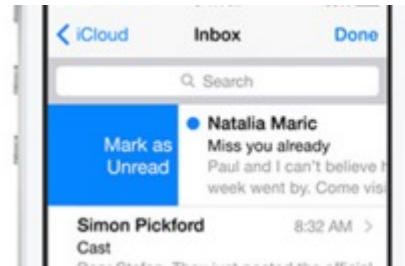
Fun article

- "How Apple Is Giving Design A Bad Name"
  - Don Norman and Bruce Tognazzini
  - Cite: https://www.fastcodesign.com/3053406/how-apple-is-giving-design-a-bad-name
- Products are "even more beautiful than before, [but] that beauty has come at a great price. Gone are the fundamental principles of good design: discoverability, feedback, recovery, and so on."
- Change in design principles:

1995 The Human Interface Design Principles	2008 Human Interface Design Principles	2015 Design Principles (OSX)	2015 Design Principles (iOS)
Metaphors	Metaphors	Mental Model	Aesthetic Integrity
Direct Manipulation	Reflect the User's Mental Model	Metaphors	Consistency
See-and-Point	Explicit and Implied Actions	Explicit and Implied Actions	Direct Manipulation
Consistency	Direct Manipulation	Direct Manipulation	Feedback
WYSIWYG	User Control	User Control	Metaphors
User Control	Feedback and Communication	Feedback and Communication	User Control
Feedback and Dialog	Consistency	Consistency	
Forgiveness	WYSIWYG	Forgiveness	
Perceived Stability	Forgiveness	Aesthetic Integrity	
Aesthetic Integrity	Perceived Stability		
Modelessness	Aesthetic Integrity		
	Modelessness		
	Managing Complexity in Your Software		

Human Computer Interaction

Taslima Akter

International and Mobile User Interfaces