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Академия Гуру

Семинар

Интерфейс, ориентированный на пользователя

Результат 40-летних исследований и практики

Автор и ведущий
Аарон Маркус

Февраль 2008
Москва

edu IT ONLINE

Мы благодарим наших спонсоров и партнеров за оказанную поддержку при организации семинара!

Мы сердечно благодарим всех спонсоров и партнеров за совместную работу и надеемся на постоянное сотрудничество в будущем. Во всем мире именно простота и удобство использования продукта становятся главными в борьбе за пользователя. Вместе с вами мы сделаем наш мир удобней!

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Уважаемый Гость!

В последние годы среди разработчиков программного обеспечения укрепилось мнение, что успех продукта зависит не столько от функциональности и технических решений, сколько от удовлетворенности заказчика и его пользователей, т.к. хорошие технологии не гарантируют хороший результат.

Компаниям-разработчикам приходится отвечать вызовам рынка, стремясь повысить ценность своих продуктов для пользователя.

Конкуренция технологий сменяется конкуренцией за user experience:

- пользователям нужны не столько новые функции, сколько удобство существующих
- пользователи способны приносить больше денег бизнесу, если они не борются с непонятными интерфейсами, а эффективно решают свои задачи
- благодарные пользователи разносят славу о продукте, вовлекая в бизнес новых пользователей (клиентов и заказчиков)

Сегодня Вы увидите реальные примеры влияния юзабилити на успех продуктов, познакомитесь с лучшими мировыми практиками.

Мы уверены, что знания, которые Вы получите на нашем семинаре, не только принесут выгоду Вам и Вашей компании, но и сделают мир вокруг нас лучше и удобнее.

Желаю Вам интересных дискуссий, плодотворного общения и дальнейшего профессионального совершенствования.

Мы выражаем благодарность компании Microsoft, нашему Генеральному спонсору, за поддержку нашего мероприятия.

Елена Бочарова,
руководитель Учебного центра ITONLINE

Об Учебном центре:

Учебный центр ITonline Group ежеквартально проводит серии авторских семинаров с участием зарубежных и российских экспертов для компаний-разработчиков.

В планы 2008 года входит организация семинаров таких экспертов, как Скотт Беркун (автор бестселлера «Искусство управления проектами»), Эдвард Йордон (автор бестселлера «Путь Камикадзе или как выжить в безнадежных проектах»), Якоб Нильсен, а также эксперты из компаний Google, Oracle, Microsoft.

В 2007 году мы провели такие мероприятия, как авторские семинары Скотта Беркуна (Microsoft), Марии Стоун (Google),Эрика Шаффера (Human Factors International), Сьюзан Фаулер (FAST Consulting), Шайлеша Манга (Optimal Usability).

«В последний раз я был в России в мае 1990 г. С тех пор в стране многое изменилось, и я в первую очередь хотел бы составить собственное мнение и увидеть своими глазами все то, о чем я только читал на протяжении почти 20 лет. Я думаю, что встречу много ярких, талантливых людей, и буду рад выслушать их мнение о текущем положении дел и о перспективах развития в данной области. …На международных конференциях, в которых я принимал участие, я заметил нескольких специалистов из России. Я полагаю, что у них есть все возможности для более активного участия в этом процессе, для раскрытия собственного потенциала, и в будущем они окажут большое влияние на процесс разработки продуктов и услуг во всем мире.»

Аарон Маркус

- человек, посвятивший 40 лет дизайну и юзабилити.
- автор применяемой во всем мире методики расчета возврата инвестиций (ROI) в юзабилити.
- автор более 100 концепций пользовательских интерфейсов для смартфонов, в том числе применяемых сейчас в i-Phone (Apple).
- основатель и президент AM+A, более 25 лет осуществляющей консалтинг и проектирование для Microsoft, Oracle, Adobe Systems, eBay, Nokia, Samsung, Hewlett-Packard, Siemens и других.
- более 200 статей и публикаций в области юзабилити, графического дизайна и проектирования пользовательских интерфейсов. Автор и соавтор 5 книг. Тематические исследования для 9 книг и 3 справочников по дизайну пользовательских интерфейсов. Участие в работе издательских и консультационных советов 5 отраслевых изданий.

1967
Профессиональный графический дизайнер (первый в мире).

1970-е
- Создатель прототипа ПО для работы с видеотелефоном Picturephone™ AT&T Bell Labs.
- Создатель пространства виртуальной реальности.
- Научный сотрудник в Восточно-Западном центре (Гонолулу), управление международной командой разработки видеосвязи.

1980-е
- Основной докладчик на ACM/SIGGRAPH-80.
- Преподаватель в Калифорнийском университете в городе Беркли.
- Штатный научный сотрудник в лаборатории Lawrence Berkeley.
- Основал компанию AM+A.
- Один из главных исполнителей проекта по исследованию более эффективной визуализации языка программирования Си.

1992
Награда национальной премии Ассоциации компьютерной графики «За вклад в развитие отрасли».

1999
Организатор и председатель первого собрания ACM/SIGCHI-99.

2000
«Мастер графического дизайна 20 века», звание, присвоенное Международным советом ассоциаций графического дизайна (ICOGRADA).

2003
Профессор в Институте дизайна (Чикаго), Иллинойский Технологический институт.

2003
Ментор курса Разработка новых продуктов (школа бизнеса Хааз, Калифорнийский университет).

2003-2006
Профессор в Knowledge Media Design Institute, University of Toronto, Toronto, Ontario, Canada.

2007
Награда Американского института графических искусств (AIGA) за выдающийся практический вклад в повышение стандартов графического дизайна.

Программа семинара

Первый день

09:00—09:30	Регистрация
09:30—09:45	**Лекция 0: Знакомство, представление семинара и инструктора**
09:45—10:30	**Лекция 1: Почему важен пользовательский интерфейс?** Разработка интерфейса, ориентированного на пользователя непосредственно затрагивает удовлетворенность конечного потребителя. Эта лекция – экспертный обзор проектирования интерфейса, ориентированного на пользователя, представление лучших практик, которые приводят к успеху. Особое внимание будет уделено вопросам пользовательской адаптации, быстрого понимания и легкости в использовании. Темы лекции: - Юзабилити (Usability) - User-centered design - User-experience design - Возврат инвестиций в юзабилити (ROI)
10:30—11:00	**Дискуссия**
11:00—11:20	Кофе–брейк
11:20—12:30	**Лекция 2: Соответствие целям пользователей посредством анализа потребностей/задач UI** Пользовательские интерфейсы часто терпят неудачу, так как они были разработаны только на основе технических или функциональных спецификаций, без вовлечения пользователя. Лекция расскажет, как сделать пользователя центром процесса проектирования таким образом, чтобы технические и функциональные спецификации значимо и удобно отражались в пользовательском интерфейсе.
12:30—13:00	**Дискуссия**
13:00—14:00	Обед
14:00—15:00	**Лекция 3: Удобен ли Ваш интерфейс? Откуда Вы знаете?** Проектирование без знания о пользователях «из первых рук» рискованно, так как неверные предположения о потребностях пользователей и их поведении могут привести к плохой юзабилити. Эта лекция представляет методы тестирования пользователей, которые помогают делать дизайн ориентированным на пользователя. - Кто должен быть протестирован? - Что должно быть протестировано? - Когда нужно тестировать? - Как проводить юзабилити тестирование?
15:00—15:30	**Дискуссия**
15:30—15:50	Кофе–брейк
15:50—17:00	**Лекция 4: Истории о прототипах: секрет нахождения друзей и финансирования?** В сегодняшней экономике даже критические для бизнеса проекты должны быть «проданы» высшему руководству или ключевым клиентам, тем, кто должен финансировать и поддерживать разработку. Эта лекция рассказывает, как делать прототипы и демо-версии, чтобы показать видение продукта понятным, наглядным и желаемым для ключевой аудитории. - Цели демо-версии - Атрибуты успешной демо-версии - Развитие вашего «сообщения» через мозговой штурм
17:00—17:15	**Дискуссия**
17:15—17:45	**Лекция 5: Web 2.0 и культурные различия.** В лекции обсуждаются характеристики сайтов Web 2.0 и различия сайтов Web 2.0 в США, Японии, Корее и Тайване.

Второй день

09:30—09:45	**Лекция 0: Представление семинара, знакомство с опытом слушателей.**
09:45—10:45	**Лекция 1: Культурные аспекты и проектирование UI** Лекция иллюстрирует 5 аспектов культуры: (power distance, individualism vs. collectivism, masculinity vs. femininity, uncertainty avoidance, long-term time orientation). Для каждого аспекта будут объяснены его характеристики потенциальное влияние на работу, образование, семейную жизнь и показаны примеры веб-сайтов различных стран, где одна и та же тема демонстрирует местные особенности сайтов.
10:45—11:00	**Практическое задание 1: Кросс-культурные диалоги** Каждая группа изучает один из примерно восьми межнациональных текстовых диалогов и пытается понять скрытые в тексте культурные послания. Результаты объявляются всем участникам и обсуждаются.
11:00—11:20	Кофе–брейк
11:20—11:45	**Практическое задание 1: Кросс-культурные диалоги** Продолжение
11:45—12:45	**Лекция 1: Культурные аспекты и проектирование UI** Продолжение
12:45—13:00	**Лекция 2: Применение культурных моделей в проектировании UI** Иллюстрированная лекция, которая обобщает исследование д-ра Pia Honold, Siemens Corporation, в использовании культурных моделей чтобы предсказывать как немецкие и китайские потребители собирают информацию об использовании мобильного телефона. Эта информация затрагивает разработку документации, онлайновой помощи и т.д. Презентации д-ра Honold показывает, как результаты исследования соответствуют предсказаниями, но и содержит некоторые сюрпризы.
13:00—14:00	Обед
14:00—14:45	**Практическое задание 2: Отображение культурных аспектов в компонентах пользовательского интерфейса** Каждая группа изучает один культурный аспект и его влияние на фундаментальные UI компоненты (метафоры, ментальные модели, навигацию, интеракцию и внешний вид). Результаты объявляются всем участникам и обсуждаются.
14:45—15:30	**Лекция 3: Культура и проектирование корпоративных веб-сайтов** Мы проэкзаменуем несколько бизнесов и потребительских веб-сайтов мультинациональных корпораций из различных стран (США: McDonald's, Coke; Корея: Samsung; Германия: Siemens) и обсудим альтернативу «универсальности» против локализованных решений для каждой культуры. Культурная модель используется для анализа вариаций в компонентах пользовательского интерфейса корпоративных глобальных веб-сайтов приблизительно дюжины компаний как B2B, так и B2C, включая Siemens, Peoplesoft, McDonalds, и Coca-Cola.
15:30—15:50	Кофе–брейк
15:50—16:45	**Лекция 4: Лучшие исследования культурных аспектов** Обзор 60 профессиональных аналитиков культуры и пользовательского интерфейса.
16:45—17:30	**Практическое задание 3: Проектирование пользовательского интерфейса для одной культуры.**
17:45—18:00	**Дискуссия**

AM+A

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Experience Design Intellilgence
User-Interface Development
Information Visualization

User-Centered, International User-Interface Development

Tutorial Handout Notes
IT-Online Workshop
Moscow, Russia
3-5 December 2007

Lecture Notes for the Tutorial

User-Centered, International User-Interface Development

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Instructor's Biography

Aaron Marcus, President

Mr. Marcus received a BA in Physics from Princeton University (1965) and a BFA and MFA in Graphic Design from Yale University Art School (1968). He is an internationally recognized authority on the design of user interfaces, interactive multimedia, and printing/publishing documents. Mr. Marcus has given tutorials at SIGGRAPH and SIGCHI conferences, and at seminars for businesses and academic institutions around the world. He co-authored *Human Factors and Typography for More Readable Programs* (1990), *The Cross-GUI Handbook* (1994), and authored *Graphic Design for Electronic Documents and User Interfaces* (1992), all published by Addison-Wesley. Mr. Marcus was the world's first professional graphic designer to be involved full-time in computer graphics (1967), to program a desktop publishing system (for the AT&T Picturephone, 1969-71), to design virtual realities (1971-73), and to establish an independent computer-based graphic design firm (1982). In 1992, he received the National Computer Graphics Association Industry Achievement Award for contributions to computer graphics. In 2000, ICOGRADA named him a Master Graphic Designer of the Twentieth Century. In 2007, the AIGA named him a Fellow. He has been an advisor to the AIGA Center for Cross-Cultural Design since 2004.

Mr. Marcus is President and Principal Designer/Analyst of Aaron Marcus and Associates, Inc., a user-interface and information-visualization development firm with more than 22 years of experience in helping people make smarter decisions faster at work, at home, at play, and on the way. AM+A), has developed user-centered, task-oriented solutions for complex computer-based design and communication challenges for clients on all major platforms (client-server networks, the Web, mobile devices, information appliances, and vehicles), for most vertical markets, and for most user communities within companies and among their customers. AM+A has served corporate, government, education, and consumer-oriented clients to meet their needs for usable products and services with proven improvements in readability, comprehension, and appeal. Working with either client R+D or marketing groups, AM+A uses its well-established methodology to help them plan, research, analyze, design, implement, evaluate, train, and document metaphors, mental models, navigation, interaction and appearance. AM+A's clients include BankInter, BMW, DaimlerChrysler, eBay, The Getty Trust, HP, McKesson, Microsoft, Motorola, NCR, Nokia, Oracle, Peoplesoft, Qwest, Sabre, Samsung, Siemens, Tiscali, US Federal Reserve Bank, Virgin America, Visa, Wells Fargo Bank, and Xerox. AM+A helped design the first user interfaces for America Online, Sabre's Travelocity, and Microsoft's ThreeDegrees.com.

Detailed Description and Allocation of Time

Lecure 0: Introduction to instructor and tutorial (15 minutes)
This period will introduce the presenter and discuss how the techniques that will be discussed fit into the user-centered, international user-interface development process.

Lecture 1: Why Does User-Interface (UI) Development Matter? (45 minutes)
User-interface development affects user satisfaction in ways that immediately impact the bottom line. This lecture provides an expert overview of the user-centered UI development process, presenting best practices that are known to contribute to success. Special attention is paid to issues that support customer adoption, quick comprehension, and ease of use. Sub-topics include:
-- Usability
-- User-centered design
-- User-experience design
-- Return on investment (ROI)

Lecture 2: Meeting Users' Objectives/Goals through UI Needs/Task Analysis (60 minutes)
User interfaces often fail because they were developed only from technical or functional specifications, without user input. This lecture provides instruction on how to put users at the center of the design process so that technical and functional specifications are expressed meaningfully and usably in the UI. Sub-topics include:
-- How to conduct a needs analysis
-- Components of a user model
-- User model artifact
-- Task analysis

Lecture 3: Is Your Design Usable? How User Testing can Help (60 minutes)
Designing without first-hand knowledge of users is risky, because faulty assumptions about their needs and behavior can result in poor usability. This lecture introduces user-testing methods that help make UI design more user-centered. Sub-topics include:
-- Who should be tested?
-- What should be tested?
-- When should you test?
-- How to conduct a usability test

Lecture 4: UI Prototyping and Vision Storyselling

In today's economy, even a business-critical project must be "sold" to the executives and key customers who must fund and support its development. This lecture covers the essentials of how to develop engaging and compelling demos and prototypes that make a product vision visible, comprehensible, credible, and desirable to key audiences. Sub-topics include:

-- Objectives of a vision demo
-- Attributes of a successful vision demo
-- Developing your message by brainstorming

Lecture 5: Web 2.0 and Culture Differences (30 minutes)
This lecture discusses characteristics of Web 2.0 sites and begins a discussion of differences among some Web 2.0 sites from USA, Japan, Korea, and Taiwan.

Learning Objectives and Abstract

Learning Objectives

The topics will give participants a good understanding of the complete user-centered, international user-interface development process. User-centered, user-interface development best practices are required for successful products and services in a demanding customer market. This advanced course enables participants to improve their skills as thought- and action-leaders, who can in turn train or assist their colleagues in planning, researching, analyzing, designing, evaluating, and documenting superior user interfaces within product/service software solutions. After each lecture, there will be time to discuss key terms, principles, techniques, and issues.

Abstract

User interfaces for desktop, Web, desktop, home, mobile, and vehicle platforms are increasingly complex and require teams of many disciplines to interact efficiently. In addition, all must be oriented to user-centered development, not data or technology driven solutions. In this tutorial, participants will learn practical principles and techniques that are immediately useful in terms of both analysis and design tasks. They will have an opportunity to put their understanding into practice during frequent discussion periods..

Tutorial Slides, Publications, and Bibliographies

Presentation slides appear on the following pages, after which appear publication resources with bibliographies.

AM+A: What We Do, How We Do It, How We Can Add Value

Aaron Marcus, President
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Objectives

- What is AM+A like?
- How can we work together?
- What are the benefits of our collaboration?

Our Company

- 25 Years of experience in user-interface and information-visualization design/analysis
- Multi-disciplinary, multi-cultural Associates
- Experienced with most platforms, user groups, and vertical markets
- Strong brand and client base: BMW, Daimler-Chrysler, HP Labs, Kanisa, Microsoft, Motorola, US Federal Reserve Bank, Visa, VW, Wells Fargo
- President and founder: Aaron Marcus

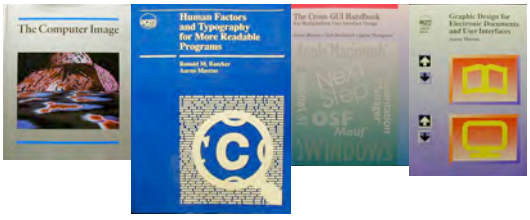
Aaron Marcus, Founder, President, Principal Designer/Analyst

- First graphic designer to use computers
- Visionary, pioneer, professional, teacher, researcher, author/co-author of 5 books, 200 publications
- Award winner: New York Art Directors Club, NY Type Directors Club, ID Magazine, ICOGRADA, Industry achievement award of National Computer Graphics Association, AIGA Fellow
- Member, Motorola Visionary Human Interface Board
- Co-principal investigator, DARPA research in program visualization

Research: User-Experience Spaces = Opportunity Spaces

- I-ware = Me-ware, My-ware
- You-ware = Love-are
- Fun-ware
- Buy-ware = Sell-ware
- Know-ware = Who-ware, What-ware, Why-ware, Where-ware, When-ware
- Be-ware

Publications: Book Covers



Publications: Chapters in Books

Publications: UX and Interactions

Our Vision and Mission

AM+A helps people make smarter decisions faster: anyone, any time, any place, any technology, any market, any subject matter

AM+A shapes the way technology affects everyday life through effective and compelling user-interface and information-visualization development

Our Objectives

- Assist or help build centers of excellence for user-interface development
- Engage satisfied users via user-centered user-interface (UI) development that cost-effectively optimizes UIs
- Ensure usability, usefulness, and appeal in the user experience

UI Development Process

- **Planning:** brainstorming
- **Research:** technology, design issues, strategies
- **Analysis:** user profiles, use scenarios, prototypes
- **Design:** content, applications, branding, storyselling
- **Implementation:** scripting, coding, final production
- **Evaluation:** focus groups, user tests, heuristic evals.
- **Documentation:** guidelines, patterns, specifications
- **Training:** courseware, tutorials, mentoring
- **Maintenance:** continuing client relations

UI Components

- **Metaphors:** Clear concepts via words, images, sounds, music
- **Mental Models:** Easy assimilation of data, functions, tasks, and roles at work, play, on the way
- **Navigation:** Efficient movement in menus, windows
- **Interaction:** Effective input/output, feedback
- **Appearance:** Quality perceptual characteristics

Our Approach: Powerful User Experience via User-Centered Development

- Focus on usability
- Attend to user experience and branding
- Attend to technology
- Consider culture/globalization issues
- Look for opportunities related to visualization and sonification
- Look for opportunities to cross-sell our services

Some Past and Current Clients

12 of 30 Dow Jones Industrial Average™ Firms

American Express
AT&T
BMW
Cogito Learning Media
Eastman Kodak
Hewlett Packard
J. Paul Getty Trust
Kanisa
Microsoft
Motorola
NetIQ
Nokia
Oracle
Orbitz
Peoplesoft
Sabre
Samsung
Tiscali
Tradiant (GT Nexus)
US Fed Reserve Bank
Visa

Our Projects: Designing UIs and Info Visualizations for our Clients

- Applications: mainframe, desktop, Web, mobile, vehicle, appliances
- Websites
- Prototypes
- Demos, presentations, icons, and logos
- Publications, documents

Ricoh Projects

- 1982-88: Ricoh, Tokyo, and Ricoh, San Jose, CA
  - Reviewed UI design for workstations
  - Wrote Ricoh's first UI design guidelines document
  - Trained Ricoh industrial design staff in Japan
  - Hosted Ricoh designer for 3 months as Designer/Analyst

Nokia Projects (Finland)

- 1996: Nokia Finland
  - Reviewed Nokia documentation for technical documentation group
  - Reviewed UI for Communicator 9000 before intro to USA
  - Tutorials in Helsinki and Oulu
- 2000: Nokia Finland
  - Reviewed Christian Lindholm's lecture at HCI UK
- 2002: Nokia Finland
  - Designed Powerpoint presentation to explain UI philosophy to third-party developers worldwide
- 2005: Nokia UK
  - Designed future UI concepts for Nokia Design Center

Visa USA, International, and Inovant

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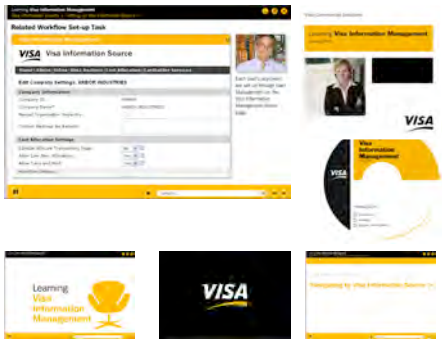
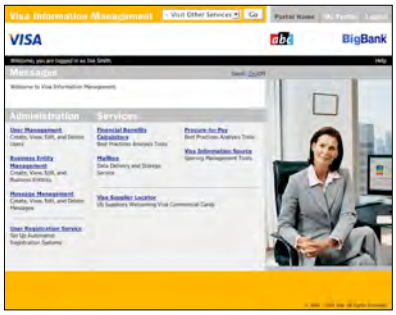
Visa: Visa Information Source, 1/2



AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 21

Visa: Visa Information Source, 2/2



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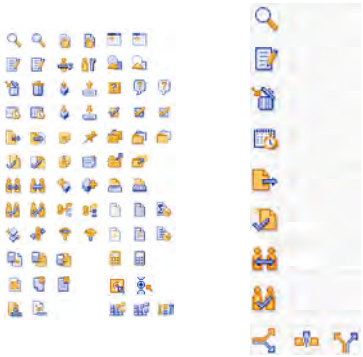
Visa: Icons



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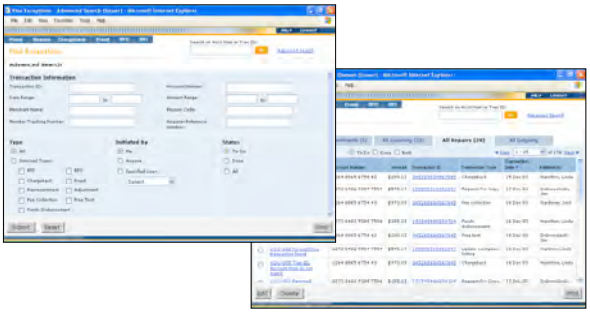
Visa: Exceptions Reporting UI Design, 2003-04



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Visa: Visa.com Global Gateway Usability Analysis and Strategy

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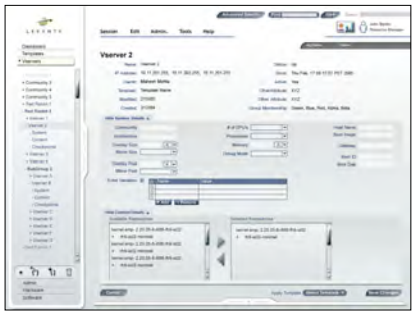
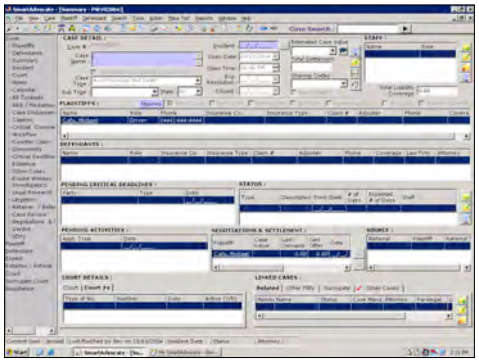
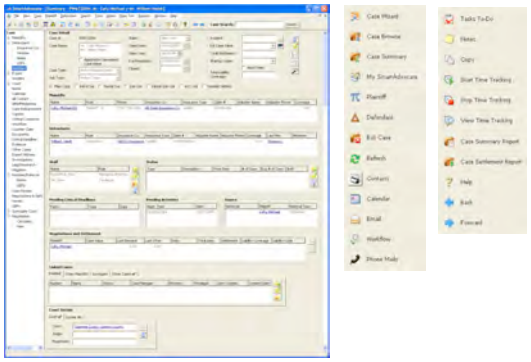
Virtual Server Administration Tool



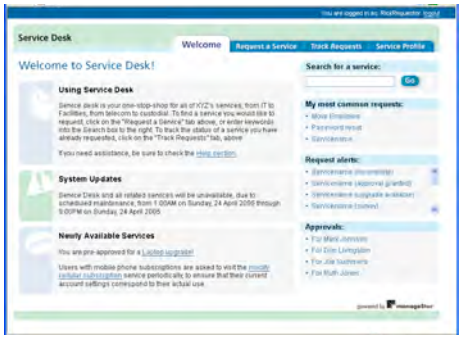
Legal Case Management: Before



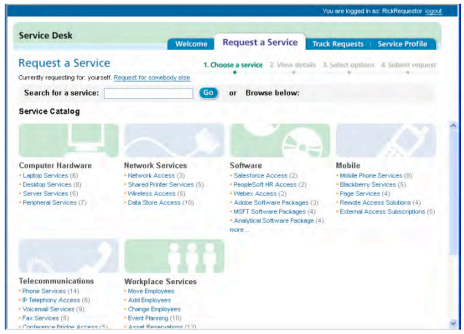
Legal Case Management: After



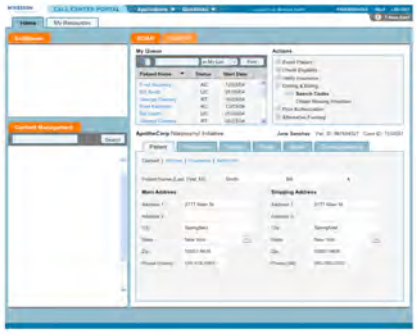
IT Services Management Portal, 1/2

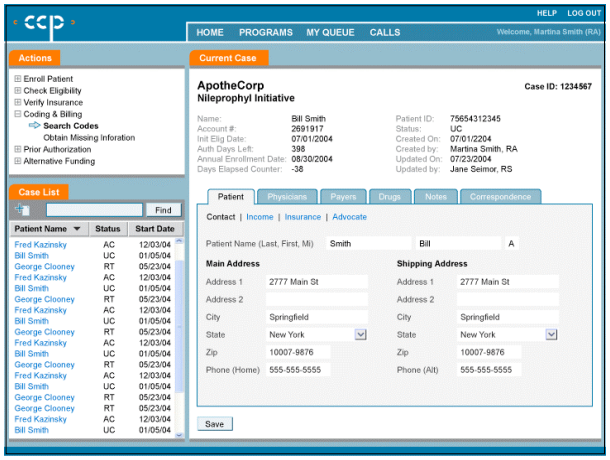


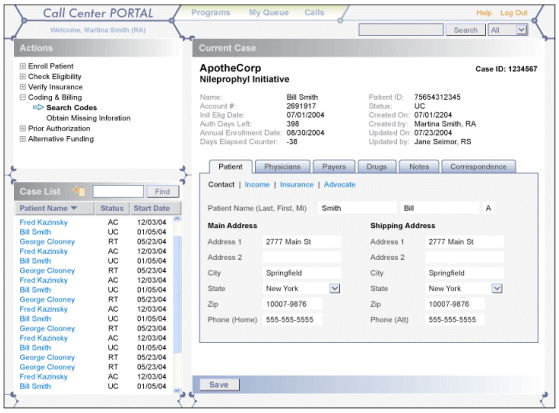
IT Services Management Portal, 2/2



McKesson Call Center Portal, 1/3







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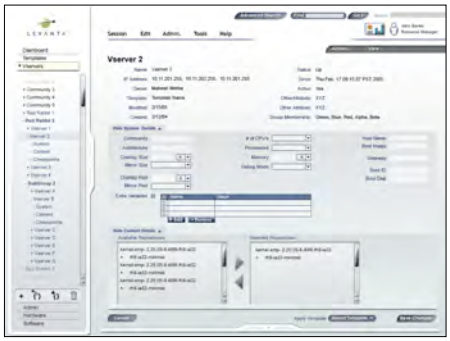
Virtual Server Administration Tool



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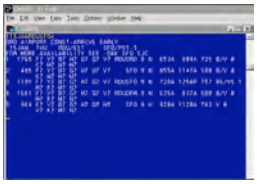
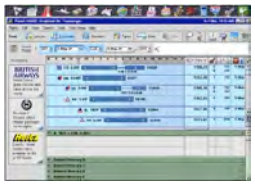
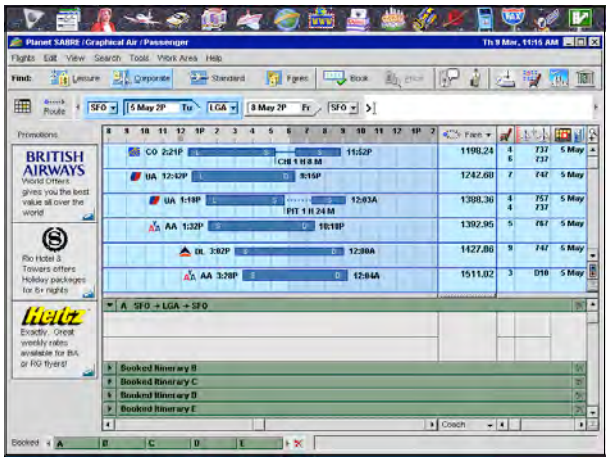
Application Example: Sabre Travel Booking Development



Before



After



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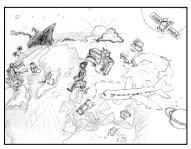
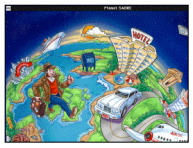
Sabre: Launch Screen Development





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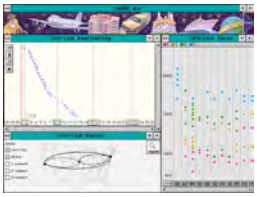
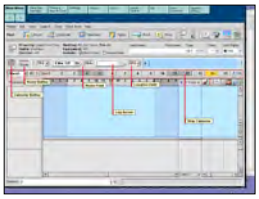
Sabre: Information-Visualization and User-Interface Design

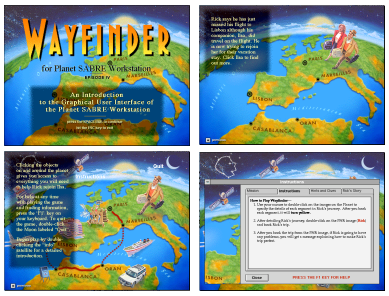


Information Visualization



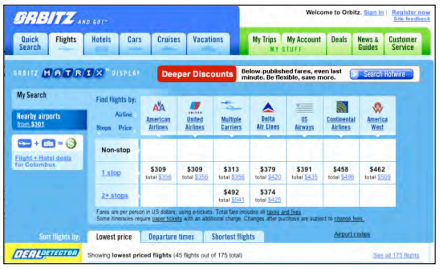
Interactive UI Guidelines

Sabre: Wayfinder Game Development

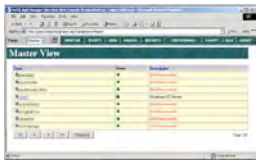


Orbitz: User Research

- User research and focus group testing to determine optimum design of flight data search results



Web Application: NetIQ Development



Before

After

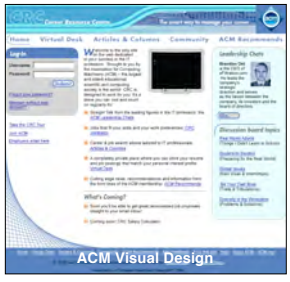
Website Design: Kanisa Development

Before

After

Website: ACM.org Portal Career Resource Centre Development

Before

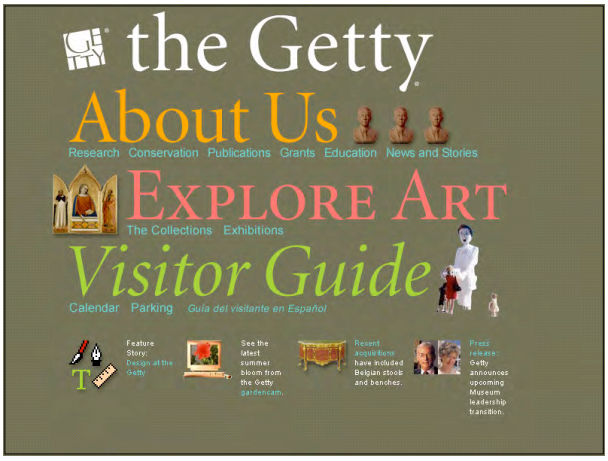


After

Website: J. Paul Getty Trust Portal and Museum Website Development

Home Page

Visitor Guide Page



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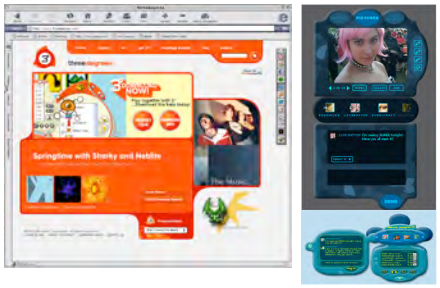
www.ThreeDegrees.com: Web-based Messaging, File-Sharing for Teens



Targeted to "Net Generation, Microsoft's first user-centered UI development, which led to a new division, now absorbed int Microsoft's latest .net offerings

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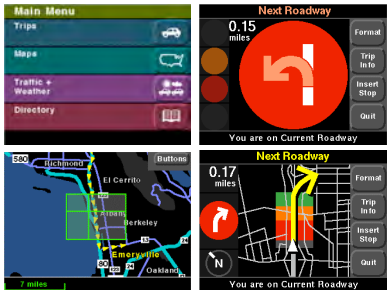
Mobile Products: Motorola Smart-Car User-Interface Design



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Prototype: Samsung Advanced Mobile Device Concepts

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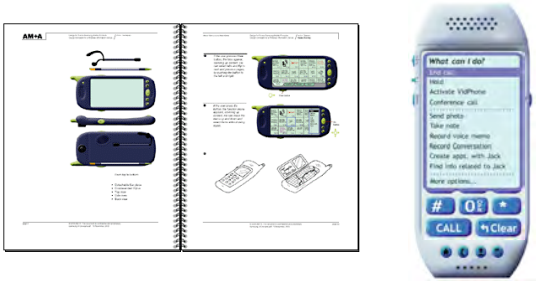
Samsung Wireless Information Device: Design Concepts



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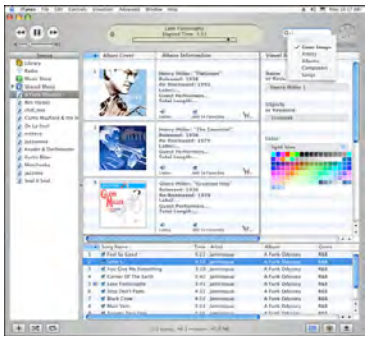
Samsung Wireless Information Device: User Observation

Prototype: Message Manager For a Wrist-top Device

Prototypes: Music Management for Desktop and Wrist-top

Microsoft Smart Watch: Prototype Channels

Visual Search via Album Art

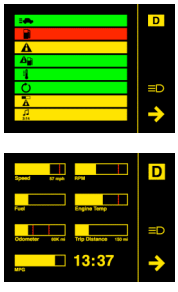


- Find music via keywords and visual perception

BMW: Human Factors of the Driver Experience

- Design for safety
- Avoid cognitive and sensory overload
- Reduce complexity
- Use graphical UI interface only when necessary
- Allow customization of information
- Use of physical controls
- Follow driver-centered design process

Prototype: Vehicle Dashboard Information-Visualization



HP Labs: Executive Storyselling Presentations, Scenarios

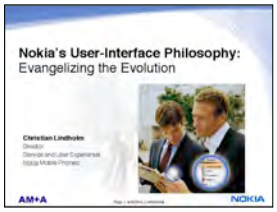
HP Halo

- http://www.hp.com/halo

High-resolution, high-speed, broadband video meeting rooms for executive communication

Nokia: Marketing Presentation to Software Developers Worldwide

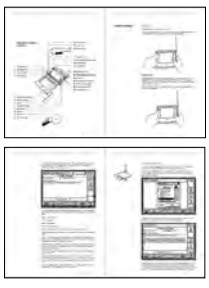
- Presented UI philosophy to attract and cultivate community of loyal developers, operators, and journalists

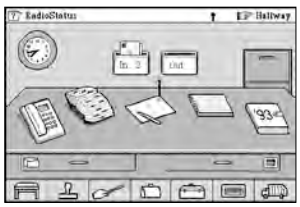


Anoto: Next Generation of Leapfrog's Fly Pentop Computer

- Fly was very successful roll-out from Leapfrog computer that received very favorable reviews
- Children's toy that can speak, translate, play music, recognize writing marks

Paper Prototypes: Motorola Personal Messenger User Manual



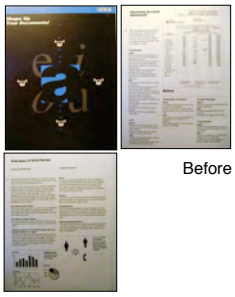


Demo/Presentation and UI design: Tradiant (GT Nexus) Shipping

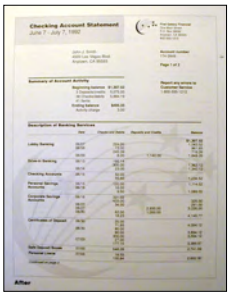
Training Products/Services

- Cogito-Learning Media: designed and produced over 30 award-winning computer-based training products in three business lines
- Oracle Worldwide Training: designed and produced CD-ROM training products, including one AM+A wrote/illustrated about UI design; designed first-ever UI guidelines for Web-based training
- Tutorials: 1-15 days at conferences, universities, on-site at corporations worldwide, and via the Web

Documentation and Training: Xerox Font Center Sales Literature



Before



After

Education: Tiscali European Web Portal on European Hand Gestures

Icon Designs, 1/3

Icon Designs, 2/3

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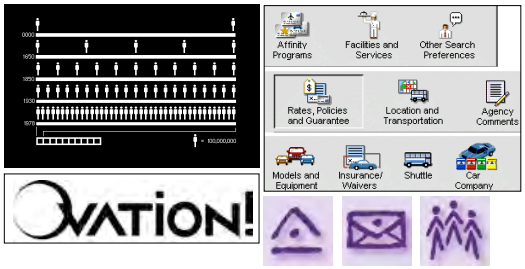
Icon Designs, 3/3, Logo



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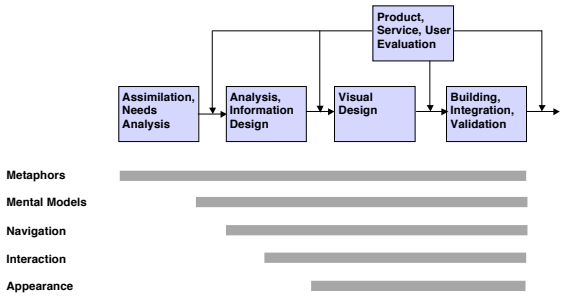
Our Process



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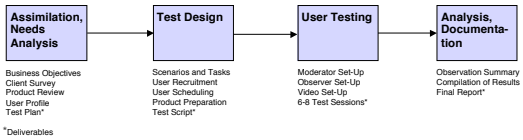
Our Testing Process



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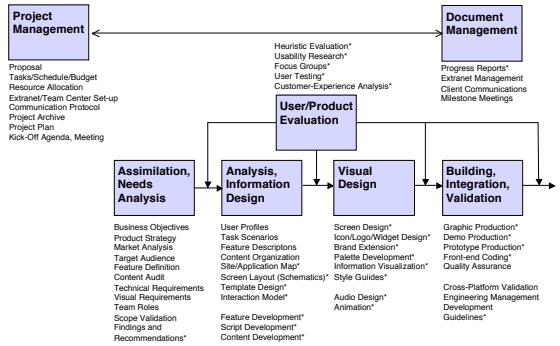
Our Deliverables*



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Design Process Artifacts

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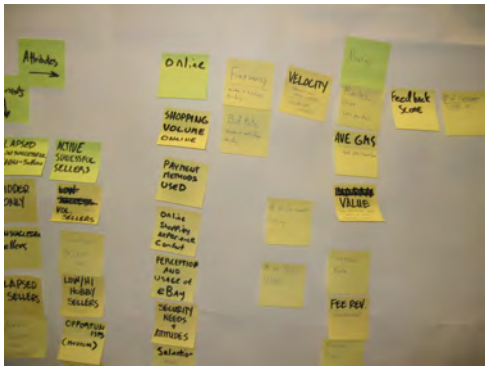
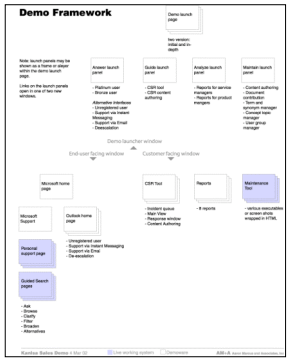
User Research

User Models, User Profiles

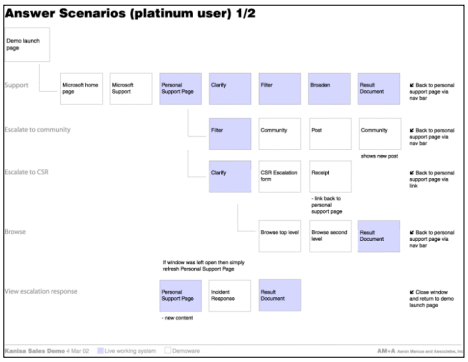
Participatory Design



InfoArchitecture Diagram: Framework



InfoArachitecture Diagram: Scenarios



Sketches

Schematics

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Visual Design Exploration

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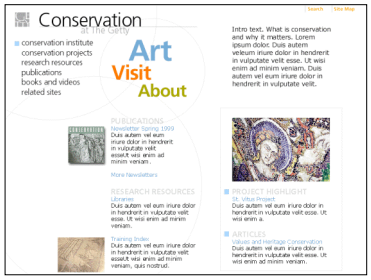
Visual Design: Screens, Layout, Typography, Color, Icons/Symbols



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Visual Design: Examples, 1/17

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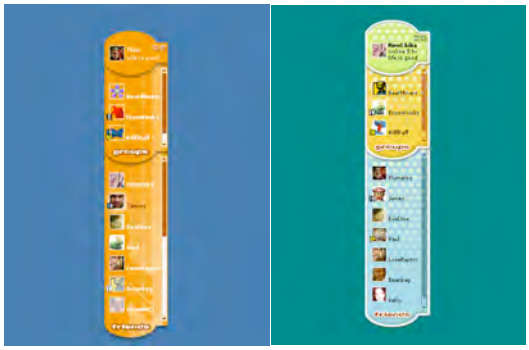
Visual Design: Examples, 2/ 17



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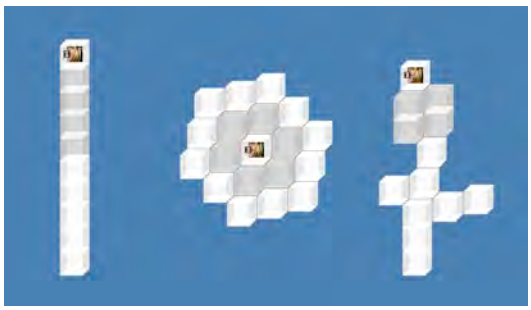
Visual Design: Examples, 4/ 17



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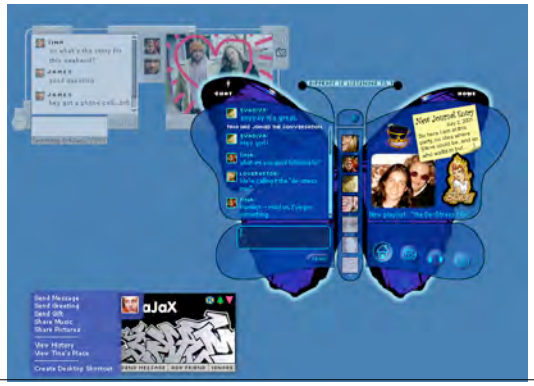
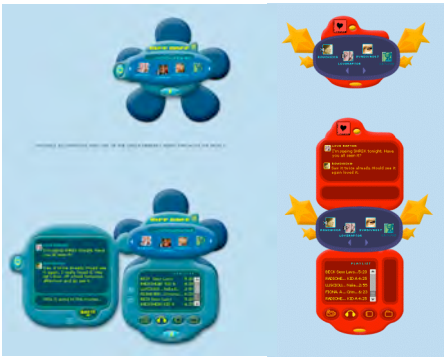
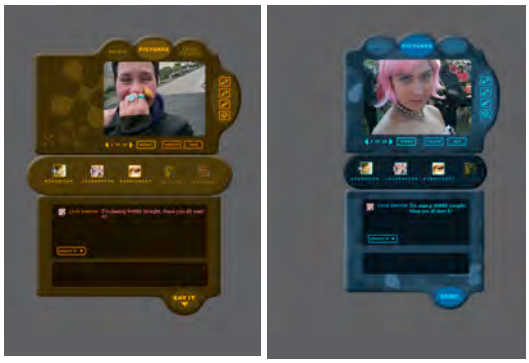
Visual Design: Examples, 5/17



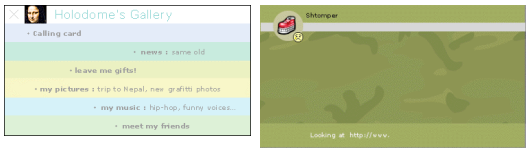
Visual Design Examples, 6/17



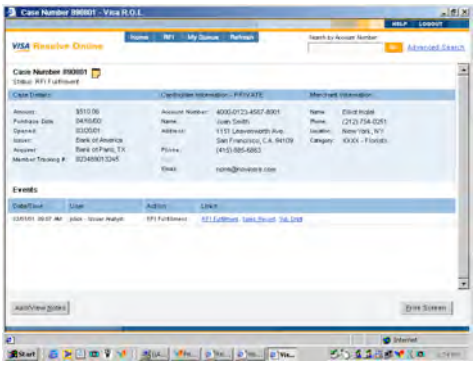
Visual Design Examples, 7/17



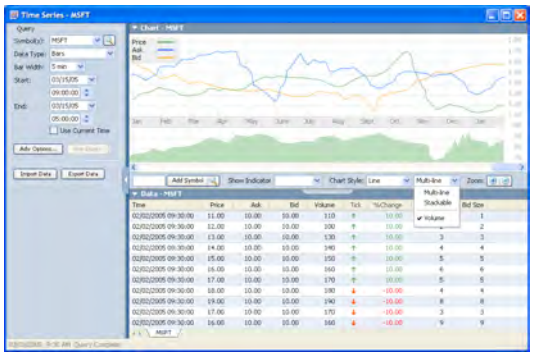
Visual Design Examples, 9/17



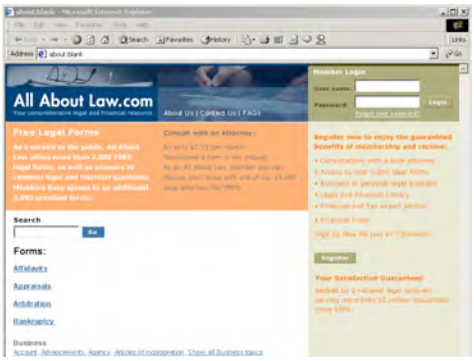
Visual Design: Examples, 10/ 17



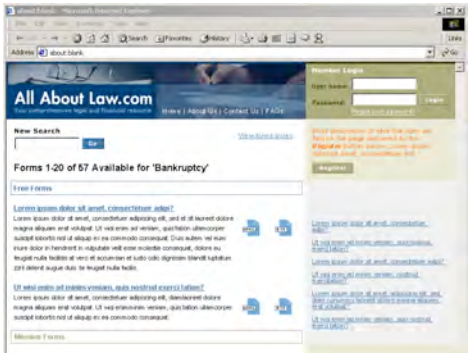
Visual Design: Examples, 11/ 17



Visual Design: Examples, 12/ 17

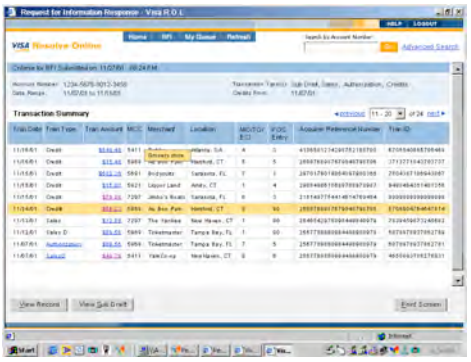


Visual Design: Examples, 13/ 17



Visual Design: Examples, 14/ 17

Visual Design: Examples, 16/ 17



Visual Design: Examples, 17/17

Our Services

- User-interface and information-visualization design
- Design-strategy consulting
- Usability research and analysis
- Design guidelines development
- Training: UI, babyfaces, culture, info visualization
- Heuristic evaluations, focus groups, user testing
- User experience/brand analysis
- Improving corporate centers of excellence

Our Value: Improving Usability, Usefulness, and Appeal

- Increase
  - Appeal
  - Sales
  - Productivity
  - Return on investment (ROI)
- Decrease
  - User errors
  - Training costs
  - Late design-change costs
  - User support costs, e.g., for call centers

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 98

Our Advantage

- Emphasis on users
- Rigorous and thorough approach
- International, proven experience
- Flexible but focused teams
- Industry thought leader with 36 years of experience

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 99

Let's Move Forward Together!

- What is AM+A like?
  - Smart, trustworthy, rigorous, experienced, flexible, team-oriented
- How can we work together?
  - Planning, research, analysis, design,evaluation, implementation, documentation, training
  - Improve existing centers of excellence and corporate methodology
  - Stimulate new approaches, lines of business, strategies, methods
- What are the benefits of our partnership?
  - Assist in developing your quality deliverables
  - Add to your profitability through design-strategy planning, design
  - Assist in improving your centers of excellence: process, requirements, testing, client satisfaction
  - Assist in developing your user profiles,use scenarios, prototypes, and presentations

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 100

AM+A: What We Do, How We Do It, How We Can Add Value

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User-Interface Development: Why Does It Matter?

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User-Interface (UI) Development: Basics

- UI "happens" in the last two feet between computer systems and users
- UI development must be part of integrated, comprehensive software development
- Excellence in UIs requires understanding of development process and components
- Objectives: Make systems usable, useful, and appealing (or pleasurable)

UI Development Process Steps

- Steps
  - Plan
  - Research
  - Analyze
  - Design
  - Implement
  - Evaluate
  - Document
  - Train
  - Maintain
- Similar to software development steps
- Iterative; may be partially parallel

Basic Terms: User-Interface Components, 1/3

- **Metaphors:** Easy recognition and retention of fundamental concepts via terms, images, sounds, touch, etc.
- **Mental Models:** Appropriate organization and representation of data, functions, tasks, roles, and people in organizations of work or play
- **Navigation:** Efficient movement within mental models via menus, dialog boxes, and control panels, etc.

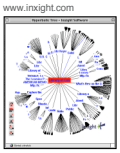
Basic Terms: User-Interface Components, 2/3

- **Interaction:** Effective input/output sequencing, including feedback; overall behavior of human-computer and human-human systems
- **Appearance:** How the product/service appears to the senses (visual, acoustic, tactile, etc), especially related to visual identity and/or branding objectives

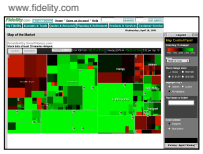
Basic Terms: Information-Visualization Design, 3/3

- Examples: Tables, forms, charts, maps, diagrams
- Visualizations of structures and processes
- Abstract *vs.* representational
- New forms: hyperbolic browser, tree map, data lens

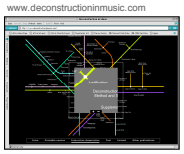
www.inxight.com



www.fidelity.com



www.deconstructioninmusic.com



What is Usability (ISO Definition)?

- Effective
- Efficient
- Satisfying

[International Standards Organization (ISO) definition for UI usability]

How Can Systems be Useful, Pleasurable?

- Self-actualization (highest)
- Esteem
- Belonging and love
- Safety
- Physiological (basic, or lowest)

[Maslow's Hierarchy of Needs]

Jordan's Hierarchy of User Needs

- Pleasure (highest)
- Usability
- Functionality (basic, or lowest)

[Jordan, Patrick, *The New Human Factors*, 2002]

Objectives of Good UI Development: Simplicity, Power

- Make technology responsive to people, not vice-versa; make it transparent, seamless
- Enable *flow*; reduce annoyance; recover time
- Provide better human service, respect
- Maintain standards of organization, clarity; like zoning in urban planning
- Evaluate performance, comfort, convenience, reliability, safety, value; like consumer advocacy
- Create harmony; like *fengshui* in architecture

What is User-Centered Design?

- Design
  - Between science/engineering and art
  - Both analytic and synthetic
  - Both top-down and bottom-up
  - Constantly making tradeoffs
- User-centered design (UCD)
  - Make user central to providing an excellent user experience
  - Optimal: UCD teams set up within corporations and organizations
  - Objective: Change corporate/organizational culture
- "Everyone" is starting to emphasize UCD
  - IBM's Easy Website (www.ibm.com)

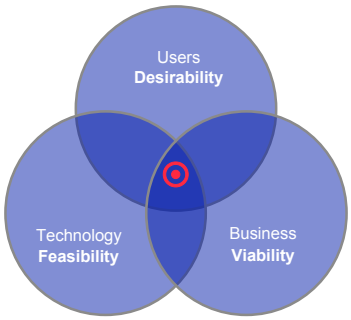
Evolution of Design

- Levi-Strauss, the anthropologist: human beings are both sign-makers and tool-makers
- Ubiquitous technology: computers everywhere in human-human communication and interaction
- The emergence of user-interface design, in which the UI is both sign and tool

User Experience Design: An Amalgam of Design Professions

- Design and analysis professions
  - Information design, information visualization, graphic design
  - Website information architecture,
  - Product design, interaction design
  - Usability analysis, human factors analysis
  - Corporate and product branding
  - Cultural anthropologists and ethnographers
- User experience design = both online and offline
- User experience concerns every aspect
  - Engineering, business strategy, pricing, branding, content, user interface
  - Experience occurs over time, across all possible spaces
  - Experience acquired by user across multiple touchpoints

Development Objective: Finding the Sweet Spot



UI Development: Many Roles = Many Hats

- Product strategy
- Information design
- Interaction design
- Usability evaluation
- Visual (and sometimes sound) design
- Verbal design

Guiding Concepts

- User is central
- Before deciding on Big Idea, gather many ideas
- Iteration is indispensable, occurs at many levels
- Begin with core issues, big picture, then details
- For function-oriented development, form may follow function, *e.g.*, complex data applications
- For form-oriented development, function may follow form, *e.g.*, capturing consumer interest
- You may need to do both; understand differences

Current State of UI Development

- UI development process affected by many stakeholders, including users
- Dynamic environment: user preferences and profiles, dynamic data and layouts, adaptation to various devices and contexts, collaboration
- Users increasingly overloaded with information
- Technology rapidly changes constraints and opportunities. Old solutions become obstacles (*e.g.*, file systems)

The Future Trends in UI Development, 1/2

- Increased sensitivity of developers
  - Understanding deep user needs, wants --> greater user satisfaction
  - Culture-centered design, consumer-behavior-centered design
- More user experience, human-centered computing
  - Human beings in control
  - Computers adapt to human beings, not the other way around
- Major challenge: input
  - Phones, PDAs, game stations: input vs. output
  - Multimodal input, e.g., "put that there"
  - Watching eyes, listening to speech, both local and distant
- Realism and seamlessness
- Ubiquitous, invisible computing

One Challenge for UI Development: Visual Design

- **Fundamental principles:** Organization, economy, communication effectiveness
- **Use of visible language elements**: Layout (grids), color, typography, icons/symbols, product/service identity
- **Additional issues:** Corporate identity, branding, style

General UI Development Resources and Challenges

- **Principles** (theory): gives hints, but challenging to interpret
- **Processes** (techniques): **the most important**
- **Proof** (testing): identifies problems, but not solutions
- Design should focus on **usability, usefulness, appeal**
- Design should yield a good **user experience**

Return on Investment (ROI) for Usable UI Development, 1/4

- Development: Reduce Costs
- Sales: Increase Revenue
- Use: Improve Effectiveness
- The payoff
  - "Development projects should spend 10% of their budget on usability (testing). Following a usability redesign, Websites increase usability by 135% on average; intranets improve slightly less." (Nielsen, 2003)
- AM+A white paper summarizes ROI of usability
  - See tutorial notes reprints, www.AMandA.com, and/or *User Experience*, 2002

Return on Investment (ROI) for Usable UI Development, 2/4

- Development: reduce costs
  - Save development costs
  - Save development time
  - Maintenance: reduce costs
  - Redesign: reduce costs
  - "… 80% of software life cycle costs occur during the maintenance phase and were associated with 'unmet or unforeseen' user requirements and other usability problems." (Nielsen, 1993)
  - "Incorporating ease of use into your products actually saves money. Reports have shown it is far more economical to consider user needs in the early stages of design, than it is to solve them later." (IBM, 2001)

Return on Investment (ROI) for Usable UI Development, 3/4

- Sales: increase revenue
  - Increase transactions/purchases
  - Increase product sales
  - Increase traffic, size of audience
  - Retain customers
  - Attract more customers
  - Increase market share
  - "It is common for usability efforts to result in a 100% or more increase in traffic or sales." (Nielsen, July 1999)

Return on Investment (ROI) for Usable UI Development, 4/4

- Users experience: improve usability (especially, effectiveness), usefulness, appeal
  - Reduce errors
  - Increase productivity
  - Increase user/job satisfaction
  - Increase ease of learning
  - Increase trust
  - Decrease support/training costs
  - "In a study of 15 large commercial sites, users could only find information 42% of the time even though they were taken to the correct page." (Nielsen, 1998)
  - Typical challenges: Poor labels, confusing layout, unreadable typography, poor controls defeat user's ability or patience ,or both

Cost-Justification Example

- Challenge: comparing development cost ($) to increased usability (effectiveness, efficiency, and satisfaction)
- Development Cost *vs.* User Costs
- Usability
  - Good usability: benefit
  - Poor usability: risk

Example: Cost-Justification for Application Development

In this example of limited audience, Web-oriented application, several factors could be improved based on user feedback:

- Increased user productivity
- Decreased user error
- Decreased training costs
- Decreased post-launch changes

[Hypothetical example from *Cost Justifying Usability* by Bias and Mayhew]

Hypothetical Calculation for Cost-Justification: Productivity

If we increase productivity by *one* second:

- 250 users at $25 per hour
- One second greater efficiency per page for a 60-page product
- 60 pages used each day for 230 days per year

Then, the savings achieved is this:

- **$23,958 per year**

[Hypothetical example from *Cost Justifying Usability* by Bias and Mayhew]

Hypothetical Calculation for Cost-Justification: Decreased Training

If we decrease training:

- 250 users at $25 per hour
- Require four hours less training

Then, savings achieved in first year:

- **$25,000 per year**

[Hypothetical example from *Cost Justifying Usability* by Bias and Mayhew]

Hypothetical Calculation for Cost-Justification: Decreased Errors

If we decrease errors:

- 250 users at $25 per hour
- 0.2 errors per day per user

Then, two minutes per error in recovery time saves:

- **$9,580 per year**

[Hypothetical example from *Cost Justifying Usability* by Bias and Mayhew]

Hypothetical Calculation for Cost-Justification: Post-Launch Changes

If we decrease post-launch design changes:

- 20 post-launch design changes
- 1 day per correction, including rush charges

Then, one-time savings:

- **$16,800 per release**
- After release, changes are four times higher cost than during development
- Un-noticed, vital, internal, *controllable* factor

[Hypothetical example from *Cost Justifying Usability* by Bias and Mayhew]

Hypothetical Calculation for Cost-Justification: Total Savings

Conservative, but realistic estimates

- In this hypothetical example, total savings through improved usability would be this:
- **$75,338 in the first year!**

[Hypothetical example from *Cost Justifying Usability* by Bias and Mayhew]

Qualitative ROI, 1/2

- Benefits of good user input
  - Connecting with customers
  - Building team consensus
  - Motivating users
- Benefits of usability
  - Testing is like proofreading a manuscript
  - Seeing yourself as others see you
- Costs of bad design
  - Customer leakage (every click = small percentage of drop off, lost human productivity)
  - Poor reputation

Qualitative ROI, 2/2

- Good design is often transparent
  - Customers may not notice what is natural
- Goal: seamlessness
  - Poor usability interrupts momentum and train of thought
  - Speed of frustration: 3-10 seconds
  - Frustration does not scale well! Frustration builds up fast
  - Most users initially will not have desire, patience to drill down more than 1-3 levels

User-Interface Development: Why Does It Matter?

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Meeting Users' Goals through UI Needs Analysis

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Needs Analysis: Steps

1. Establish project goals
2. Evaluate existing user-interfaces
3. Understand scenarios of use
4. Perform user research
5. Create user models
6. Analyze tasks
7. Understand technical capabilities and constraints
8. Define visual direction

Needs Analysis: Output

- Inventory of product and project goals
- Scenarios
- User models
- Tasks analysis
- Assessment of challenges and opportunities
- Initial design recommendations
- Project plan that accounts for design and usability tactics

Product Design Goals: Examples

- Supporting strategic goals of company or product line
- Achieve new level of usability
- Exploiting innovative technology
- Conforming with new set of design standards
- Outperforming competing product

Product Design Goals: Stakeholder Interviews

- Design is concerned with tradeoffs
- Designers must be able to converse between disciplines
- Hold *Stakeholder Meetings*
  - Rapidly capture inputs
  - Get issues on the table
  - Enable each group to understand relationships and priorities
- Follow Needs Analysis agenda
- Be wary of UI requirements that specify one design
  - Options and tradeoffs are not fully understood yet
  - Focus on problem definition, not solution

Stakeholders

- Engineers
- Marketers
- Business owners
- UI designers/developers
- Users
- Customer support representatives
- Executive management
- Key business partners

Review Existing Designs: Methods

- Observe a demo
  - Try have a user demonstrate the system
  - Learn about user behavior as well as existing system
- Conduct a heuristic evaluation
  - Formal understanding of problems
  - Warranted for a system that is being redesigned
- Conduct a usability test
  - Learn about user behavior as well as existing system

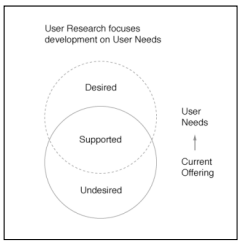
Review Existing Designs: Comparative Analysis

- Decide what characteristics to compare
  - Analyze strengths and weaknesses, not just features
- Review competing designs with:
  - Focus group
  - Development team
  - Comparative usability test
- Position your product relative to others
  - For each characteristic, establish a benchmark
- Very high-value activity
  - Quickly learn the state of the art

Understand Scenarios

- Place *tasks* in a sequenced storytelling narrative
- Explain context and motivation
- Demonstrate value to users and business
  - Show workflow between multiple users
- Show one realistic path with realistic data
  - Scenario may not cover all tasks
  - Scenario may form the basis of a sequential prototype
- **Timesavers:** Because scenarios describe users and tasks, scenarios can be used as shortcut form of user modeling and task modeling

Perform User Research



- Develop the right thing
  - Do they need a car or a truck?
- Develop the thing right

User Research Methods: User Interviewing

- Provides richly detailed and realistic information
- Multiple users need be interviewed in order to capture a complete view
- Can be conducted by phone or in person or remotely
- Good for self-reporting of experiences and needs
- May not report on actual behavior or performance accurately
- User input should be carefully considered, but UI designer should drive the design, not the user

User Research Methods: Stakeholder Interviews

- Useful for gathering different viewpoints
- Useful when real end-users cannot be contacted
- Some stakeholders can accurately represent the opinions of many users
  - Managers who have done the work
- Often, stakeholders will represent their own opinions rather than those of end users
- May not report on actual behavior or performance accurately

User Research Methods: Focus Groups

- Good for evaluating initial concepts, gathering ideas
- Data may not be as rich as with user interviews
- Good for self-reporting of experiences and needs
- Group dynamics
  - Positive: a chance to capture multiple opinions and debate issues
  - Negative: dominant participants, passive participants, participants that play devil's advocate, lack of anonymity, etc.
- May not report on actual behavior or performance accurately

User Research Methods: Contextual Observation and Inquiry

- Interviewing and/or observing users in their natural context, such as performing actual duties in the workplace
- Real work context can reveal details not brought up in a formal interview or focus group meeting
- Excellent to observe real performance, behavior
- Important for innovation
  - When users do not know what they want, what they might do with new technology, or how to express their ideas
- Anthropological, ethnographic studies useful

User Research Methods: Surveys

- Useful when design goals and existing products are well understood by the user base
  - E.g., a list of content desired for an intranet
- Can produce statistically valid data from many users, into the hundreds
- Good for concrete input
  - E.g., checklist, multiple choice
- Can combine closed and open questions, but data will still not be very rich

Remote Testing

- Large numbers of users (100-300) can be queried for 30-45 minutes
- Statistical results can be analyzed
- Moderated, unmoderated versions
- Easily world-wide, many countries, cultures
- Many vendors now offering services, some with offices in multiple counries
  - Examples: UserZoom, Keynote, BoltPeters
- Different software works on different platforms

Proxies for Actual Contact with Users

- When real users are not available, use proxies
  - Marketers (sellers)
  - Procurers (buyers)
  - Supervisors (managers ≠ do-ers)
  - Domain experts (subject-matter experts = SMEs)
  - Support personnel (assistants ≠ do-ers)
  - Documentation specialists
  - Manuals
  - Surveys (marketing studies gather different data)
- The trick: account for their biases
  - "Recruit loosely and grade on a curve" - Krug
- User models are an excellent way to keep users in mind

Real Users

- Testimonies are very powerful when users are customers
- User may/may not be able to explain their preferences, needs, desires
- May be necessary to look at their behavior (what they do) as well as what they say
- Users may not be able to envision and comment on data, functions that they have never before experienced

Model Users

- See User Modeling lecture

Analyze Tasks

- See Task Analysis lecture

Understand Technical Capabilities and Constraints

- Output capabilities
  - Monitor size, resolution, color-depth
- Input capabilities
  - Keyboards, touch screen, mouse
- Data limitations
- Performance
- UI Designer must be familiar with the medium
  - Desktop, CD-Rom, Web site, Web app, Applet, Flash, handheld,

Define the Visual Direction

- Select three to five *identity attributes* or *keywords*
  - E.g., Friendly, authoritative, bold, organic
- Compile a list of products that have the desired visual qualities
  - All qualities need not be represented in one product
- Follow corporate, product brand guidelines
  - Be aware of co-branding

Present Design Recommendations

- Issues and ideas can be presented in categories of metaphor, mental model, navigation, interaction, appearance

Needs Analysis: Artifact Template

- Template can be formulated in RUP artifact format and according to other formats
- Needs Analysis example should be provided
- Exact contents vary depending on the analysis

Needs Analysis: User Modeling

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UI Development Challenges

- User-centered UI development means developers must consider end-customer usage rather than data objects and functions
- Organizing actions (verbs) harder than objects (nouns)
- Everyone does something different…differently
- Discovering what people do/need/want is not same as thinking about needs for databases
- If you cannot contact users, try proxies

User Types

- Note: Design for everybody = pleases nobody
- Focus on small number of user types and goals (usually 7±2 maximum)
- *User types:* abstractions represent large or *important* (*e.g.*, future markets) groups of users
- *User model, user profile, or persona:* defines each type
- User interviews provide insight, credibility, reality check

User Modeling: Why

- For discretionary-use products/services (*e.g.*,for consumers), user modeling of motivations very important
- For mandatory-use products (*e.g.,* for workers) consider organizational issues
  - Do not treat user like a cog in machine
  - Satisfied employee = productive employee

User Modeling: Steps

1. Analyze data from user research
2. Segment audience into user types with distinct behavior
3. Create user models (profiles, personas) that define each user type
4. Identify design implications
5. Prioritize user types

User Modeling: Profile

- First decide *what* to profile
- Basic profile
  - Goals (and objectives) (be clear about differences of two terms)
  - Environment (physical, social, cultural, emotional, *etc.*)
  - Behaviors
  - Design implications
- Specialized profiles
  - Proficiency
  - Interaction style
  - Information needs
  - Country and culture

User Modeling: Goals

- Internal forces
- Needs, desires, or job responsibilities
  - Day in the life
  - Interests (*e.g.,* to perform well)
  - Information needs (requirements *vs.* nice-to-haves)
- Objectives: defined as more general, less quantifiable desired situations or circumstancs vs. goals: quantifiable, time-bound, specific, precise, measurable

User Modeling: Characteristics

- Innate characteristics of the user
  - Domain knowledge: low, medium, high
  - System knowledge: low, medium, high
  - Proficiency: low, medium, high
  - Favorites, *e.g.,* Websites
  - Psychographics

User Modeling: Environments

- External forces
- Situation, circumstances, context
  - Equipment
  - Workflow (cognitive context)
  - Work culture
  - Physical context (*e.g.*, indoors only, long-distance travel, *etc.*)
  - Social context (e.g., commercial *vs.* non-profit enterprise)
  - Cognitive context (*e.g.,* detail-oriented)
  - Psychological/emotional context (*e.g.,* air-traffic controllers)
  - Cultural context (*e.g.*, power distance, uncertainty avoidance)

User Modeling: Behaviors

- Driven by goals and environment
- Expectations, usage patterns
  - Interaction style
  - Navigation style
  - Communication style
- Culture: may affect some behaviors

User Modeling: Design Implications

- User model affects design goals
  - Efficiency
  - Accuracy
  - Reliability
  - Learnability
  - Memorability
  - Satisfaction
  - Clarity
  - Comprehensibility
  - Comprehensiveness
  - Attractiveness
- For real projects, design goals should be more specific

User Interviews

- Think about what you will want to know later
- Balance structure and conversation
  - Ask open-ended questions
- Take user input, but do not let them design solution
  - Users are not designers
- Schedule follow-up questions
  - Drill into deeper level of detail
  - You may need to analyze more or design something at this stage, in order to encounter and/or understand the next level of unknowns
- Culture: may affect interview method and style

User Interview: Questions

- High-level
  - Can you tell a few stories that are typical of your actual use of the system?
  - What makes a good/bad experience in your work day?
- Detailed
  - Can you describe particular problems you were trying to solve?
  - Can you describe the people/roles involved?
  - What steps were taken?
  - What constraints were there (*e.g.*, time)?
  - What information do you need to make good decisions?
  - What was produced?
  - Were you satisfied with the outcome?
  - What things waste your time?
  - Problems, pain points?

User Models

- **User models:** Describe key behavioral characteristics
  - Should not correspond directly to users interviewed
- Creating them is lively process
- Give user types name and face: personas
- Bring them to life, keep them in mind
- Development goal is to enable empathy
- Use first-person descriptions; put comments in their own words

User Models: Examples from Getty Museum Website Redesign by AM+A

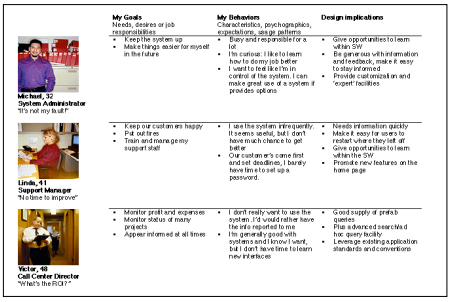
Thelma

Art Historian, age 45. Thelma teaches at UC Riverdale and is quite involved in the Getty community. She comes to the Getty to use the library resources for her work (publishing studies on 15th Century French paintings). She, or her assistant, uses the online resources as much as five times a day.

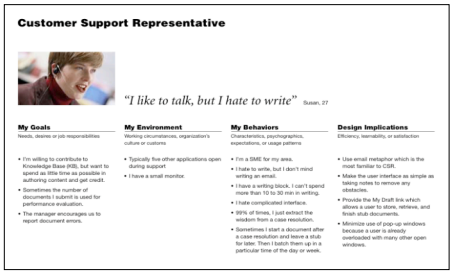
Jennifer

(This persona is a variant of Chris, and was conceived primarily as a target Art Access user.)
Jennifer is a 17-year-old high school senior who has a lot invested in being "arty." Unlike Chris, she knows what she wants to look at. She's a bit of a goth, and maybe a bit of a loner, and tends to like dark or "mystical" paintings from the Renaissance. Jennifer wants to learn, and to increase her authority and sophistication, so she's interested in detailed information about artworks, biographies of artists whose work she admires, and the curator's viewpoint. She also might want to look at a painting for a long time, perhaps as a desktop image, or email an image to a friend.

User Models: AM+A Examples



User Models: Examples



User Archetypes

- Roles based on job responsibilities
- Experts *vs.* novices
- One time *vs.* occasional *vs.* frequent use
- Technophile *vs.* technophobe
- Most skiers and users = "improving intermediates." Optimize for them
- Avoid error of designing for novices and experts when most users remain improving intermediates

Identify Primary User Types

- Choose one or two user types towards which to optimize
- Apply 80/20 rule: most common, typical, or important user role
- Final decision about most common, typical, or important user roles will be an obvious or strategic decision of the client

Exercise: User Modeling

- Accompanying exercise shows how to practice user modeling

Needs Analysis: User Modeling

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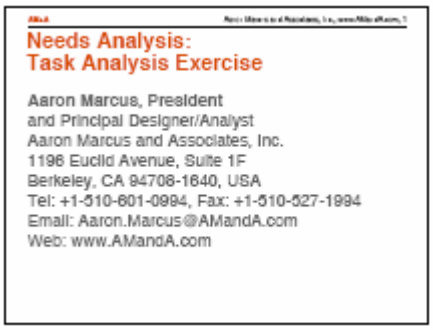
Needs Analysis:
Task Analysis Exercise

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Практическое задание 2: Анализ задач

- После выполнения данного упражнения участники получат опыт анализа задач, основанного на уже созданных пользовательских моделях
- Роли участников остаются теми же, что и в предыдущем упражнении

План: Анализ задач

Упражнение (время выполнения 25 мин.)

- Создайте два реальных сценария, моделирующих правильное использование проектируемой системы, основываясь на уже созданных пользовательских моделях. (10 минут)
- Запишите все задачи, которые вам хотелось бы обдумать. Включите в этот список все задачи – как новые, так и те, которые были перечислены на собрании проектной группы. Разбейте задачи на категории, выделив простые, не очень сложные и сложные задачи. При разбиении задач на категории учитывайте важность задачи и частоту ее использования в данной системе. (15 мин.)
- Подумайте, нельзя ли выделить отдельные метафоры на основании проведенных интервью.

Презентация и разбор допущенных ошибок, ответы на вопросы (5 минут)

UICE **Needs Analysis: User Modeling Exercise**

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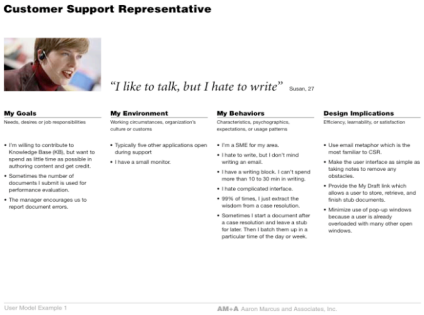
Exercise: User Modeling

- Exercise will enable participants to practice User analysis and specifically needs analysis
- Team Roles
  Work in teams of three or five people
- Assign the following roles to people:
  - **Team leader:** responsible for reaching decisions
  - **Presenter:** responsible for recording and presenting designs back to the class
  - **Users:** Everyone on the team acts as a user for another team
  - **Designer**: Everyone on the team acts as designer

Project Brief

- See workbook

User Model Example



Schedule: User Modeling

- Exercise (35 minutes)
  - As a team, brainstorm a list of six or more, possibly different, user types without going into too much detail about them (5 minutes)
  - Each team should spend a few minutes thinking about what it wants to learn and then design interview questions. Refer to later list of typical interview questions for ideas (10 minutes).
  - Structured interview: Each team will interview another team (one-on-one). Take notes during the interview (10 minutes).
  - Model three user types based on notes. These user types do not necessarily correspond directly to your interviewees. Select one primary user (10 minutes).
- Presentation and critique (5 minutes)

UICE **Needs Analysis: User Modeling Exercise**

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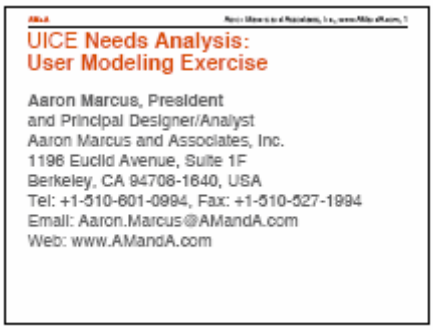
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Практическое задание1: Создание пользовательской модели

В данном упражнении предстоит выполнить анализ пользовательской роли, а более конкретно – анализ потребностей пользователя

- Роли участников
  Для выполнения этого упражнения необходимо разбиться на команды из трех или пяти человек
- Назначьте участников на следующие роли:
  - ✓ Руководитель группы: Отвечает за принятие решений
  - ✓ Презентатор: Отвечает за документирование и представление полученных дизайнерских решений всем участникам семинара
  - ✓ Пользователи: Все члены одной группы, которые будут выступать в роли пользователей для членов другой группы
  - ✓ Дизайнеры: Все члены группы, которые будут выступать в роли дизайнера

Пример пользовательской модели

Сотрудник службы поддержки пользователей
"Я охотно разговариваю по телефону, но терпеть не могу писать" (Сьюзен, 27 лет)

Мои цели:

Что мне нужно, чего я хочу и мои служебные обязанности

- Я охотно добавляю новые статьи в базу знаний (БЗ), но я хочу тратить как можно меньше времени на оформление этих статей и на получение одобрения.
- Иногда число документов, которые я составляю, используется для оценки моей производительности труда.
- Наш менеджер поощряет нас, когда мы находим ошибки в уже имеющихся документах.

Моя среда:

Рабочая среда, корпоративные нормы и правила

- Как правило, во время консультации я работаю на моем компьютере с пятью разными приложениями одновременно.
- У моего компьютера очень маленький монитор.

Мои действия:

Характеристики, психографические данные, ожидания и особенности использования

- Я являюсь техническим экспертом в своей области
- Я терпеть не могу писать, но терпимо отношусь к тому, что мне приходится писать письма по электронной почте.
- У меня нет тяги к писательству, и обычно я не выдерживаю дольше 10-30 минут монотонной и непрерывной писательской работы, когда меня просят что-либо написать.
- Меня раздражают сложные и запутанные пользовательские интерфейсы.
- 99% времени у меня занимает извлечение информации из предложенного описания решения проблемы.
- Иногда я начинаю составлять документ сразу после того, как помогаю пользователю решить проблему, но откладываю его завершение на несколько часов или дней. Позже я отвожу специальное время на то, чтобы собрать все начатые мной документы, просмотреть их и закончить работу над ними.

Предпосылки проектирования:

Эффективность, легкость в изучении или

- Используйте метафору электронной почты, как наиболее привычную для сотрудника службы поддержки пользователей.

- Проектируйте пользовательский интерфейс максимально просто – не сложнее, чем приложение, предназначенное для пользовательских заметок.
- Предусмотрите специальную ссылку на черновики, при помощи которой пользователь может сохранить, загрузить и завершить работу с начатыми документами.
- Используйте как можно меньше всплывающих окон, поскольку пользователь уже работает с большим числом активных приложений.

План: Создание пользовательской модели

Упражнение (время выполнения – 35 мин.)

- Работая в группах, используйте метод мозгового штурма, чтобы составить список шести или более (по возможности различных) пользовательских ролей, не вдаваясь в детали (время выполнения 5 минут)
- Каждая группа должна потратить несколько минут, формулируя, что она хотела бы узнать, и затем начать составлять вопросы для интервью. При составлении вопросов воспользуйтесь списком составленных ранее стандартных вопросов (время выполнения 10 минут).
- Структурированное описание: Каждая группа проводит интервьюирование другой группы (один на один). Во время интервьюирования необходимо делать заметки (время выполнения 10 минут).
- Составьте модель для трех разных пользовательских ролей, основываясь на результатах проведенного интервью. Пользовательские роли не обязательно должны совпадать с проинтервьюированными вами членами команд. Выберите одного главного пользователя (время выполнения 10 минут).

Презентация и разбор допущенных ошибок, ответы на вопросы (5 минут)

Needs Analysis: Task Analysis

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Task Analysis

- Tasks must be audited and understood for primary user types

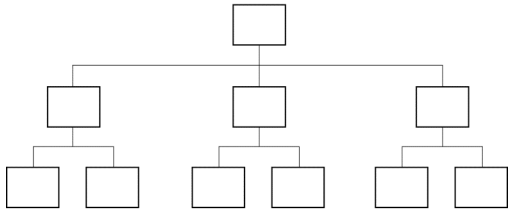
Tasks

- Single, complete, meaningful action
- Tasks accomplish goals (or at least sub-goals)
- Describe essence of task in technology-independent format
  - What users want to do, not how to do it
  - Example: "user selects account", not "user picks account from drop-down box"
  - Allows alternate designs to be considered
  - Use simple, consistent, standard language for verbs, nouns if possible

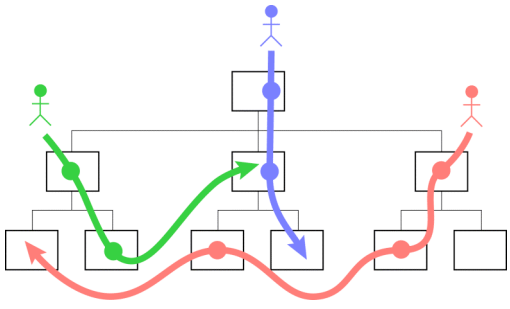
Task Analysis *vs.* Feature Lists

- **Features:** concern functionality from system perspective (engineering, marketing viewpoints)
- **Tasks:** concern functionality from user's perspective
- Difference between task and features: tasks much more complex
  - Tasks cut across multiple features
  - Complex and ambiguous data
  - Interruptions, distractions, forgetfulness
  - Doubt, insufficient competence
  - Fear of losing data, of consequences of mistakes

Task Analysis: User Experience Varies,1/2



Task Analysis: User Experience Varies, 2/2



Task Analysis and Use Cases

- Tasks and use cases are strongly related
- Use cases focus on decomposing tasks into essential steps
- Task analysis focuses on relationships between tasks in order to create an efficient system

Task Analysis: Steps

Characterize tasks according to:

- Grouping
  - Logical, related categories
  - Hierarchy
  - Grouping by user preference, habit, need
- Prioritization
  - Frequency of use (*e.g.*, search)
  - Important or critical (*e.g.*, check out, submit request, pay)
- Adjacency
  - Related by usage sequence (what would you like to do next?)
  - If you can read user's mind (from contextual observation) and *anticipate needs*, it will seem like magic to user

Task Analysis: Commensurate Effort

- Task frequency is particularly important
- Most frequent tasks should be made easiest to perform
- Classify: easy, medium, hard

Task Analysis: Dynamics

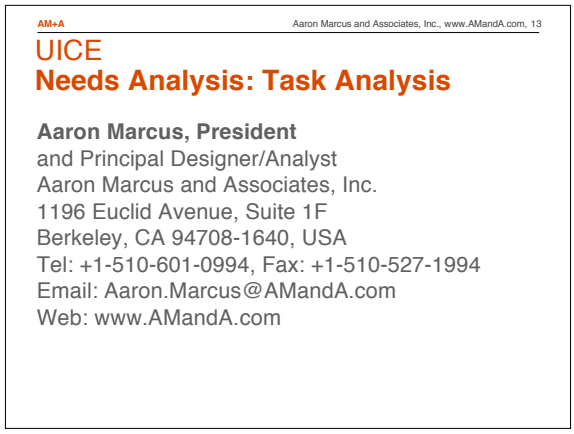
- Task dynamics concern the experience of the task over time
  - What triggers a task?
  - How interruptible is the task?
  - What tasks are performed together?
  - How often does it occur?
  - What is the duration of the task? Are there time constraints?
  - What is the intensity or volume of work?
  - Does task need to be completed immediately, or at will?
  - Are reminders necessary?
  - Is task predictable or unpredictable?
  - Is task continuous or disjointed?
  - Is the user multitasking? What else is going on?
  - Is task process-driven or user-driven?

Task Analysis: Summary

- UI solution based on primary, typical tasks, not outlying, or at-the-edge cases
- Probables rather than possibles
- Understanding task usage goes far beyond traditional list of features
- Task analysis is foundation for ease of use
- Task analysis often requires contextual inquiry in addition to interviewing users

Exercise: Task Analysis

- Exercise provides participants with means of gaining experience in analyzing tasks based on previous user models



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Exercise: Task Analysis

- Exercise provides participants experience in analyzing tasks based on previous user models
- Maintain team roles from before

Schedule: Task Analysis

- Exercise (25 minutes)
  - Write two realistic scenarios demonstrating successful use of your new system, based on user models. (10 minutes)
  - Write down all tasks of which you can think. Consider new tasks as well as those suggested by project brief. Prioritize tasks into easy, moderate, and difficult, based on importance and frequency of use. (15 minutes)
  - Consider if specific metaphors emerged from interview notes.
- Presentation and review (5 minutes)

Needs Analysis: Task Analysis Exercise

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How Usable Is Your Design?

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What is Usability: ISO Definition

- Effectiveness
- Efficiency
- Satisfaction
- Based in user-centered design (UCD)

Why is Usability Important?

- User response measurs product design success
- Regardless of power of tool or impressive appearance, if user interface is not useful and engaging, it will lessen the success of product
- Usage typically drives either revenue or productivity
- ROI of usability can be demonstrated
- Bottom line: unhappy users have financial impact, due to decrease in customers or by opportunity for competitors to create better product

Proxies for Actual Contact with Users

- When real users are not available, use proxies
  - For needs analysis, use stakeholders
  - For user testing, try to get as close a match as possible
  - Example: instead of doctors, recruit medical students
- The trick: account for their biases
  - "Recruit loosely and grade on a curve" - Krug
- If you cannot test users, have experts perform heuristic evaluation
- In this lecture, "user" means "user or user proxy"

Real Users

- Testimonies are very powerful when users are customers
- User may/may not be able to explain their preferences, needs, desires
- May be necessary to look at their behavior (what they do) as well as what they say
- Users may not be able to envision and comment on data, functions that they have never before experienced

The Challenge

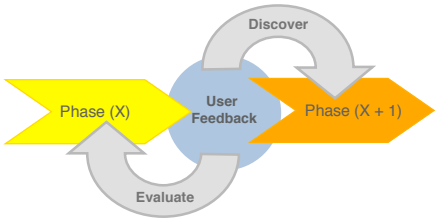
Needed: direct, inexpensive, ongoing user feedback

Solution: Incorporate user feedback into design process before usability problems become too costly

- Include users' feedback into project delivery schedule
- Document feedback and apply to following phase of development
- Conduct iterative testing by building issues from previous tests into each new test

User Input: Evaluation and Discovery

User feedback can be gained iteratively between project phases in conjunction with client and team feedback.



User Input: Evaluation and Discovery

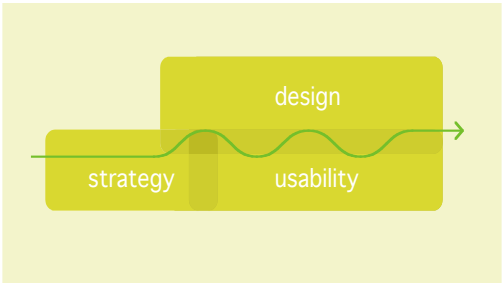
Each session with users can provide:

- **Evaluation** of direction for concluding phase
- **Discovery** applied to beginning phase

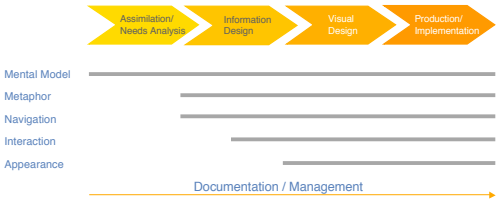
Example in user interview during needs analysis:

- **Evaluation:** "Are these the correct areas of the site you need…?"
- **Discovery:** "Would you find these new areas useful….?"

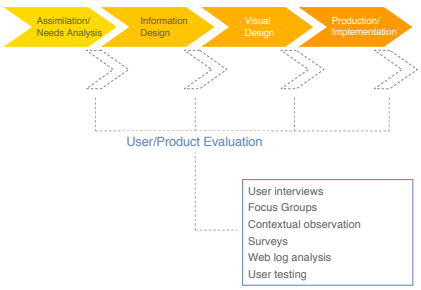
UI Development Process: Overview



UI Development Process



UI Development Process : User/Product Evaluation



User Testing

- Can test usability and many other factors
  - Example: usefulness, impression, appeal, etc.
- Qualitative and quantitative results
- Much more than just validation

Why User Test?

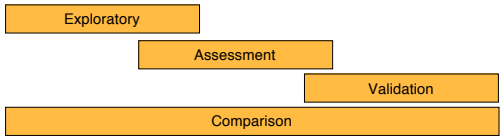
- The only way to really know if your design is usable by *users*
  - Experts may know too much, or too little
- Treat given design as hypothesis
- Testing provides empirical evidence
- Design quality assurance

User Testing Can Save Time

- Makes development results-oriented, rather than activity-oriented
  - Put efforts where it counts most
  - Test plans help to precisely define design goals

Types of Usability Tests

- Consider *beginning* your project with a usability test



User Test Process

- Set goals and plan test
- Recruit participants
  - Define desired profiles
  - Develop screener
- Create moderator's guide
  - Key tasks to test (realistic, not too fragmented)
  - User training info
  - Subjective questionnaire
  - Run pilot test
- Execute tests
  - Moderate facilitates test
  - Observer takes notes
- Analyze and report results

User Test Findings: Qualitative Results

- Qualitative results tell you what to fix
- Exemplary user quotes
- Observations of doing and thinking

User Test Findings: Quantitative Results (Metrics)

- Quantitative results measure significance of problems, but do not tell what to fix
- Task timing
- Percent of task success
  - Tasks can be successful, unsuccessful, or partially successful
- Subjective ratings
  - Likert scale (Strongly disagree…Strongly agree)
  - Semantic differential (Hated it…Loved it)

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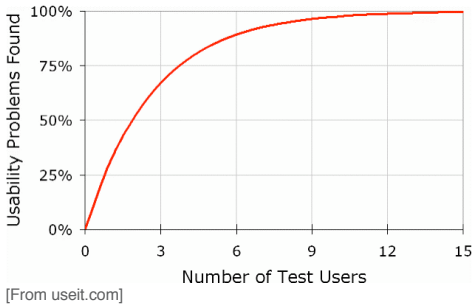
User Test Plan: Number of Participants



[From useit.com]

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User Test Plan, 1/2

- More users reveal more problems
  - 0 users find 0% of problems
  - 1 user finds 25% of problems!
  - 5 users find 80% of problems
  - 15 users find 99% of problems
- Better to test fewer users multiple times
  - **Iterative Testing:** e.g., 3 rounds of 5, rather than 1 round of 15
  - Diminishing returns
  - Fix problems between rounds
  - Initial usability problems mask additional ones
  - Smaller numbers for early testing
  - May need multiple sets of users if there are multiple user types

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User Test Plan, 2/2

- Results may not be statistically significant
  - Requires larger sample, e.g. 20-40 users
  - Need larger sample to detect smaller differences
- Testing is primarily diagnostic
  - If these users have a problem, probably many others will

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User Test Moderation

- Let users know you are testing design, not them
  - Design problems, not user errors
- Use *think aloud* protocol to probe for mental model, expectations
- Do not ask leading questions
- If users need an *assist*, task is partially successful

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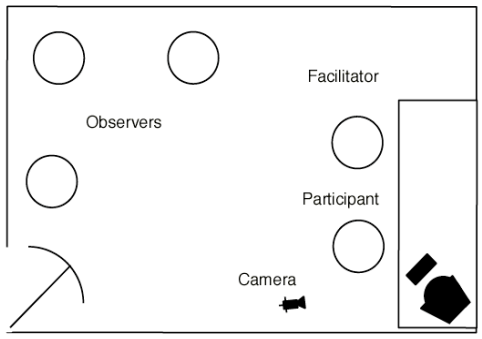
Usability Test Setup



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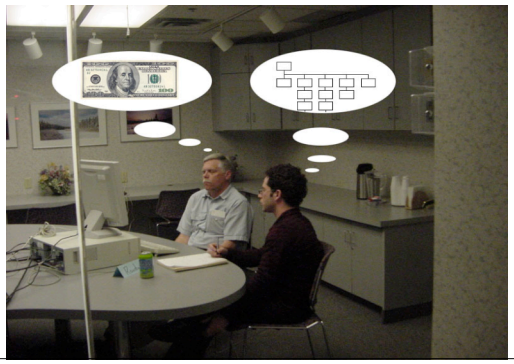
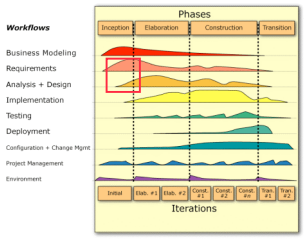
Usability Test Setup

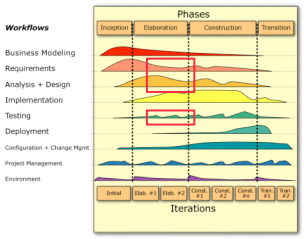


Evaluation: During RUP Inception



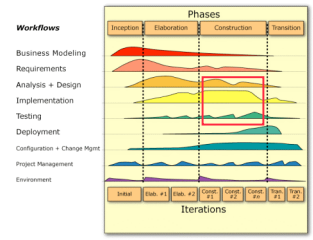
- Needs Analysis
- Focus Group
- Heuristic Evaluation
- Exploratory User Test
- Comparison User Test

UI Development Activities: During RUP Elaboration



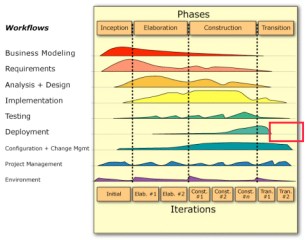
- Heuristic Evaluation
- Assessment User Test
- Comparison User Test

UI Development Activities: During RUP Construction



- Validation User Test
- Comparison User Test

UI Development Activities: During RUP Transition



- Validation User Test
- Comparison User Test

Include Users in the Design Process: During Information Design

- Begin testing navigation, layout, and interaction
- Present paper prototypes to users and capture early interaction issues
- Create html schematics representing key areas and interactive components of site or app
- Implement schematics into small testable prototype
- Conduct usability tests

Information Design: Paper Prototype

- Use early design concepts on paper to enable testing without expense of building prototype
- Use simple wire-frame print-outs (schematics) of key pages and states
- Print out important widgets (drop-down lists, alert boxes, *etc.*) to enable users to interact
- Moderator plays the role of the computer
- Ask questions regarding expectations and desires:
  - "What would you click on?", "What would you expect to see here?"

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Examples: Paper Prototype

[From http://loop.aiga.org/UserSubmissions/Loop5/rettig/prototypeCollage/prototypeCollage.htm]

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Information Design: HTML Schematics

- Essentially wire-frame depictions of screens
- Easy to modify and make interactive, leading easily to prototype creation
- Contain only black, white and gray-scale elements to focus the development on the essential components
- Allow quick “mock-ups” of pages
- Utilize actual content, enabling developers to plan architecture and layouts more accurately

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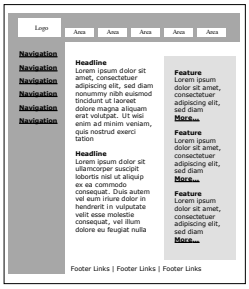
Information Design: HTML Schematics

Pages should be created around key screens



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Information Design: Interaction Model

- Communicates, as skeletal prototype, page layout, navigation, and interaction, *not* visual solution
- Provides easy expansion of the HTML schematics by simply adding interactivity and additional content pages
- Enables variations in navigation and interaction to be easily created and compared
- Provides developers and visual designers realistic impression of approach prior to implementation
- Can be used for testing to provide preliminary findings regarding terminology, layout, and navigation

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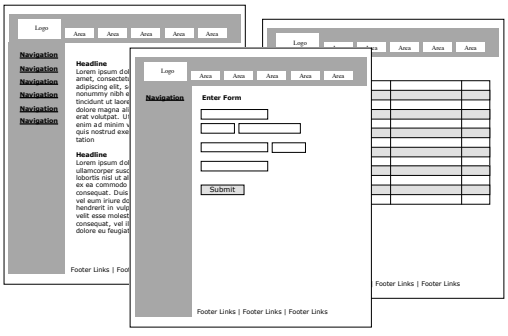
Examples: Interaction Models



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Include Users in the Design Process: During Visual Design

- Enables presentation of design alternatives of key screens to users in person or as an online survey
- Allows users to comment strictly on “look” without being distracted by “feel” of the interaction
- Helps distinguish between visual-design issues and information-design issues
- Allows concurrent development of information design while visual design is proceeding

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Implementation: Cost-Effective Approaches

- Using online surveys and heuristic evaluations can provide tremendous savings in time and effort
- During pre-launch (beta) release:
  - Invite customers to online survey of "live - protected" version of product
  - Use heuristic evaluation of current implementation to identify serious usability problems prior to launch
- Post-launch options:
  - Re-use surveys from prior test to validate new release and track changes
- To reduce costs of usability testing, test in-house and recruit users from customer base

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Implementation: Heuristic Evaluations (HEs)

- HE = expert review according to principles of good user-centered design
- Typically half cost and third of time compared to usability test
- Good alternatives when user feedback has been absent from the process
- Capture important issues that can be prioritized with expert consultant
- Consider using HE as input to user test

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Example: Heuristic Evaluation

- AM+A's HE uses 15 heuristics
- Each heuristic is ranked according to severity rating

Severity	Description
Severity level 0	No known issues. No changes necessary.
Severity level 1	Nominal issues only. Need not be changed, but consider alternatives
Severity level 2	Minor usability problem. Could impair users' productivity and ability to learn.
Severity level 3	Major usability problem. Important to fix, effects users' productivity and likelihood of errors
Severity level 4	Usability barrier. Imperative to fix.

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Applying Usability: Case Study of Large Bank Intranet

Typical project size:

- 3000 pages
- Complete redesign
- Average duration (four months)
- Average budget (low)
- Client not local

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Current Design

- Challenge: Intranet no longer provided efficient information communication and content management
- Center content was text-heavy, used real estate poorly
- Site organization was ineffective, *e.g.*, additional links continuously added to the left to give user quick access
- Site lacked cohesive feel and poorly reflected brand
- Departments took too much liberty in managing their own areas, including information not of value to bank as a whole

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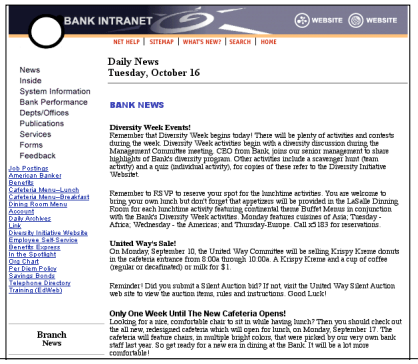
Current Design



Milestone 1: Analysis of Project Inputs

- AM+A conducted analysis of material and summarized user feedback
- Client conducted four in-house focus groups and provided raw notes
  - Neglected to segment by user type
- Client provided WebTrends data for one-month period
- Client conducted online survey over two months
- 3 to 4 days required to summarize materials

Milestone 2: User Analysis

- Surveyed users with required questionnaire
- Simple questionnaire described initial organization and features plus some targeted questions
- Client distributed to six target users
- AM+A summarized and analyzed feedback
- Effort required:
  - 1 day to prepare
  - 3 days to fill out questionnaire
  - 1 day to summarize material

Needs Analysis: Key Findings

- Defined primary areas of interest on the site
- Confirmed need for a content management system
- PDF forms would have to be converted to online forms
- Additional copy writing needed for:
  - Bank business statistics
  - Department function descriptions
  - Feature material appearing on home page
- Customized solutions needed for department areas

Milestone 3: HTML Schematics

- User Interviews for the HTML schematics
- Visuals of eight main screens, presented to target users
- Client scheduled participants (10 from target)
- 45-minute interview
- Confirmed navigation, page layout, and priority of content
- Effort:
  - 2 days to prepare
  - 2 days to conduct interviews
  - 2 days to summarize

Milestone 3: Schematics

Milestone 4: Interaction Model

- Developed an interaction model without visual design
- Prototype was interactive and helped client to understand:
  - Navigation
  - Organization of content
  - Features
  - Labels and text information
- Effort required: 7 days to build, leveraged HTML schematics already created

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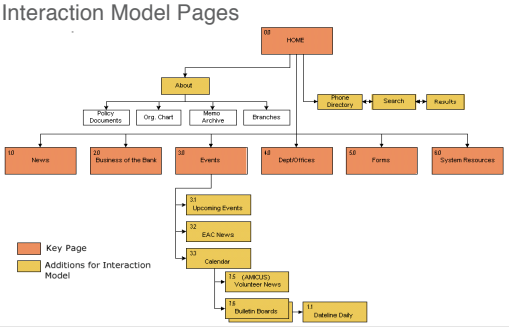
Milestone 4:

- Interaction Model Pages



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Milestone 5: Usability Test

- Usability testing plan based on user tasks and client goals determined during needs analysis
- Conducted onsite test using typical employee office with enough space for three to four observers
- Client recruited seven users based on AM+A profile research
- Client scheduled space and participants
- Effort required:
  - 3 days to prepare testing plan
  - 2 days to test
  - 5 days to prepare report

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Milestone 5: Usability Test Findings of Interaction Model

- Navigation and visual design viewed favorably; some commented that left link-grouping was not clear
- Terms such as “About the Bank” and “Bank Business” were vague
- Some users preferred having full articles appear as opposed to headlines
- Two new areas proposed to facilitate employee community received excellent comments
- Global item placement of “Search” and “Phone Directory” was too subtle

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Milestone 6: Visual Design

- AM+A provided design direction to bank graphics team
- Confirmed design direction from stakeholders and design team
- Define color palette, imagery, fonts
- Reviewed seven concepts for Home and content pages
- Documented feedback and concerns
- Reviewed 15 page-treatments using selected concept
- Documented final comments and concerns

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Milestone 6: Design Alternatives

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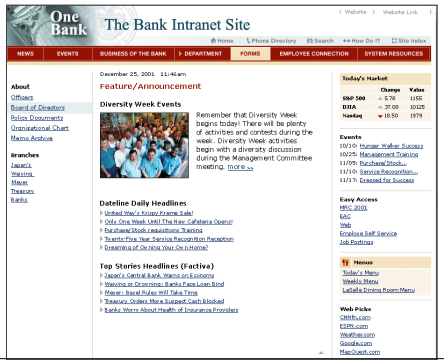
Milestone 6: Final Visual Solution



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Alternative Evaluation Methods

- Ethnographic evaluation (onsite observations)
  - Behaviors, rituals, social hierarchy
  - Outside observer, participant, mixed relationship
  - Usually limited numbers of evaluations, qualitative insights
- Remote Testing: Moderated
  - Can easily interview, test internationally
  - With/without embedded software
  - Evaluation participants can be in their own environments
  - Can be small, medium sized participant groups; qualitative data
- Remote Testing: Unmoderated
  - Can be larger numbers of participants: 100-300, statistical analyses
  - Usually short time frames: 30-minute sessions
- Mixed Methods: Often most useful; Qual+Quant

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Summary

- Plan design process to include user input
- Test design solutions at each of milestones with users
- Develop designs that are easily modifiable
- Seek internal resources to keep costs down
- At minimum, use heuristic evaluations to quickly identify primary usability challenges
- Benchmark so that you can demonstrate ROI for bottom line

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How Usable Is Your Design?

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UI Prototyping and Storyselling

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Web: www.AMandA.com

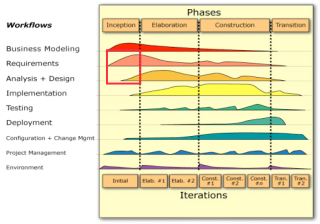
Prototyping Guidelines

- UI prototyping guidelines and case studies exist on the Internet and may exist in your own company's or organization's archives
- Examples online:
  - http://www.agilemodeling.com/artifacts/uiPrototype.htm
  - http://www.hcibib.org/sam/1.html
  - http://www.infodesign.com.au/usabilityresources/design/paperprototypinggraphics.asp

Storyselling

- Creating a *vision demo* to tell a story and sell the value of a new product idea

UI Development Activities: During RUP Inception



- UI Prototype / "Vision Demo"

Vision Demo: Benefits

- Explain technology/user benefits to two groups
  - Non-technical business owners, marketers/sales managers
  - Engineers and other technology-savvy stakeholders
- Sell compelling vision
  - Gain support, raise funding, generate internal PR
  - Present common vision for stakeholders
- Test initial design
  - Solicit feedback, gather requirements,validate design direction
  - Concept testing and usability testing
- Expose issues of technical and business impact
  - Mitigate risk to validate key system functions before formal development

Vision Demo: Stakeholders, 1/2

- Who should create vision demos
  - Technology leads
  - Business owners
- Different audiences to persuade with one demo
  - Business leaders
  - Engineering leaders
  - Marketing leaders
  - Company executives and managers
  - Customers
  - Team members
  - Funders, investors
  - Journalists, publishers, PR agencies

Vision Demo: Stakeholders, 2/2

- Consider the interests of each
  - Address barriers to acceptance
  - Understand value proposition, for example:
    - Cost savings
    - Improved workflow
    - More accurate information
    - More powerful technology
  - ROI not only for the organization, but also for individuals
    - WIFFM = What's in it for me

Vision Demo: Approach

- Present ideas quickly and clearly
- Limit yourself to three key messages, benefits, takeaways
- Focus on end-customer, not corporation
- Focus on benefit, not technology, data-centric view
  - Example: "U-commerce" is a technical concept, not an end-user benefit
  - In era of interactive technology, being customer-focused means being focused on customer **experience**
  - UI developers form a bridge between business and technology

Vision Demo: Establish Viewers' Expectations

- Explain level of fidelity
- Explain real *vs.* simulated technology
- Focus attention on what matters

Persuasion: The Art of Storyselling

- Decisions are made emotionally
  - Exploit digital video of end-customer comments, their experiences during usability tests
  - Present emotional hooks that register for each audience viewer group
- Decisions are backed up rationally
  - Quantified the ROI
- Employ diagrams and information visualization
  - They combine quantification and emotional response

Vision Demos: Summary of Key Attributes

- Discuss good solutions to well-understood problems
- Show initiative, innovative vision, but concrete examples, benefits, usage
- Use scenarios: customer focused, specific, realistic, vivid
- Provide emotional hooks
- Demonstrate business case

Product Ideation

- Design is about problem solving
- There are many possible solutions to a given problem
- New products require innovative thinking
- Ideation: Brainstorming and affinity diagramming
- (See: Exercise)

Types of UI Prototypes

- Focus
  - UI prototypes: mitigate marketing and usability risk
    - Emphasize metaphors, mental models, navigation, interaction, and visual design details
  - Technical architecture prototypes: mitigate technical risk
    - Emphasizes proof of concept from technology perspective
- Longevity
  - Exploratory prototypes
  - Evolutionary prototypes

Fidelity of UI Prototypes

- Paper UI prototypes
- Screen-based static UI prototypes
  - On PC or target platform, *e.g.*, mobile device
- Screen-based dynamic UI prototypes
  - Extend static versions to interactive versions (on PC or target platform, *e.g.*, mobile device)
  - Linear, semi-interactive (minimal linking and no states), interactive
- Functional UI prototypes
  - Extends non-functional dynamic UI prototypes with set of working business logic and dynamic functionality (e.g., database and connectivity)

UI Prototype Scopes

- Broad, wide UI prototypes
  - Illustrate breadth of product features and functions at high level
  - Provide overview for conceptual UI prototypes
  - Present entire range of functions not a specific action
- Narrow, deep UI prototypes
  - Examines in detail a narrow set of product features and functions
  - Visualizes end-to-end scenario of how user does selected tasks
  - Explores functions of significant interest for tech., bus. reasons
  - Deep scope for established project prototype to mitigate risks
- Hybrid prototypes
  - Wide in scope and selectively deep for specific product functions
  - Example: high-level vision or range of features, plus in-depth view of specific set of functions for a particular product module

Elements of Storyselling

- Communicate information to stakeholders
- Inform, describe, explain, persuade, motivate, educate
- Persuade viewers of merits, benefits, value
- Obtain funding, permission, additional resources, *etc.*
- Convey vision and selected details
- Use metaphors effectively

Metaphors

- Help to communicate quickly
- Make content more attractive, compelling
- Stimulate the imagination
- Require specific time, activities, including brainstorming
- Metaphors may or may not be visual
  - Visual metaphors require graphic designer with appropriate skill set

Examples

- Sabre: Planet Sabre metaphor brainstorming
- Sabre: Wayfinder
- Cogito Learning Media: Eye to Mind
- Motorola
- FRB: Advanced development UI prototype
- Visa: NetCentric flash demo

Sabre

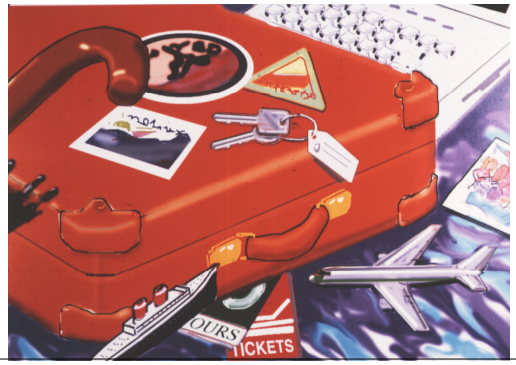
- Both revolutionary and evolutionary UI prototypes
- Early UI prototype development required one year
- Development required game to explain, convince
- Development of Planet Sabre metaphors
- Development of Wayfinder game

Planet SABRE Metaphor: Evolution of Metaphors

- Airport terminal
- Traveler's suitcase
- Urban scene
- View of a world from space

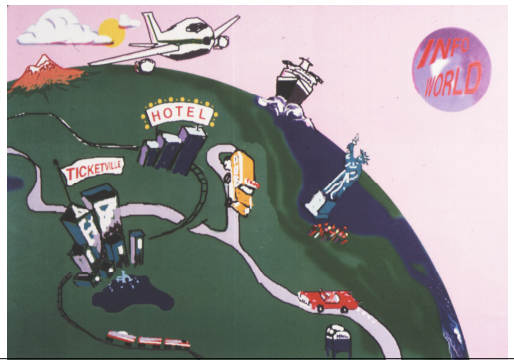
Metaphor Example: Airport Terminal

Metaphor Example: Traveler's Suitcase



Metaphor Example: Urban Scene

Metaphor Example: View from Space



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Style Issues: Pictographic, Cartoon-like, Realistic

- Impact on travel agent self-image: UI is both a mirror (self-image of user) and a window (to data)
- Initial, intermediate, final images
- Impact on lower levels of full system
- Evaluation results

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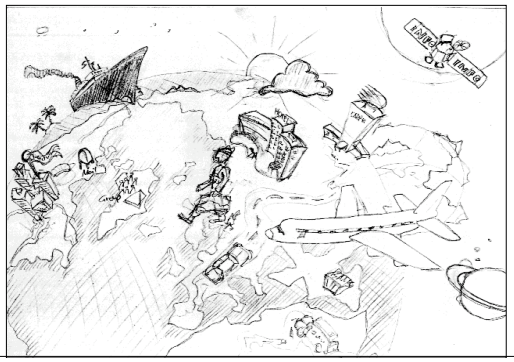
Sabre Sketch 1



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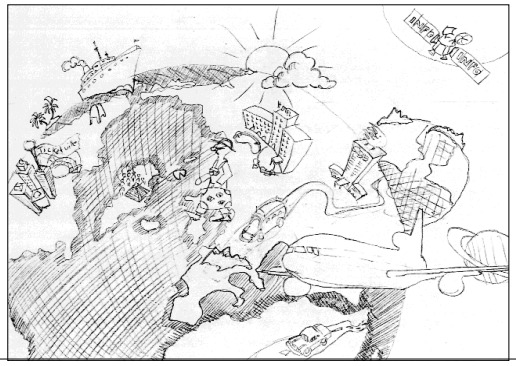
Sabre Sketch 2



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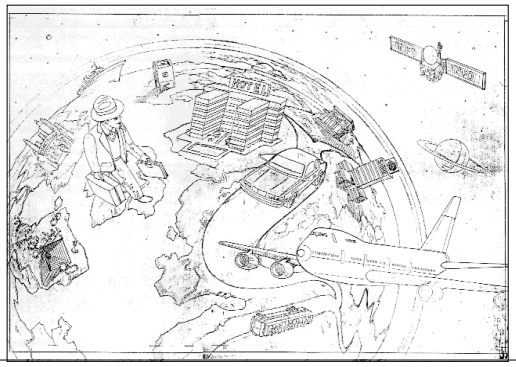
Sabre Sketch 3



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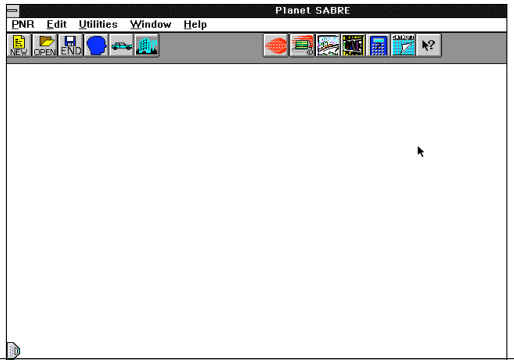
Sabre Original Plan for Toolbar



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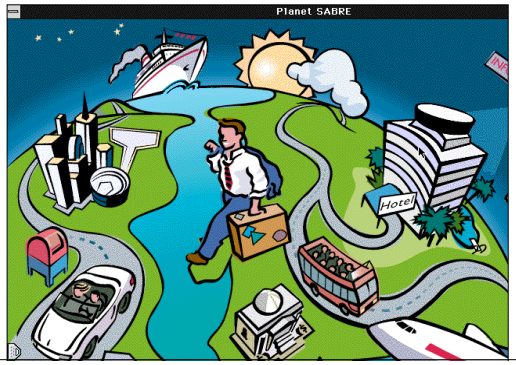
Sabre Pictographic



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Sabre Pictographic Toolbar

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Sabre Cartoon Style

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Sabre Cartoon Toolbar

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Sabre Realistic

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Sabre Realistic Toolbar

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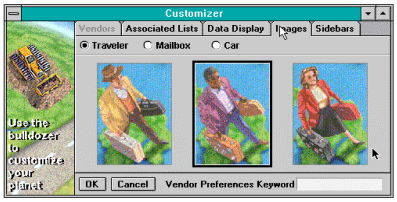
Sabre Realistic Happier

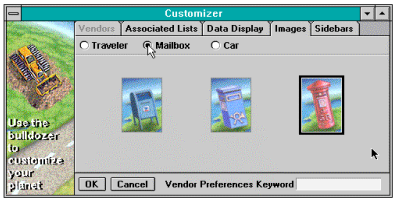
Sabre Realistic Happier Toolbar1

Sabre Realistic Happier Toolbar2

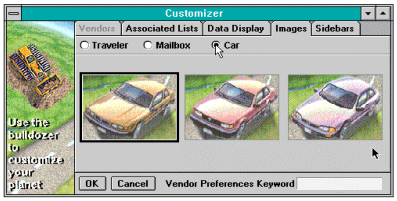
Sabre Customizer: People Icons



Sabre Customizer: Mailbox Icons



Sabre Customizer: Car icons



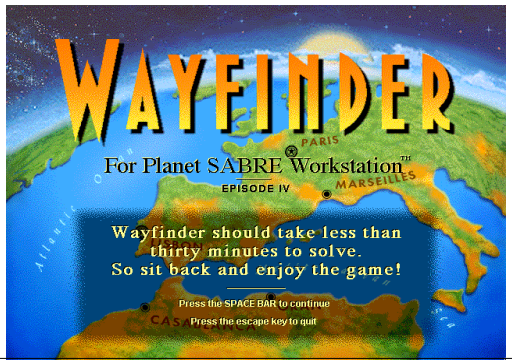
Lesson Learned: Need for Tool to Train Users in Metaphors

- Need for training to introduce Windows95 and Planet SABRE metaphors to travel agents

Development of Wayfinder

- Training in Microsoft Windows metaphors
- Training in Planet SABRE metaphors
- Both training and game
- Use of Casablanca movie theme

Wayfinder Homescreen



Wayfinder: Sam, Maria

Wayfinder: Great Job, Positive Feedback

Other Prototyping and Storyselling Examples

- Cogito Learning Media prototypes and storyselling
- Motorola Smart-Car UI prototypes
- Bank: Advanced development UI Web apps prototype and storyselling
- Visa: Netcentric demo: prototype and storyselling

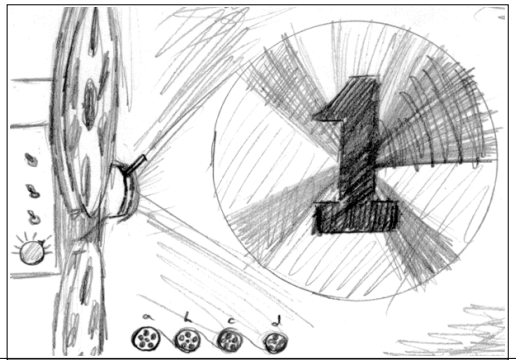
Cogito Learning Media (CLM): Eye-to-Mind Series

- New product concept: knowledge summary for computer-based learning
- Target users: college faculty and students
- Objectives
  - Deliver substantial content
  - Avoid standard drill and quiz computer-based training (CBT)
  - Achieve low production cost (via re-used assets) and low price
  - Provide novel, appealing UI; explain, but also lure
- Required metaphor exploration, evolution

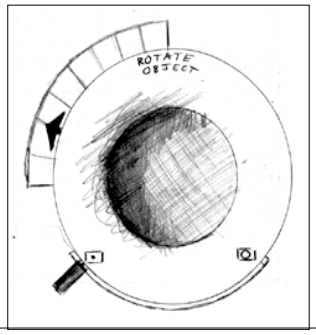
Eye-to-Mind: Metaphor Evolution

- Screen saver
- Science/education/entertainment: Mr. Wizard subject guide
- Traditional A-V equipment: film/slide projectors
- Postmodern gadgets: knobs, dials
- Theater, game-show: curtains, announcers, commercial breaks
- Minimal content-driven structure

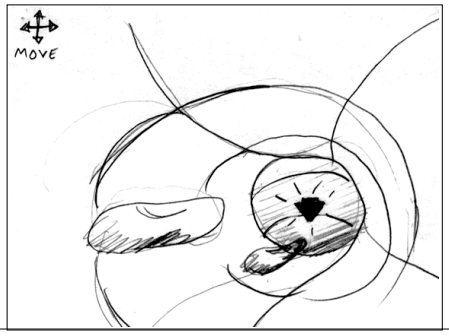
Metaphor Sketch: Film Projector



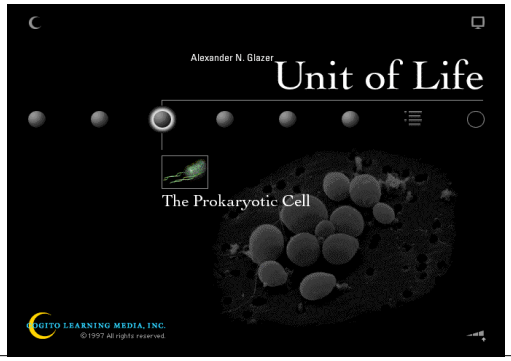
Metaphor Sketch: Postmodern Gadget



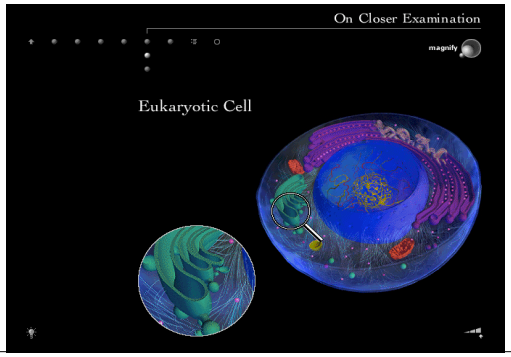
Metaphor Sketch: Content-Driven Structure



E2M1 Initial Screen



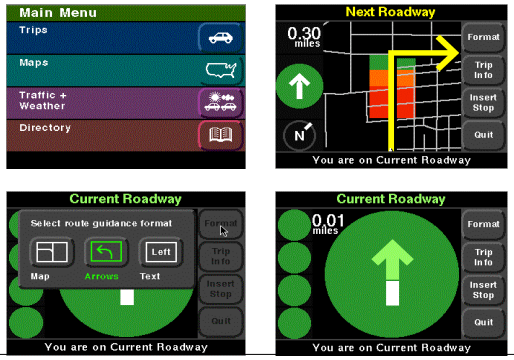
E2M1 with Magnifier



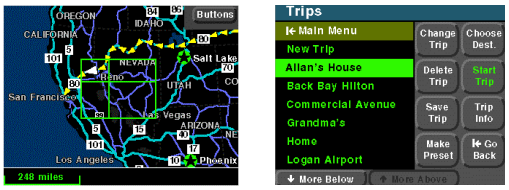
Motorola Smart-Car Navigation System Prototypes

- Consumer product required easy-to-learn/use UI
- Extensive prototyping, evaluation
- Prototypes show interaction and appearance
- Hardware prototypes also completed
- In-vehicle GPS navigation solution
- Government/private 4-year project
- Touch-screen, voice output
- Display variations per cognitive preferences

Motorola: Sample Screens, 2/3

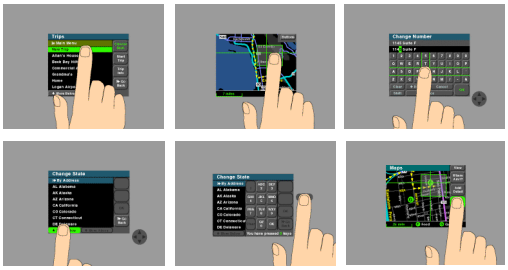


Motorola: Sample Screens, 3/3



Marcus, Aaron, "Designing the User Interface for a Vehicle Navigation System: A Case Study," in Bergman, Eric, editor, *Information Appliances and Beyond: Interaction Design for Consumer Products*, Morgan Kaufmann, San Francisco, 2000, ISBN 1-55860-600-9, http:www.mkp.com, pp. 205-255.

Dynamic Demos Used to Guide Detailed Interaction Design



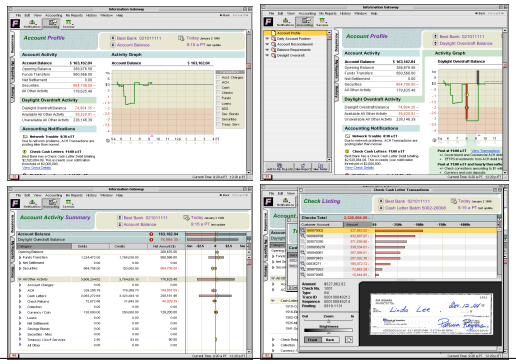
Visual Design Tool

Icon/Text Colors Button shape

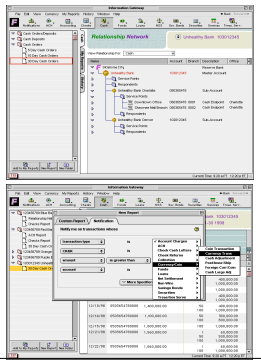
Bank Risk Management Prototype

- Demo showed Web apps years before building
- Used to get stakeholder buy-in
- Used to elicit feedback from technology providers
- Used to get user input
- Successful: system eventually built

Bank Risk Management: Screens, 1/2



Bank Risk Management: Screens, 2/2



Netcentric Demo

- Used to get high-level buy-in
- Needed to give usage scenarios
- Needed to convey benefits of technology
- Multiple kinds of viewers

Demo Shown

UI Prototyping and Storyselling

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UI Prototype Storyselling: Ideation Exercise

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Exercise: Brainstorming and Affinity Diagramming

- Go beyond obvious ideas
- Explore many possible alternatives
  - Revolutionary as well as evolutionary
  - Non-linear thinking
- Encourage creative solutions
  - Pretend it is magic
  - Back-casting from the ideal solution, rather than fore-casting from current solutions

Rules of Brainstorming

- Strive for quantity
- Be visual
- Do not take notes
- Welcome “crazy” ideas
- Make ideas short and snappy
- Combine and improve what you see
- Suspend judgment
- Advance, rather than criticize, ideas

Affinity Diagramming

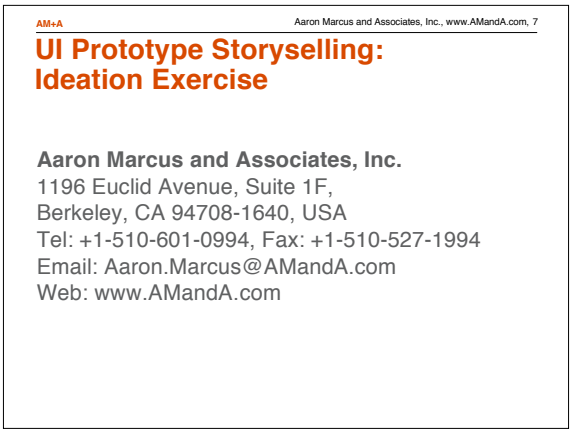
- Write down each idea or issue on one color of sticky note
- Group the ideas into categories of any kind
  - Approximately 5 - 6 ideas per category
  - Categories can be hierarchical
- Use different color of sticky to label the categories

Ideation Challenge

- Invent ways to improve office telephone
- Consider product, but do not be too product focused
- Consider fundamental challenges and desired experience

Schedule: Ideation

- Brainstorming (10 minutes)
  - Announce each idea as you get it
  - Each member writes down ideas and hands them to facilitator
  - Facilitator adds each idea to display board
  - Come up with as many ideas as you can
- Affinity diagramming (5 minutes)
  - Team organizes ideas into categories
  - Select five best ideas
- Presentation and review (5 minutes)



UI Prototype Storytelling: Product Advertisement Exercise

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Exercise: Product Quick Pitch

- Design one-page mock “advertisement” or poster for product/service provided
- Summarize product mission and desired outcome
- Think about what product’s benefits are and how it will be sold
- Give attention to critical features and differentiators
- Display work publicly to evangelize product and synchronize the team

How to Create Product Advertisement

- Consider audience of advertisement
  - Purchaser or users?
  - Multiple advertisements for multiple recipients?
- Consider purpose of advertisement
  - Raise awareness?
  - Change perceptions?
  - Compare to competing solutions?

How to Create a Product Advertisement, 1/2

- Address 3-5 key selling points
  - What are main differentiators?
  - What are baseline, “exciter” attributes?
  - How will product be used?
- Tagline and image
  - Use tagline to communicate product purpose succinctly
  - Use images to communicate viscerally and immediately
  - Consider different types of images: product, usage, users, end result, etc.

Schedule: Product Advertisement

- Exercise (30 minutes)
  - Use your own current, or recent project
  - Ideally, work with interdisciplinary team members
  - Create mock product advertisement
- Presentation and review (15 minutes)

UICE

UI Prototype Storytelling: Product Advertisement Exercise

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Aaron Marcus and Associates, Inc.
Presentation

Lecture: Web 2.0 Design
Aaron Marcus and Associates, Inc.

Web 2.0

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Assistants: Ethan Suh and Albert Wang, Institute of Design, IIT, Chicago

Topics

- Definition of Web 2.0
- Drivers and Trends
- General Strategy in Web 2.0
- Key Strategy in Web Environment
- Examples of 7 Cs
- Web 1.0 *vs.* Web 2.0
- Technology Support
- 7 Core Competencies of Web 2.0 Companies
- Web 2.0 Design Patterns
- Web 2.0 Visual Design Trends
- Web 2.0 Cultural Differences

Definition of Web 2.0

- Major new trend that reinforces online information and social connection that was disordered, hidden, and disconnected
- Web 2.0 sites are different from Web 1.0 sites
  - Social networking, blogs, personal content, customization
  - Linkiness, not stickiness, not a walled portal

Drivers and Trends

- Declining cost of computer storage and Internet bandwidth
  - More Internet users
  - Easier Internet accessibility
  - Massive content availability
- Declining cost of interpersonal connection or communication
- Information overload
- Lack of online-users' relationship management
  - Lack of relationship previously: visitors could not self-organize
  - New relationship explosion with large numbers or users and ability to connect

General Strategy in Web 2.0

- Leveraged strategy in order to solve Web 1.0 challenges
- High level strategy in Web 2.0:
  - Manage/Free
  - Connect/Disconnect
  - Share/No Share

Key Web Strategy: Content, Community, Commerce, Communication

- Co-create
  - Allow over-writing, no primary verbal editor, virtual team work
- Connect
  - Enable social networking, creating platform for making friends
  - Examples: Blogger, Myspace
- Customize
  - Foster Web user experience, users can decide what kinds of information they want to see and how to see it
  - Examples: Google's Adsense to decide the Ads, iGoogle, netvibes to make personal home page

Examples of 7 Cs

	Content	Community	Communication	Commerce
Co-create	Wikipedia, De.licio.us	CGTalk	writely	
Connect	Lime, YouTube, flickr	LinkedIn	facebook, AIM	craigslist
Customize (UI, UX)	netvibes, iGoogle		Gmail	Google, Google Maps

Web 1.0 *vs.* Web 2.0

Mode	Web 1.0	Web 2.0
Primary action	Read	Write, contribute
Primary unit of content	Page	Post/record
Viewed through	Static	Dynamic
Architecture	Web browser	Browser, RSS Readers
Content created by	Client Server	Web services
Audience, domain of	Web Coders	Everyone
	Geeks	Mass amateurs

Technology Support

- **CSS** (Cascading Style Sheets)
  - Systematized Web design format
- **AJAX** (Asynchronous Javascript XML)
  - Rich internet application techniques
- **XACML** (Extensible Access Control Markup Language)
  - Declarative access control policy language in XML, processing model
- **SOAP** (Simple Object Access Protocol)
  - Exchanging XML-based messages over computer networks
- **REST** (Representational State Transfer)
  - Software architecture for hypermedia system (WWW)
- **Adobe Flex**
  - Enables development. deployment of cross-platform, rich-Internet applications based on Adobe's proprietary Macromedia Flash

7 Core Competencies of Web 2.0 Companies, 1/2

- Service with cost-effective scalability and control over hard-to-create data sources
- Make data richer as more people use services
- Trust users as co-developers
- Harness collective intelligence

http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html

7 Core Competencies of Web 2.0 Companies, 2/2

- Leverage long tail
  - Long tail: Collective power of many small sites that make up most of Web's content (Chris Anderson)
- Develop software above level of single device
- Emphasize lightweight user interfaces (lightweight programming models), development, and business models

http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html

Design Patterns for Web 2.0, 1/3

- Long tail
  - Collect contents and usable data from small sites
  - Leverage customer self-service ability by sharing-oriented data management platform
- Data inside is next "Intel Inside"™
  - Seek to own unique, hard-to-create source of data for competitive advantage, because applications are increasingly data-driven
- Users add value
  - Extend Internet applications so users add their own data to that which originator provides
  - Involve users both implicitly and explicitly in adding value to application

http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html

Design Patterns for Web 2.0, 2/3

- Network effects by default
  - Set inclusive defaults of aggregating users' data as side-effect of their use of application
- Some rights reserved
  - Make sure that barriers to adoption are low when benefits come from collective adoption
  - Follow existing standards and use licenses with as few restrictions as possible
  - Design For "hackability" and "remixability"

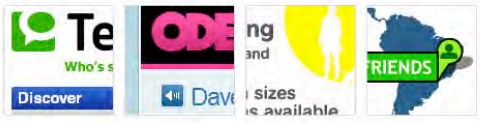
http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html

Design Patterns for Web 2.0, 3/3

- Perpetual beta
  - Do not package new features into monolithic releases; instead add them on regular basis as part of user experience
  - Engage user as real-time testers and instrument service to know how people use new features
- Cooperate, don't control
  - Offer Web services interfaces and content syndication
  - Reuse data services of others
  - Support light weight programming models to allow for loosely-coupled system
- Software above level of single device
  - Design applications from beginning to integrate services across handheld devices, PCs, and internet servers

http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html

Web 2.0 Visual Design, 1/6



- Green is the new gray
  - Bright, cheerful colors dominate Web 2.0
  - Green is unofficial color of Web 2.0, but saturated blues, orange, and pinks are also favorites
  - Bold primary colors suggest playful, fun attitude and draw attention to important page elements

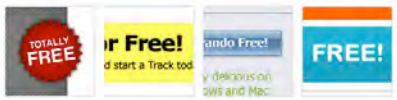
Source: Visual Design of Web 2.0, Pixel Acres,http://f6design.com/journal/2006/10/21/the-visual-design-of-web-20

Web 2.0 Visual Design, 2/6

- Rounded Everything
  - CSS techniques for achieving rounded corners helped make this style popular
  - Friendliness of rounded corners compatible with personal, informal tone of many Web 2.0 sites
  - Approach to type provides modern, playful identity to company's visual identity (think Google)

Source: Visual Design of Web 2.0, Pixel Acres,http://f6design.com/journal/2006/10/21/the-visual-design-of-web-20

Web 2.0 Visual Design, 3/6



- Say "Free" loudly
  - Give away FREE accounts if company needs to convince visitors to sign up for killer application
  - Many Web 2.0 sites devote prime real estate to message that they offer some free service

Source: Visual Design of Web 2.0, Pixel Acres,http://f6design.com/journal/2006/10/21/the-visual-design-of-web-20

Web 2.0 Visual Design, 4/6

- No (stock) photos, please
  - Few show stock photography of smiling support staff on Web 2.0 sites: tactic favored by small companies trying to mimic corporations
  - Simple icons and screenshots are more typical Web 2.0 imagery
  - 3D and beveled icons lend elegance and sparkle to page design that is otherwise fairly stark

Source: Visual Design of Web 2.0, Pixel Acres,http://f6design.com/journal/2006/10/21/the-visual-design-of-web-20

Web 2.0 Visual Design, 5/6

- Big is beautiful
  - Bigger is definitely better when it comes to text
  - Large text easy on eye and, coupled with snappy copywriting, makes information easy to absorb.
  - Accessibility is cool; it's possible to be hotshot Web designer and still use enormous type
  - Body text often larger than 13 point, like primary school books

Source: Visual Design of Web 2.0, Pixel Acres,http://f6design.com/journal/2006/10/21/the-visual-design-of-web-20

Web 2.0 Visual Design. 6/6

- Breathing space abundant
  - Layout of Web 2.0 sites often seems minimal
  - With focus on legibility and ease of use, much use of white space
  - White space allows important information to stand out, provides rest for eye, and imparts sense of calm and order
  - Generous leading also makes text copy easier for eye to follow
  - Designed well, uncluttered page can be very tasteful

Source: Visual Design of Web 2.0, Pixel Acres,http://f6design.com/journal/2006/10/21/the-visual-design-of-web-20

Web 2.0 Cultural Differences: Login for Social Networking Website, 1/2

	US	Taiwan	Korea
Log in with ID		✓	
Log in with Email	✓		✓
Password	✓	✓	✓
Remember Me	✓	✓	✓
Forgot Password?	✓		
Secure Log in			✓

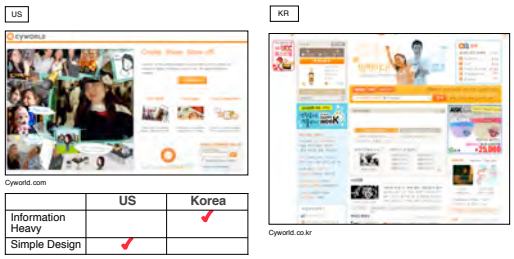
Web 2.0 Cultural Differences: Login for Social Networking Website, 2/2

	US	Korea
Log in with Email	✓	✓
Password	✓	✓
Remember Me	✓	✓
Forgot Password?	✓	
Secure Log in		✓

Web 2.0 Cultural Differences: Social Networking Site Appearance, 1/2

	US	Taiwan	Korea
Information Heavy		✓	✓
Simple Design	✓		

Web 2.0 Cultural Differences: Social Networking Site Appearance, 2/2



	US	Korea
Information Heavy		✓
Simple Design	✓	

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Web 2.0 Cultural Differences: Scrap-book Metaphor, Mental Model, 1/4

US

myspace.com

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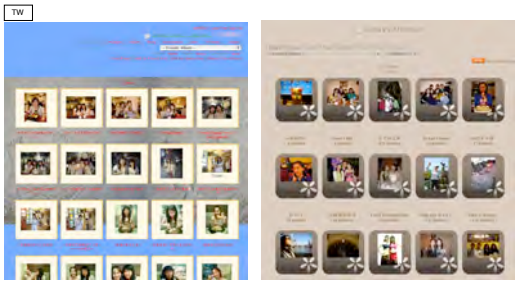
Web 2.0 Cultural Differences: Photo Album Metaphor, Mental Model

TW



wretch.cc

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Web 2.0 Cultural Differences: Diary Metaphor, Mental Model

KR

cyworld.co.kr

sayclub.com

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Web 2.0 Cultural Differences: Social Network Website Metaphor, M Model

US

Cywono.com

myspace.com

KR

Wretch.cc

KR

Cyworld.co.kr

Sayclub.com

	US	Taiwan	Korea
Metaphor, Mental Model	Scrapbook	Photo album	Diary

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Web 2.0 Cultural Differences, 1/2: Navigation in Knowledge Co-Creation

KR

Top Navigation Model

1. Knowledge Home
2. Knowledge Q&A
3. Counseling
4. Open knowledge
5. Knowledge leaders(experts)
6. Sponsored knowledge
7. My knowledge

Special Images: Cartoon

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Web 2.0 Cultural Differences, 2/2: Navigation in Knowledge Co-Creation

KR

Top Navigation Model
: Used verbs

- Ask
- Answer
- Discover

Special Images: Emoticon

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Cultural Differences: Appearance in Knowledge Co-Creation

KR

US

	Korea	US
Common	Major Activities of co-creation websites – Academic of learning – Experienced knowledge and daily life advice sharing	
Top Navigation Model	1. Knowledge Home 2. Knowledge Q&A 3. Counseling 4. Open knowledge 5. Knowledge leaders(experts) 6. Sponsored knowledge 7. My knowledge	1. Ask - Post question 2. Answer - Open question 3. Discover - Resolved Question
Appearance	Color: Purple Special Image: Cartoon	Green Simple Emoticon

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Web 2.0 Cultural Differences: Q+A in Knowledge Co-Creation Site, 1/4

KR

Question: Comparatively abstract words and description on question

Answers: more experience-based knowledge

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Web 2.0 Cultural Differences: Q+A in Knowledge Co-Creation Site, 2/4

US

Question: Precise word of descriptions on question

Answers:
a. Personal opinion with logical basos
b. Provide direct personal information display
c. Displays option of various communication methods to reach objective
d. Picture display
e. Statistic Accuracy Info of the answer

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Web 2.0 Cultural Differences: Q+A in Knowledge Co-Creation Site, 3/4

US

Question was one about "What is best car?"

Answers typically American: specific high-cost solutions

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Web 2.0 Cultural Differences: Q+A in Knowledge Co-Creation Site, 4/4

KR

US

	Korea	US
Mental Model and Navigation	**Question**: Comparatively abstract words and description on question **Answers**: more experience-based knowledge	**Question**: Precise word of descriptions on question **Answers**: a. Personal opinion with logic based b. Provide direct personal information display c. Displays option of various communication methods to reach to d. Picture display e. Statistic Accuracy Info of the answer

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Web 2.0 Cultural Differences: Customizable Content Category, 1/4

US

Customizable Category to users' favorite contents: News, Time, Weather, Movie, etc.

Web 2.0 Cultural Differences: Customizable Content Category, 2/4

KR

No customization is allowed

Web 2.0 Cultural Differences: Customizable Content Category, 3/4

TW

No customization is allowed

Web 2.0 Cultural Differences: Customizable Content Category, 4/4

US KR TW

	US	Korea	Taiwan
Customization of Content Category	✓		

Summary

- Web 2.0 sites share common features that distinguish them from Web 1.0 sites
- Culture differences appear even within Web 2.0 sites
- Future research and design studies will reveal more specific details, enabling culture-sensitive guidelines

Web 2.0

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Lecture Notes for the Tutorial

Cross-Cultural User-Interface Design for Work, Home, Play, and On the Way

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Detailed Description and Allocation of Time

Lecure 0: Introduction to instructor and tutorial (15 minutes)
This period will introduce the presenter(s) and to discuss how the techniques that will be discussed fit into the user-interface development process, including an introduction to globalization/localization issues. We'll show several examples of questionable cross-cultural communication and discuss several cultural anthropological theories briefly. We'll ask for participants' own experiences in difficulties of communicating across cultural boundaries.

Lecture 1: Introduction to cultural models and examples from the Web (60 minutes)
Illustrated lectures will introduce each of five dimensions of culture: (power distance, individualism *vs.* collectivism, masculinity *vs.* femininity, uncertainty avoidance, and long-term time orientation. For each dimension, we shall explain the characteristics and their potential impact of work, education, and family life, and show examples of Websites from different countries, but with the same subject matter that demonstrate indigenous cultural characteristics.

Lecture 2: Applying Cultural Models to UI Design (15 minutes)
Illustrated lecture will summarize the research of Dr. Pia Honold, Siemens Corporation, in using cultural models to predict how German and Chinese consumers gain information about mobile phone usage. This information impacts the design of documentation, online help, etc. Dr. Honold's presentation shows how the results of her study generally fit the predictions, but offer some surprises, also. We shall also show portions of a case study of developing a phone for Chinese users and a portion of a video study of mobile phone users in four countries.

Lecture 3: Culture and Corporate Website Design (45 minutes)
We shall examine several major businesses and consumer Websites for multi-national corporations from several countries (USA: McDonald's, Coke; Korea: Samsung; Germany: Siemens) and discuss the apparent tradeoffs of "universal" vs. localized solution for user-interface components per culture dimensions. A culture model was used to analyze variations in user-interface components of corporate global Website designs for approximately a dozen companies, both B2B and B2C, including Siemens, Peoplesoft, McDonalds, and Coca-Cola.

Lecture 4: Developing Best-of-Breed Culture Dimensions (45 minutes)
This lecture discusses a survey of 60 professional analysts of culture and user-interface design, which resulted in a composite set of 19 culture dimensions and the top five that emerged from the study to serve as a practical set for culture analysis of user interfaces.

Exercise 1 (30 minutes)
Each group in the tutorial will study one of approximately eight cross-cultural textual dialogues and attempt to understand the hidden cultural messages. Then, the participants will examine the explanation of what is happening between two people and report their findings and their misconceptions to the rest of the participants. Discussion will follow depending on the findings.

Exercise 2 (45 minutes)
Each group in the tutorial will study one of the cultural dimensions and analyze how this dimension might affect fundamental UI components (metaphors, mental models, navigation, interaction, and appearance). They will report to the rest of the participants on their findings. Discussion will follow depending on the findings.

Exercise 3 (45 minutes)
Each group in the tutorial will be assigned one target culture and design a home screen and one or two other screens that demonstrate awareness of the impact of culture on aspects of functions and data. The Website is intended to be a medical information Website provided by the government for its citizens. Each team will report to the rest of the participants about their intentions and their results. Where possible, comparisons will be made with actual Websites from different countries. Discussion will follow on issues that arise.

Optional Parallel Exercise 3 (45 minutes)
Each group in the tutorial will be assigned one target culture and design a home screen and one or two other screens that demonstrate awareness of the impact of culture on aspects of functions and data for a mobile device that enables users to view maps for trips. Each team will report to the rest of the participants about their intentions and their results. Discussion will follow on issues that arise.

Learning Objectives and Abstract

Learning Objectives

Participants will learn new terms and concepts to understand culture, one of several models of culture (Geert Hofstede's dimensions of power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance, and long-term orientation), and how these dimensions relate to the design of user-interface components (metaphors, mental models, navigation, interaction, and appearance). In addition we shall introduce additional dimensions that must be conducted in relation to culture (persuasion, trust, intelligence, cognition). Finally, we shall examine the practice and tradeoffs of several multi-national companies' Web efforts.

Abstract

User interfaces for desktop, Web, mobile, and vehicle platforms reach across culturally diverse user communities, sometimes within a single country/language group, and certainly across the globe. If user interfaces are to be usable, useful, and appealing to such a wide range of users, user-interface /user-experience developers must account for cultural aspects in globalizing/localizing products and services. In this tutorial, participants will learn practical principles and techniques that are immediately useful in terms of both analysis and design tasks. They will have an opportunity to put their understanding into practice through a series of pen-and-paper exercises.

Tutorial Slides, Publications, and Bibliographies

Presentation slides appear on the following pages, after which appear publication resources with bibliographies.

AM+A: What We Do, How We Do It, How We Can Add Value

Aaron Marcus, President
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Berkeley, California, USA
Tel: +1-510-601-0994, Fax:+1- 510-527-1994
Email: Aaron.Marcus@AMandA.com
Web: www.AMandA.com

Objectives

- What is AM+A like?
- How can we work together?
- What are the benefits of our collaboration?

Our Company

- 25 Years of experience in user-interface and information-visualization design/analysis
- Multi-disciplinary, multi-cultural Associates
- Experienced with most platforms, user groups, and vertical markets
- Strong brand and client base: BMW, Daimler-Chrysler, HP Labs, Kanisa, Microsoft, Motorola, US Federal Reserve Bank, Visa, VW, Wells Fargo
- President and founder: Aaron Marcus

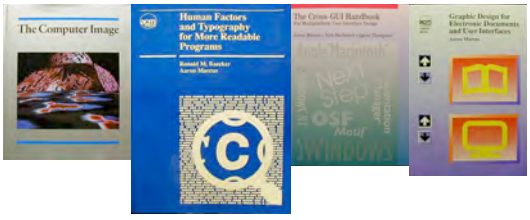
Aaron Marcus, Founder, President, Principal Designer/Analyst

- First graphic designer to use computers
- Visionary, pioneer, professional, teacher, researcher, author/co-author of 5 books, 200 publications
- Award winner: New York Art Directors Club, NY Type Directors Club, ID Magazine, ICOGRADA, Industry achievement award of National Computer Graphics Association, AIGA Fellow
- Member, Motorola Visionary Human Interface Board
- Co-principal investigator, DARPA research in program visualization

Research: User-Experience Spaces = Opportunity Spaces

- I-ware = Me-ware, My-ware
- You-ware = Love-are
- Fun-ware
- Buy-ware = Sell-ware
- Know-ware = Who-ware, What-ware, Why-ware, Where-ware, When-ware
- Be-ware

Publications: Book Covers



Publications: Chapters in Books

Publications: UX and Interactions

Our Vision and Mission

AM+A helps people make smarter decisions faster: anyone, any time, any place, any technology, any market, any subject matter

AM+A shapes the way technology affects everyday life through effective and compelling user-interface and information-visualization development

Our Objectives

- Assist or help build centers of excellence for user-interface development
- Engage satisfied users via user-centered user-interface (UI) development that cost-effectively optimizes UIs
- Ensure usability, usefulness, and appeal in the user experience

UI Development Process

- **Planning:** brainstorming
- **Research:** technology, design issues, strategies
- **Analysis:** user profiles, use scenarios, prototypes
- **Design:** content, applications, branding, storyselling
- **Implementation:** scripting, coding, final production
- **Evaluation:** focus groups, user tests, heuristic evals.
- **Documentation:** guidelines, patterns, specifications
- **Training:** courseware, tutorials, mentoring
- **Maintenance:** continuing client relations

UI Components

- **Metaphors:** Clear concepts via words, images, sounds, music
- **Mental Models:** Easy assimilation of data, functions, tasks, and roles at work, play, on the way
- **Navigation:** Efficient movement in menus, windows
- **Interaction:** Effective input/output, feedback
- **Appearance:** Quality perceptual characteristics

Our Approach: Powerful User Experience via User-Centered Development

- Focus on usability
- Attend to user experience and branding
- Attend to technology
- Consider culture/globalization issues
- Look for opportunities related to visualization and sonification
- Look for opportunities to cross-sell our services

Some Past and Current Clients

12 of 30 Dow Jones Industrial Average™ Firms

American Express
AT&T
BMW
Cogito Learning Media
Eastman Kodak
Hewlett Packard
J. Paul Getty Trust
Kanisa
Microsoft
Motorola
NetIQ
Nokia
Oracle
Orbitz
Peoplesoft
Sabre
Samsung
Tiscali
Tradiant (GT Nexus)
US Fed Reserve Bank
Visa

Our Projects: Designing UIs and Info Visualizations for our Clients

- Applications: mainframe, desktop, Web, mobile, vehicle, appliances
- Websites
- Prototypes
- Demos, presentations, icons, and logos
- Publications, documents

Ricoh Projects

- 1982-88: Ricoh, Tokyo, and Ricoh, San Jose, CA
  - Reviewed UI design for workstations
  - Wrote Ricoh's first UI design guidelines document
  - Trained Ricoh industrial design staff in Japan
  - Hosted Ricoh designer for 3 months as Designer/Analyst

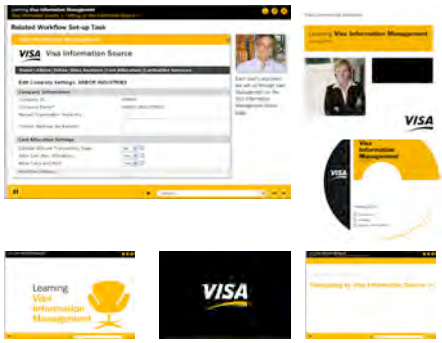
Nokia Projects (Finland)

- 1996: Nokia Finland
  - Reviewed Nokia documentation for technical documentation group
  - Reviewed UI for Communicator 9000 before intro to USA
  - Tutorials in Helsinki and Oulu
- 2000: Nokia Finland
  - Reviewed Christian Lindholm's lecture at HCI UK
- 2002: Nokia Finland
  - Designed Powerpoint presentation to explain UI philosophy to third-party developers worldwide
- 2005: Nokia UK
  - Designed future UI concepts for Nokia Design Center

Visa USA, International, and Inovant

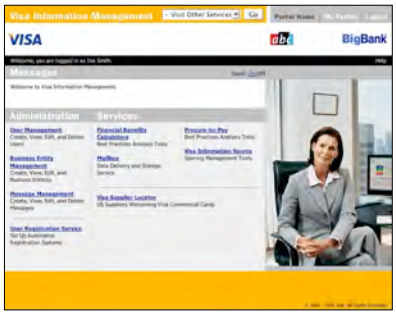
AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 20

Visa: Visa Information Source, 1/2



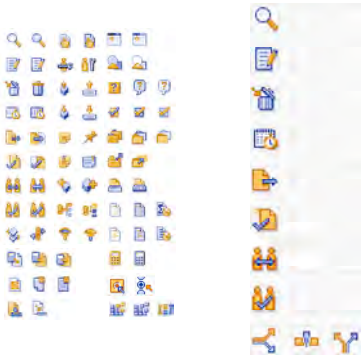
AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 21

Visa: Visa Information Source, 2/2



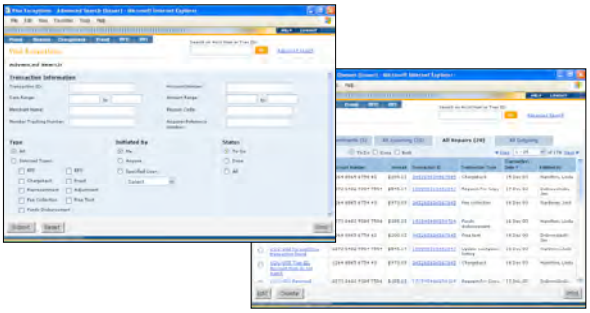
AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 22

Visa: Icons



AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 23

Visa: Exceptions Reporting UI Design, 2003-04

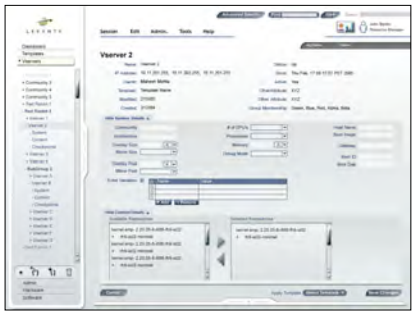


AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 24

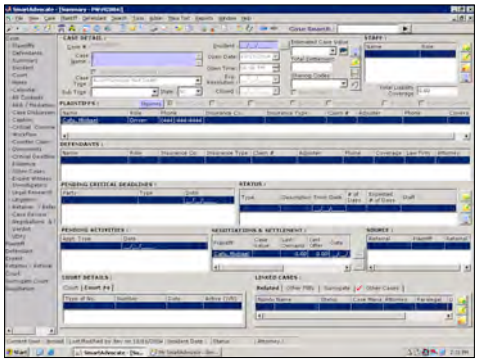
Visa: Visa.com Global Gateway Usability Analysis and Strategy

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 25

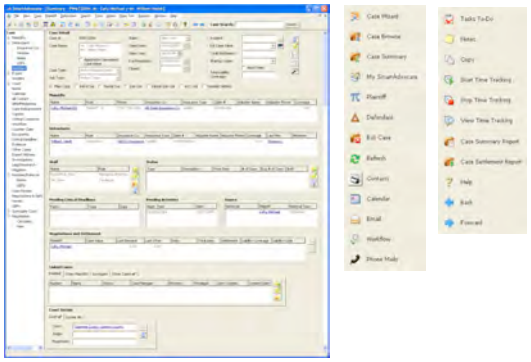
Virtual Server Administration Tool



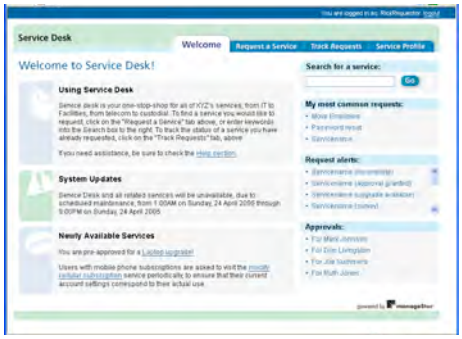
Legal Case Management: Before



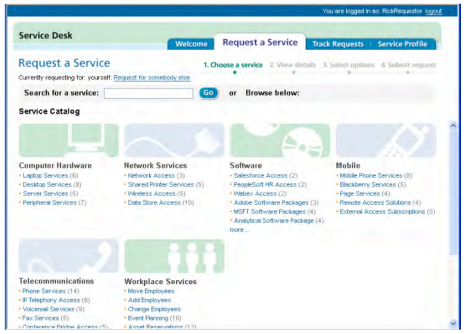
Legal Case Management: After



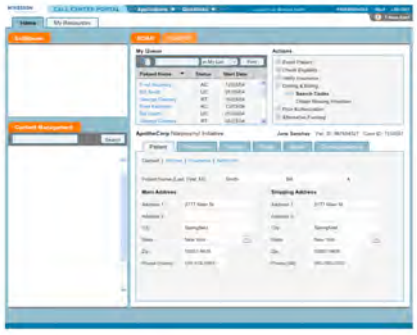
IT Services Management Portal, 1/2

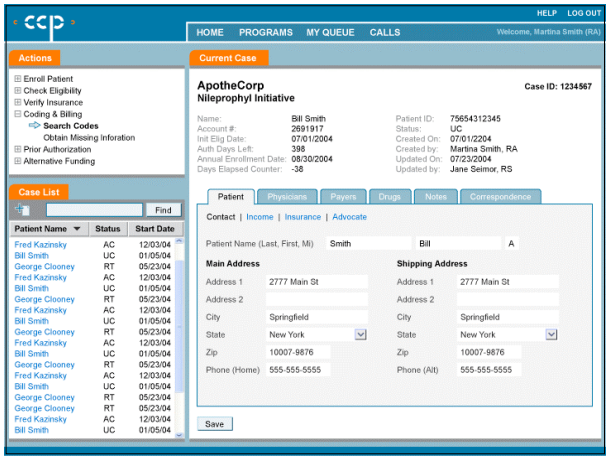


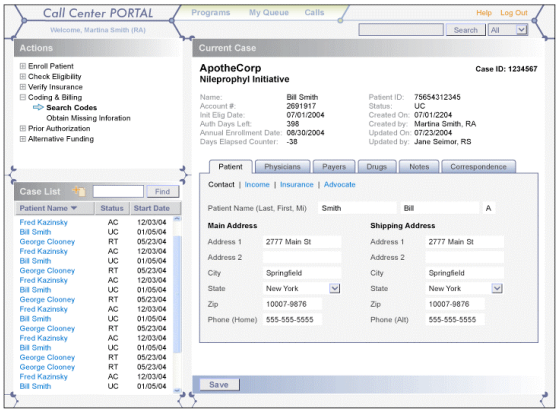
IT Services Management Portal, 2/2



McKesson Call Center Portal, 1/3







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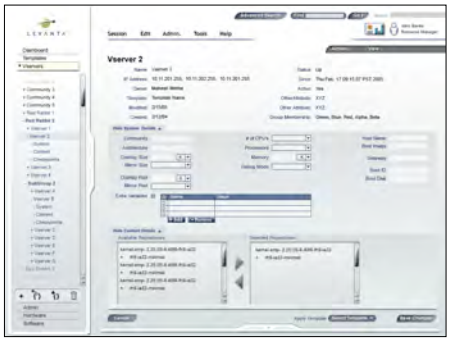
Virtual Server Administration Tool



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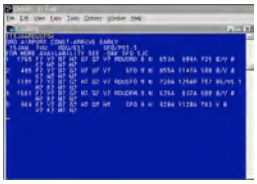
Application Example: Sabre Travel Booking Development



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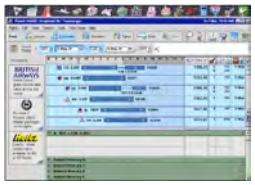

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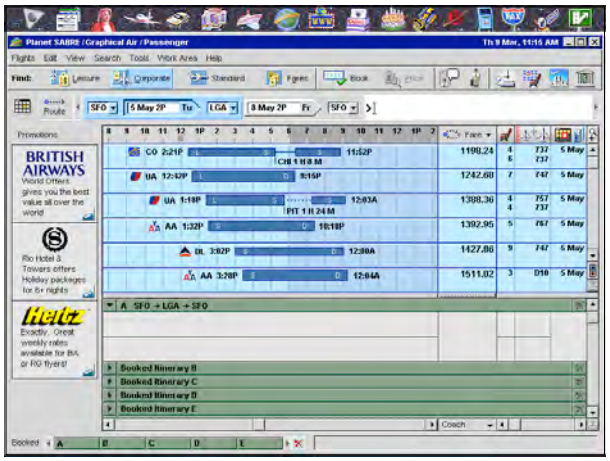

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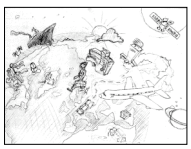
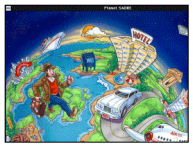
Sabre: Launch Screen Development





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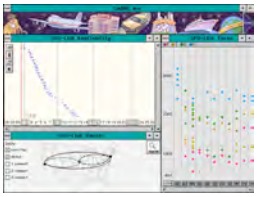
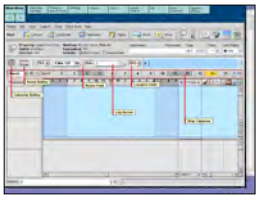
Sabre: Information-Visualization and User-Interface Design

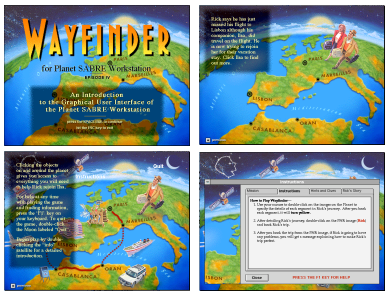


Information Visualization



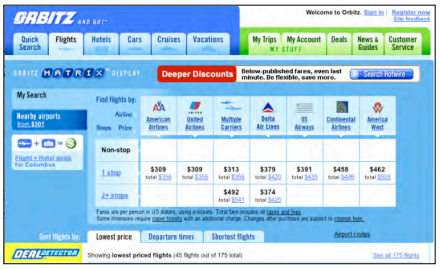
Interactive UI Guidelines

Sabre: Wayfinder Game Development

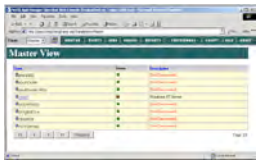


Orbitz: User Research

- User research and focus group testing to determine optimum design of flight data search results



Web Application: NetIQ Development



Before

After

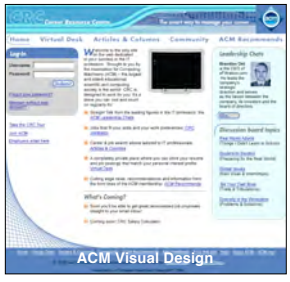
Website Design: Kanisa Development

Before

After

Website: ACM.org Portal Career Resource Centre Development

Before

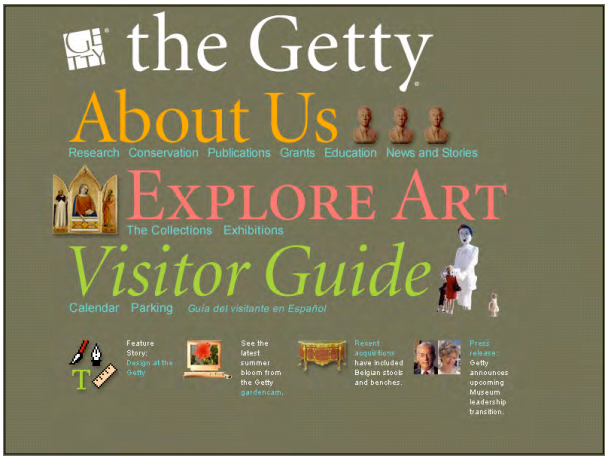


After

Website: J. Paul Getty Trust Portal and Museum Website Development

Home Page

Visitor Guide Page



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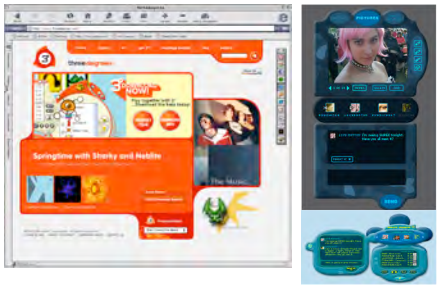
www.ThreeDegrees.com: Web-based Messaging, File-Sharing for Teens



Targeted to "Net Generation, Microsoft's first user-centered UI development, which led to a new division, now absorbed int Microsoft's latest .net offerings

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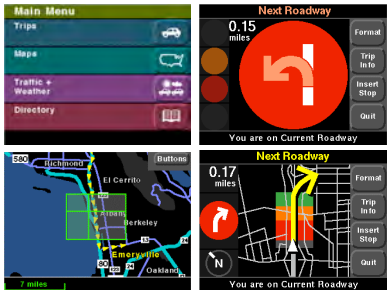
Mobile Products: Motorola Smart-Car User-Interface Design



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Prototype: Samsung Advanced Mobile Device Concepts

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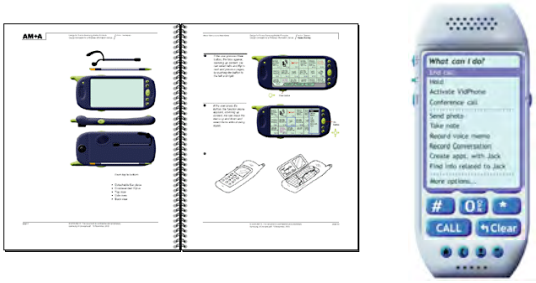
Samsung Wireless Information Device: Design Concepts



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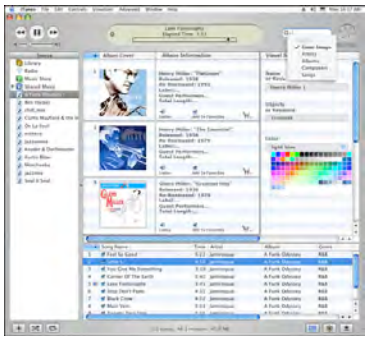
Samsung Wireless Information Device: User Observation

Prototype: Message Manager For a Wrist-top Device

Prototypes: Music Management for Desktop and Wrist-top

Microsoft Smart Watch: Prototype Channels

Visual Search via Album Art

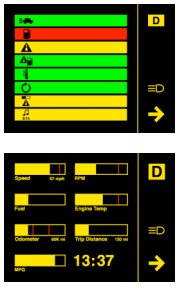


- Find music via keywords and visual perception

BMW: Human Factors of the Driver Experience

- Design for safety
- Avoid cognitive and sensory overload
- Reduce complexity
- Use graphical UI interface only when necessary
- Allow customization of information
- Use of physical controls
- Follow driver-centered design process

Prototype: Vehicle Dashboard Information-Visualization



HP Labs: Executive Storyselling Presentations, Scenarios

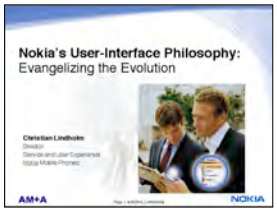
HP Halo

- http://www.hp.com/halo

High-resolution, high-speed, broadband video meeting rooms for executive communication

Nokia: Marketing Presentation to Software Developers Worldwide

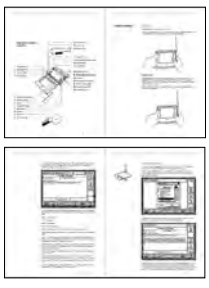
- Presented UI philosophy to attract and cultivate community of loyal developers, operators, and journalists

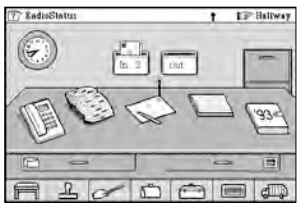


Anoto: Next Generation of Leapfrog's Fly Pentop Computer

- Fly was very successful roll-out from Leapfrog computer that received very favorable reviews
- Children's toy that can speak, translate, play music, recognize writing marks

Paper Prototypes: Motorola Personal Messenger User Manual



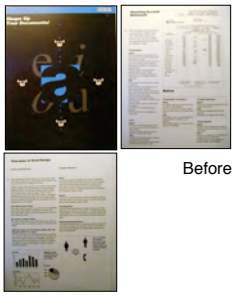


Demo/Presentation and UI design: Tradiant (GT Nexus) Shipping

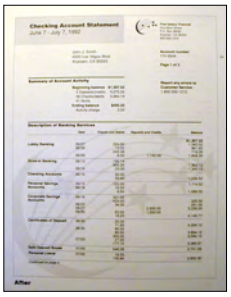
Training Products/Services

- Cogito-Learning Media: designed and produced over 30 award-winning computer-based training products in three business lines
- Oracle Worldwide Training: designed and produced CD-ROM training products, including one AM+A wrote/illustrated about UI design; designed first-ever UI guidelines for Web-based training
- Tutorials: 1-15 days at conferences, universities, on-site at corporations worldwide, and via the Web

Documentation and Training: Xerox Font Center Sales Literature



Before



After

Education: Tiscali European Web Portal on European Hand Gestures

Icon Designs, 1/3

Icon Designs, 2/3

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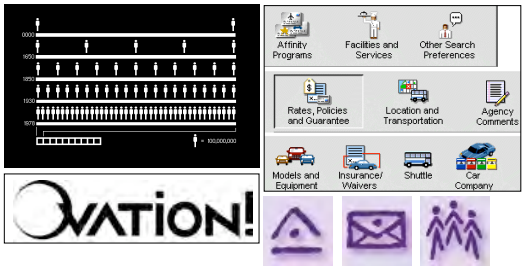
Icon Designs, 3/3, Logo



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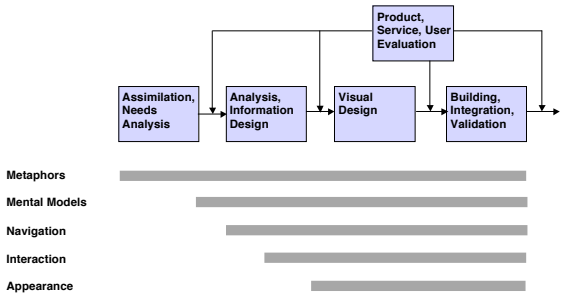
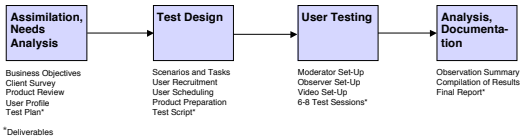
Our Process



AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 70

Our Testing Process



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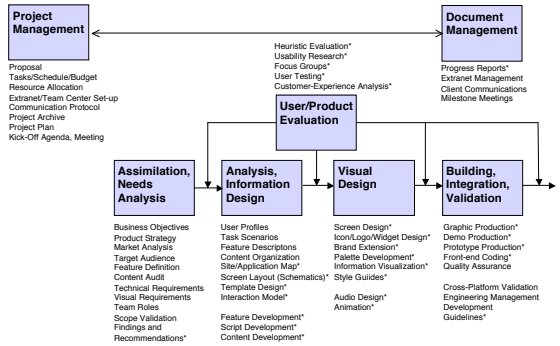
Our Deliverables*



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Design Process Artifacts

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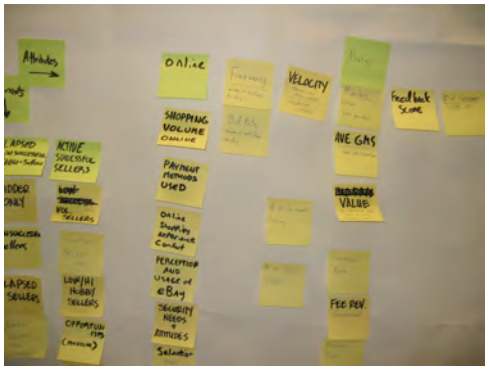
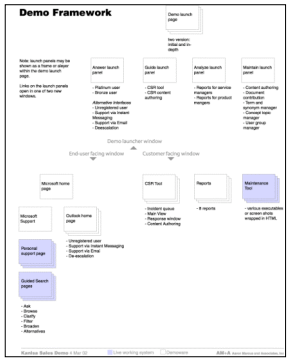
User Research

User Models, User Profiles

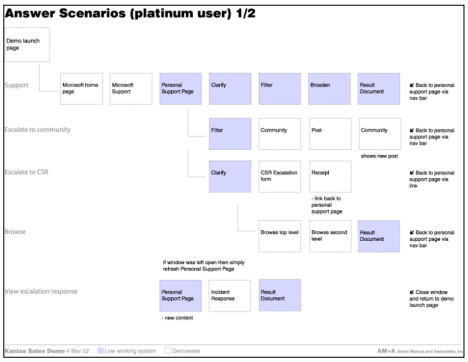
Participatory Design



InfoArchitecture Diagram: Framework



InfoArachitecture Diagram: Scenarios



Sketches

Schematics

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Visual Design Exploration

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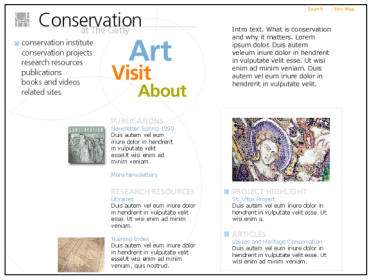
Visual Design: Screens, Layout, Typography, Color, Icons/Symbols



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Visual Design: Examples, 1/17

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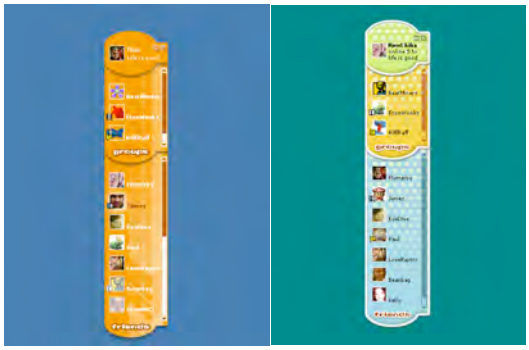
Visual Design: Examples, 2/ 17



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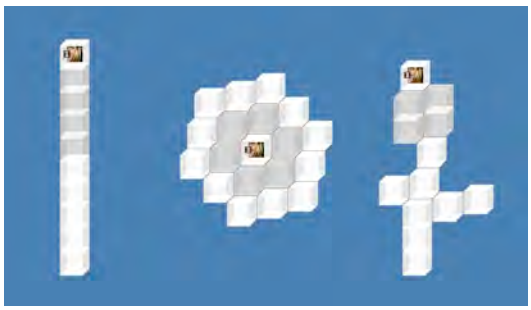
Visual Design: Examples, 4/ 17



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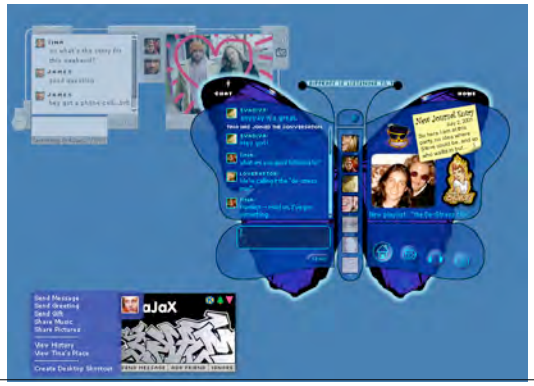
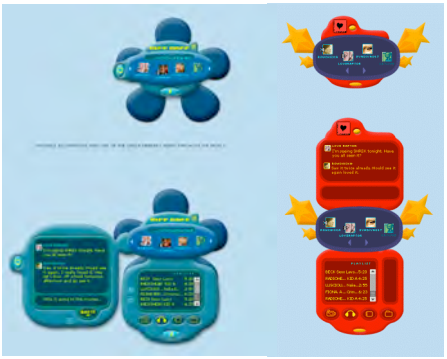
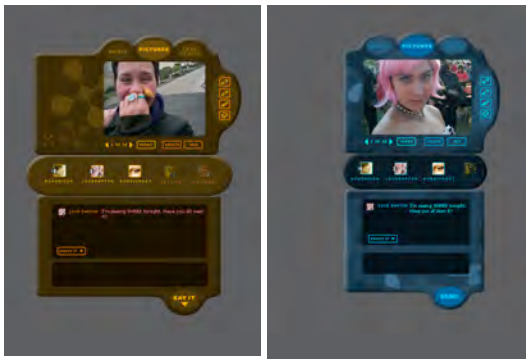
Visual Design: Examples, 5/17



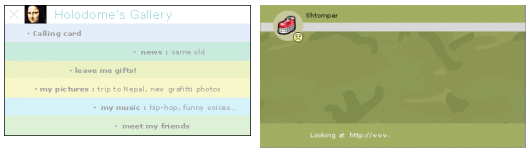
Visual Design Examples, 6/17



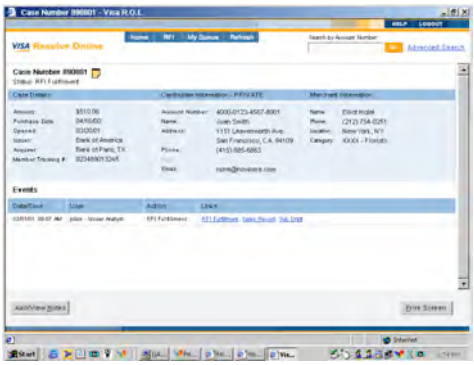
Visual Design Examples, 7/17



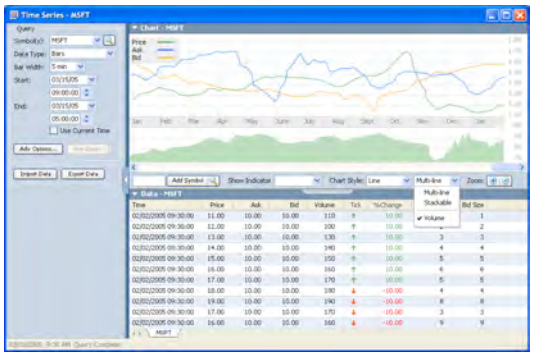
Visual Design Examples, 9/17



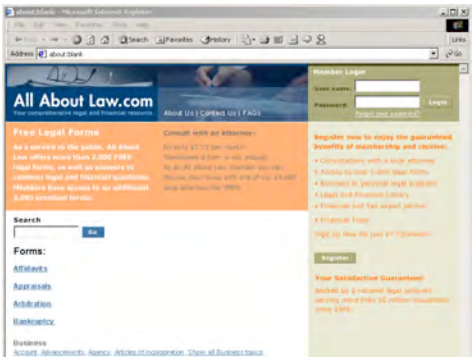
Visual Design: Examples, 10/ 17



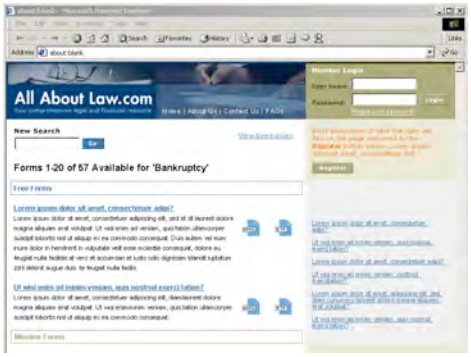
Visual Design: Examples, 11/ 17



Visual Design: Examples, 12/ 17

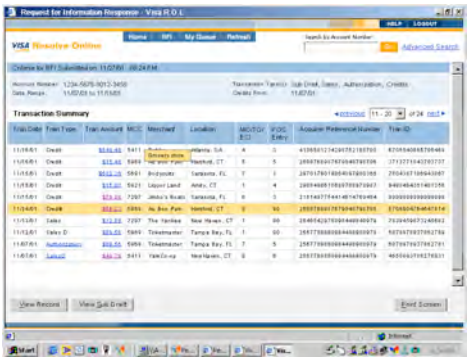


Visual Design: Examples, 13/ 17



Visual Design: Examples, 14/ 17

Visual Design: Examples, 16/ 17



Visual Design: Examples, 17/17

Our Services

- User-interface and information-visualization design
- Design-strategy consulting
- Usability research and analysis
- Design guidelines development
- Training: UI, babyfaces, culture, info visualization
- Heuristic evaluations, focus groups, user testing
- User experience/brand analysis
- Improving corporate centers of excellence

Our Value: Improving Usability, Usefulness, and Appeal

- Increase
  - Appeal
  - Sales
  - Productivity
  - Return on investment (ROI)
- Decrease
  - User errors
  - Training costs
  - Late design-change costs
  - User support costs, e.g., for call centers

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Our Advantage

- Emphasis on users
- Rigorous and thorough approach
- International, proven experience
- Flexible but focused teams
- Industry thought leader with 36 years of experience

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Let's Move Forward Together!

- What is AM+A like?
  - Smart, trustworthy, rigorous, experienced, flexible, team-oriented
- How can we work together?
  - Planning, research, analysis, design,evaluation, implementation, documentation, training
  - Improve existing centers of excellence and corporate methodology
  - Stimulate new approaches, lines of business, strategies, methods
- What are the benefits of our partnership?
  - Assist in developing your quality deliverables
  - Add to your profitability through design-strategy planning, design
  - Assist in improving your centers of excellence: process, requirements, testing, client satisfaction
  - Assist in developing your user profiles,use scenarios, prototypes, and presentations

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AM+A: What We Do, How We Do It, How We Can Add Value

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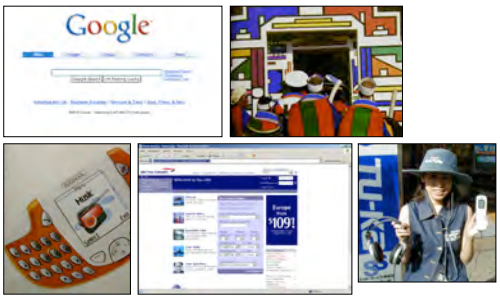
Cross-Cultural User-Interface Design for Work, Home, and On the Way



Cross-Cultural User-Interface Design for Work, Home, and On the Way: Accounting for Cultural Preferences, Acceptance, and Constraints

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Presentation Summary

- 1. Introduction
- 2. Definition of Globalization
- 3. Globalization Design Process
- 4. Dimensions of Culture
- 5. Cultural Analysis of the Web
- 6. Conclusion

Acknowledgements: Dr. Geert Hofstede, Institute for Research on Intercultural Affairs, Maastricht, The Netherlands; Prof. Emilie W. Gould, Rensselaer Polytechnic Institute, Troy, NY; Dr. Pia Honold, Siemens Corporation.

1. Introduction

- E+M-Commerce: Global distribution of products, services
- User diversity: Demographics and individual needs/wants
- User-interface design: Improves performance and appeal
- User-interface design issues: Complex and challenging

Culture Quiz: Which button position signifies that the lights are On?

- Culture affects what we notice, know, do, and feel

Culture Quiz: Would you Feel Lost?

- In movie “Black Robe” (1991), 17th-century French priest feels lost in Canadian forest, kneels to pray before dying… until interrupted by his Native-American companions who pass him by, ask him what in the world he is doing?!
- Would you notice the “street signs,” or even the “streets”?


User-Interface and Information-Visualization Design

- User-interface components
  - **Metaphors:** Essential concepts in words, images, sounds, touch
  - **Mental Models:** Organization of data, functions, tasks, roles, of people at work or play, static or mobile
  - **Navigation:** Movement through mental models via windows, dialogue boxes, buttons, links, etc.
  - **Interaction:** Input/output techniques, feedback
  - **Appearance:** Visual, verbal, acoustic, tactile
- Information visualization
  - Visualizations of structures and processes
  - Abstract vs. representational
  - Classical: Tables, forms, charts, maps, diagrams
  - Innovations: Hyperbolic browser, Tree maps, Table lens

In a trans-global economy, should every Website look like this?

Which Website for Saudi Arabia is Better?

"Saudi king tells newspapers to not run photos of women." [*San Francisco Chronicle*, 17 May 2006, p.A2.]

Searching on the Web: Google *vs.* Baidu

- Sometimes copying has cultural caché

USA: Google.com

China: Baidu.com

- Copying is itself a cultural characteristic and issue
  - See Stille, Alexander (2002). "The Culture of the Copy and the Disappearance of China's Past," Chap. 2, in *The Future of the Past.* New York: Farrar, Straus, and Giroux, pp. 40-70.

Arabia On.Line

Examples: South Africa, India

- Many races, ethnic groups, languages
- Many challenges, but also opportunities

Beckwith and Fisher, *Rituals of Africa*, Abrams, New York, 2000

[BusinessWeek, 5 July 2004, p. 14]

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Example: A Present from India

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Example: Food-Shopping Menus

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2. Definition of Globalization

- Globalization issues and UI+IV Design:

  International: Standard,"universal;" ready for localization

  Intercultural: Differences, and similarities, between two cultures

  Localization: Customized, part or whole

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International Issues

- Geographic, political, linguistic
  - Example: ISO CRT-color, icon, and UI standards
  - Example: Canadian bilingual requirements
  - Example: Currency, time, physical measurements

Singapore Drug Laws

Apple iLife Website Country/Language Switcher

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Intercultural

- Religious, historical, aesthetic:
  - Example: Calendars, Le weekend = Thu/Fri in some Moslem states
  - Example: Color/type/signs/terms

[*Wall Street Journal*, 21Jan04, p B7]

[Iraq issue = http://www.npr.org/templates/story/story.php?storyId=4540715]

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Localization

- Small-scale communities with preferred jargon, signs, rituals:
  - Affinity group example: USA Saturn owners
  - Social group example: Japanese housewives
  - Web group example (geo-dispersed): MP3.com
  - Not lifestyle groups: Clausen, *Faded Mosaic,* 2000
  - Resources: LISA, Hoft, Sapient.com, etc.

Business Challenges

- Determine optimum characteristics: Relies on market and user data
- Assist and appeal to target markets: Achieves short-term and long-term success
- Avoid too many variations: Wastes time and money

3. Globalization Development Process

- **Plan:** Include GD issues in all steps
- **Research:** Investigate sets of users
- **Analyze:** Determine key criteria, targets
- **Design:** Visualize alternatives
- **Implement:** Use tools that facilitate variations
- **Evaluate:** Test prototypes with user sets
- **Document:** Include GD guideline, specs

Topics of General Guidelines for Globalization

- User demographics
- Technology
- Metaphors
- Mental models
- Navigation
- Interaction
- Appearance

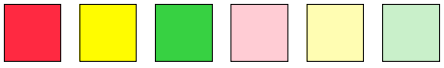
Guidelines Example: Appearance Details for Color

- Follow perceptual guides for legibility, warm/cool, 5±2 variations
- Respect national, cultural, religious usage
  - Sacred examples: White/blue/gold (Western) vs. green/blue (Arab) vs. yellow (Buddhist)
- Use warning/danger colors (yellow/red)
- Consider attitudes toward high- vs. low-chroma (pastel) colors

Example: Color Sets

- Sacred Colors

- High- vs. Low-Chroma Colors



Example: Flag's Colors Refer to Cultures, Religions, Histories

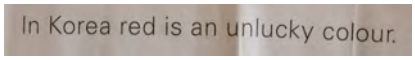
Example: Political Colors

- USA
  - Blue/red = liberal/conservative states
- International
  - Iran: Pink = advocates of women's rights/reforms
  - Ukraine: Orange = pro-West
  - Lebanon: Cedar = anti-Syrian independence-minded Lebanese
  - Iraq: Voters in first free elections (with upraised finger)

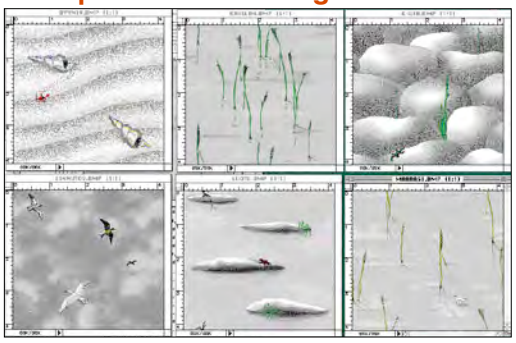
Vinciguerra, T. (2005). "The Revolution Will be Colorized," *New York Times*, 13 March 2005, WE-12.

Aesthetics: Dionysus/Apollo

- Cultural preferences exist for layout, textures, patterns, colors
- Europe/USA/Chinese/Japanese/Indian architecture, painting, sculpture exhibit them
- Traditional vs. popular styles:
  Japan: Highest = B+W, asymmetric balance
- Specific attitudes: Body parts, Harel, Prabhu research in China, Japan [IWIPS99 *Proc.*]



Example: Finnish Backgrounds



4. Dimensions of Culture

- Theorists
- Hofstede's theory of cultural dimensions
- Cultural issues

Theorists

- Kluckhohn and Strodtbeck: Value orientations
- David Victor: Cultural features
- Edward Hall: Context and time
- Fons Trompenaars (including Parson's Pattern Variables): *Riding the Waves of Culture*
- Geert Hofstede: Culture dimensions
- Ruth Benedict, *Patterns of Culture*, 1939

Victor, Hall, Trompenaars: Theoretical Bases

- Structure of language and culture
- Context: Focus on verbal/ nonverbal communication; information in explicit code or in physical environment
- Time: Focus on past/ present/ future; one/ many things at a time
- Additional existential dimensions

Geert Hofstede's Cultural Dimensions

- *Cultures and Organizations: Software of the Mind*, Geert Hofstede, McGraw-Hill, 1997
- Hofstede examined IBM employees in 50 countries, 1978-83; analyzed statistical data
- Culture: Patterns of thinking, feeling, acting programmed by a particular group, not "refinement of the mind," civilization
- Differences of cultural manifestations: symbols, heroes, rituals, values

Hofstede's 5 Dimensions of Culture

- 4.1. Power-distance
- 4.2. Collectivism vs. individualism
- 4.3. Femininity vs. masculinity
- 4.4. Uncertainty avoidance
- 4.5. Long- vs. short-term orientation

4.1. Power Distance (PD)

- Extent to which less powerful members expect, accept unequal power distribution
- High PD countries
  - Centralized power in few hands; tall hierarchies
  - Ideal boss = benevolent autocrat, good father
  - Subordinates expected to be told what to do
- Low PD countries
  - Subs and Supers consider each other equals
  - Changeable roles; decentralized, flat hierarchy

Power Distance in National Cultures

".. with its very old historical roots, [PD] is likely to survive for a long time yet, at least for some centuries. A worldwide homogenization of mental programs about power and dependence, independence, and interdependence under the influence of a presumed cultural melting-pot process, is still very far away, if it will ever happen." (C+O, p. 47)

Implications for Global UI Design: Examples for High Power Distance

- Structured, guided access to information
- Emphasis on larger social/ moral order (e.g. nationalism/ religion brought into Web context)
- Focus on expertise (authoritative content) and leaders (rather than customers/employees)
- Integrated security, unhidden "restrictions"
- Importance of certifications, awards, logos
- Social role used to organize information (e.g. special managers' sections)

Examples of PD Index (PDI) in Web

Contrasting University Websites:

- Malaysia (PDI rating of 104; highest in Hofstede's index)
  - www.uum.edu.my (Universiti Utara Malaysia)
  - Malaysian sites compared by Gould et al, IEEE *Proc.*, 2001
- Netherlands (PDI = 38; 40/53)
  - www.ichthus-rdam.nl (Ichthus Hogeschool)
  - www.tue.nl (Technische Universiteit Eindhoven)

Examples: University Home Pages

- Universiti Utara Malaysia
- Ichthus Hogeschool
- Technische Universiteit Eindhoven

Examples: University Home Pages

Examples: University Home Pages

Examples: University Home Pages

Examples of PD Index (PDI) in Web

Contrasting University Websites 2003:

- Panama (PDI = 95)
  - www.utp.ac.pa (Universidad Tecnológica de Panamá)
- Netherlands (PDI = 38; 40/53)
  - www.tue.nl (Technische Universiteit Eindhoven)

Examples: University Home Pages

Universidad Tecnológica de Panamá, 2003

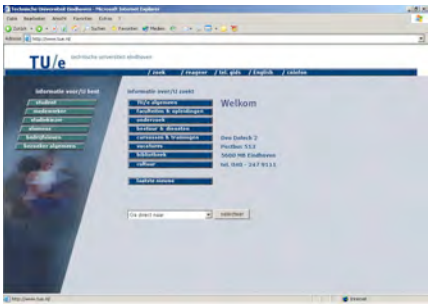
Technische Universiteit Eindhoven, 2003

Examples: University Home Pages

Univ. Tecnológica de Panamá, 2003, Panama PD = 95

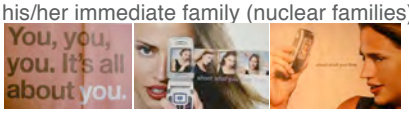
Examples: University Home Pages

Techn. Univ. Eindhoven, 2003, Netherland PD = 38



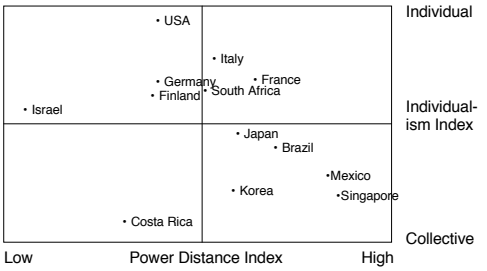
4.2. Individualism vs. Collectivism in Societies

- **Individualism:** Ties between individuals loose: everyone expected to look after one's self or his/her immediate family (nuclear families)



- **Collectivism:** People from birth integrated into strong, cohesive in-groups, which continue to protect them in exchange for unquestioning loyalty (extended families)

Power Distance vs. Individualism-Collectivism



Examples of Individualism vs. Collectivism

- **Work:** Personal time, freedom, challenge vs. training, physical conditions, use of skills
- Extrinsic vs. intrinsic motivation at work: Conditions, material rewards vs. work itself
- **Family:** Honesty/truth vs. harmony
  - Talking vs. not talking
  - Guilt cultures vs. shame cultures
  - Self-respect vs. face

Key Differences: Individualism

- Individual soc/econ interests over collective
- Right to privacy; private opinions expected
- Laws and rights same for all
- Restrained state in economy; high GNP/capita
- Political power of voters; press freedom
- Individual self-actualism = ultimate goal
- Ideology of freedom

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Key Differences: Collectivism

- Collective soc/econ interests over individual
- Group(s) invade private life, opinions
- Laws/rights per group; state controls press
- State dominates economy; low GNP/cap
- Political power of interest groups
- Harmony and consensus = ultimate goals
- Ideology of equality

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Implications for Global UI Design: Individualism

- Focus on maximizing personal achievement ("Expect the extraordinary")
- Materialism and consumerism demonstrate individual success
- Controversial/ argumentative speech and extreme claims encouraged ("truth")
- Images of youth/ activity rather than age/ wisdom ("doing," not "being")

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Implications for Global UI Design: Collectivism

- Individual roles downplayed (e.g. product shown on its own); focus may be on group
- Personal goals often intrinsic
- Preference for socially supportive and constrained claims; controversy discouraged because of its tendency to divide people (relationships, not truth)
- Respect for tradition (historical focus)

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Examples of Individualism/ Collectivism on the Web

National Parks:

- Individualism: United States (IDV = 91; highest rating)
  - www.nps.gov/glba/evc.htm (Glacier Bay National Park)
- Collectivism: Costa Rica (IDV = 15; 46/53)
  - www.tourism-costarica.com/ (National Parks of Costa Rica)

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Examples: Website Home Pages

- USA Glacier Bay National Park
- Costa Rica National Parks

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Examples: Website Home Pages

Examples: Website Home Pages

Examples: Website Home Pages

Examples of Individualism/ Collectivism on the Web

National Parks 2003:

- Individualism: United States (IDV = 91; highest rating)
  - www.nps.gov (National Park Service)
- Collectivism: Panama (IDV = 11; 51/53)
  - www.panamatours.com/Rainforest/Rainforest_intro.htm (Panama National Parks)

Examples: Website Home Pages

Panama National Parks, 2003

National Park Service US, 2003

Examples: Website Home Pages

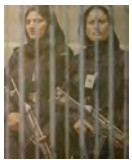
Panama National Parks, 2003, Panama IDV = 11

Examples: Website Home Pages

National Park Service US, 2003, US IDV = 91

4.3. Femininity vs. Masculinity

- Distinction: Genders *vs.* gender roles
  - Generally: Assertiveness *vs.* modesty
- Traditional Gender Roles
  - Men: Assertive, competitive, tough
  - Women: Home/children, people-oriented, tender



[*Time,* 12 Apr 04, p23; *The Hindu,* 28 Mar 04, p1]

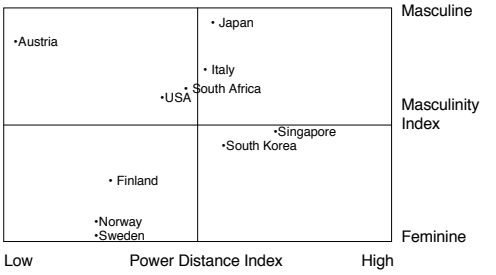
Masculinity vs. Femininity

- Masculinity: Distinct gender roles
  - Men: assertive, tough, focused on material success
  - Women: modest, tender, concerned with quality of life
- Femininity: Gender roles overlap
  - Both men and women = modest, tender, concerned with quality of life

Masculinity Index Values for Selected Countries

- 95 Japan
- 79 Austria
- 62 USA (South Africa = 63)
- 53 Arab countries
- 47 Israel
- 43 France
- 39 South Korea
- 05 Sweden

Power Distance vs. Masculinity



Traditional Masculine Work Goals

- Earnings
- Recognition
- Advancement
- Challenge

Traditional Feminine Work Goals

- Manager: Good working relation with direct supervisors
- Cooperation: Work with people who cooperate well
- Living area: Live in desirable location for one's self and family
- Employment security: Have security and be able to work for as long one wishes

Implications for Global UI Design: Masculinity

- Traditional gender/ family/ age distinctions emphasized; work tasks/ roles given preference
- Mastery most important; Websites designed for exploration and control
- Games/ competitions held grab attention
- Artwork may be utilitarian/ instrumental

Implications for Global UI Design: Femininity

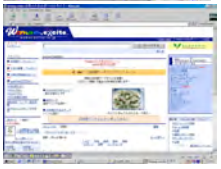
- Gender/ work roles blurred
- Mutual exchange and support more important than mastery; Website should be task-oriented and provide quick results for limited task
- Poetry/unifying values may focus attention
- Natural images, traditional art, soft focus used to generate emotional/aesthetic appeal

Examples of Masculinity/ Femininity on the Web

Gender-oriented sites:

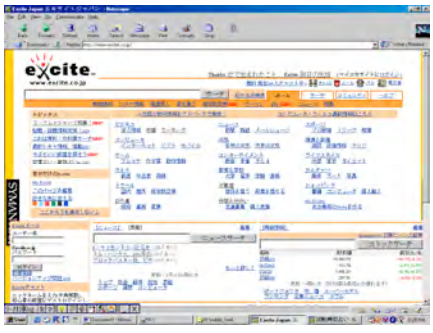
- Masculinity: Japan = 95 (highest MAS)
  - woman.excite.co.jp - women's site
  - www.isize.com/top - site for young adults
- US = 52 (15/53)
  - www.chickclick.com
- Femininity: Sweden = 5 (lowest of 53 nations)
  - se.excite.com

Excite/Japan for Males, Females

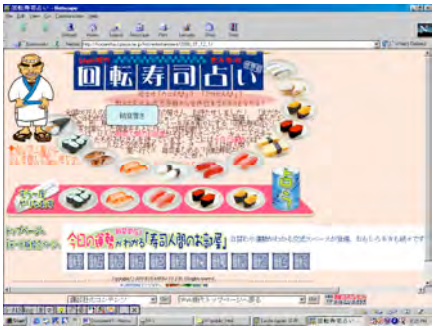


- Male: Cars and stocks information, sushi-based horoscopes
- Female: Pale colors and recipes

Excite/Japan for Males, Females

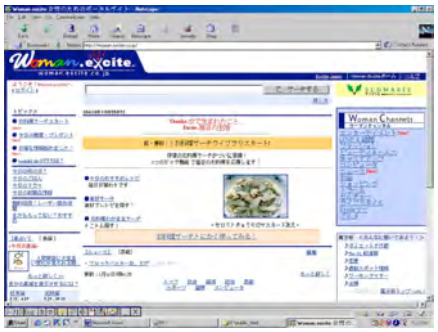


Excite/Japan for Males, Females



AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 80

Excite/Japan for Males, Females



AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 81

USA and Sweden

- USA: Chickclick.com for chicks
- Sweden/Excite: no gendered sites

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 84

Examples of Masculinity/ Femininity on the Web

Gender-oriented sites 2003:

- Masculinity: Japan = 95 (highest MAS)
  - www.excite.co.jp - women's site
  - www.nike.jp/women - nike women's site
- US = 52 (15/53)
  - www.nike.com
- Femininity: France = 43 (35+36/53)
  - www.excite.fr
- South Korea = 39 (41/53)
  - www.nike.co.kr

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 85

Excite for Males, Females

- Japan: Male/General
- Japan: Female
- France: General

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 86

Excite for Males, Females

Excite Japan, 2003, Japan MAS = 95

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 87

Excite for Males, Females

women.excite.co.jp, 2003, Japan MAS = 95

Excite for Males, Females

Excite France, 2003, France MAS = 43

Nike for Males, Females

- Japan: Male/General
- Japan: Female
- Korea: General

Nike for Males, Females

Nike Japan, 2003, Japan MAS = 95

Nike for Males, Females

Nike Japan, 2003, Japan MAS = 95

Nike for Males, Females

Nike Korea, 2003, Korea MAS = 39

4.4. Uncertainty Avoidance

- Feeling threatened by uncertain/unknown
- Fear/risk vs. anxiety: Known vs. unknown
- Countries vary in formality, punctuality, certainty requirements
- Extreme uncertainty creates intolerable anxiety; law, religion seek to reduce it
- Intolerance of ambiguity = variant of uncertainty avoidance

Low Uncertainty-Avoidance Countries, 1/2

- Quiet, easy-going, indolent, controlled, lazy. (subjective view)
- What is different is curious (or ridiculous)
- Schools: students respect plain language, accept teacher who says, "I don't know"
- Definitions of clean/dirty; safe/dangerous differ widely by country
- UA index positively related to age, not occupation or gender

High Uncertainty Avoidance Countries, 1/2

- People seem busy, emotional, aggressive, active (subjective view)
- Shun ambiguous situations; look for structure in organizations, institutions, and relations that make events clearly interpretable and predictable
- Prepared to engage in risky behavior to reduce ambiguities, like starting a fight, instead of waiting
- Positive relation: high uncertainty avoidance (in developed country) and maximum highway speed

High Uncertainty-Avoidance Countries, 2/2

- Equate dirty and dangerous tightly
- "Cultures with [high] uncertainty avoidance *need* categories of dangerous others to defend themselves from" (can lead to racism)
- What is different is dangerous
- Schools: Expect teachers to be experts with all the answers

High Uncertainty Avoidance in School: German Example

- Favors structured learning situations with precise objectives, detailed assignments, strict timetables, situations with one correct answer to be found, rewards for accuracy, teachers as experts with all the answers, cryptic, academic language, parents as audience, not consultants

Low Uncertainty Avoidance in School: British Example

- Dislike too much structure, one correct answer situations; like open-ended learning, vague objectives, broad assignments, few timetables, rewards for originality, teachers who use plain language (and accept a teacher who says, I don't know), parents involvement.

Implications for Global UI Design: High UA

- Keep it simple
- Results/ implications of actions need to be revealed
- Make attempt to prevent looping/ becoming "lost in cyberspace"
- Constraints/ task animations/ models should be used to reduce "user error"
- Carefully encode meaning through multiple redundant cues

Implications for Global UI Design: Low UA

- Complexity and risk valued: don't protect users from failure
- Less effort put into controlling navigation
  - Links open new windows
  - OK to take people out of original site
- Help system focuses on information; task orientation secondary
- Coding of color/ shape/ texture cues used to maximize information; need not be redundant

Examples of Uncertainty Avoidance on the Web

Airline Companies:

- Belgium = 94 (5+6/53)
  - www.sabena.com
- UK = 35 (47/53)
  - www.britishairways.com

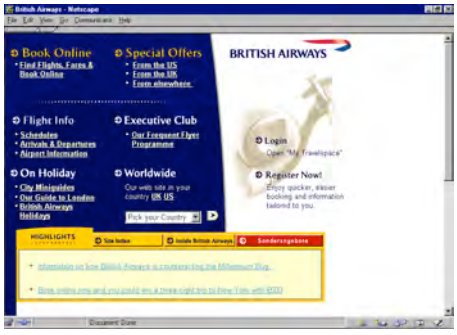
Examples: Airline Home Pages

Sabena

British Airways

Examples: Airline Home Pages

Examples: Airline Home Pages



Examples of Uncertainty Avoidance on the Web

Airline Companies 2003:

- Belgium = 94 (5+6/53)
  - www.sabena.com
- UK = 35 (47/53)
  - www.britishairways.com

Examples: Airline Home Pages

Sabena

British Airways

Examples: Airline Home Pages

Sabena, 2003, Belgium UA = 94

Examples: Airline Home Pages

British Airways, 2003, United Kingdom UA = 35

Comparison of UA for 2003 Websites

- Travel booking pane
  - Sabena, Belgium: 19
  - British Airways, United Kingdom: 16
- Outside the travel booking pane
  - Sabena, Belgium: 23
  - British Airways, United Kingdom: 43
- Culture differences survives design improvements!

4.5. Long vs. Short Term: Confucian Dynamism

- 1. Stable society requires unequal relations
- 2. Family is prototype of all social organizations
- 3. Virtuous behavior to others = not treating others as one would not like to be treated
- 4. Virtue re one's task in life = trying to acquire skills and education, working hard, being frugal, being patient, persevering

Long-term orientation (LTO) Ranking for Some of 23 Countries

- 01 China
- 04 Japan
- 17 USA
- 22 Nigeria
- 23 Pakistan

Virtue vs. Truth

- Rokeach Value Survey (RVS) vs. Chinese value survey (CVS)
- "…the Indian and the Chinese minds seem to take a position different from the Western one when it comes to the need for defining Truth."
- Search for truth (belief-oriented) vs. search for virtue (practice-oriented)

Comparing Studies of Culture

- Three dimensions appear across all cultures: power distance, individualism-collectivism, masculine-feminine
- Fourth dimension depends on culture:
  - Western: UA = search for truth
  - Eastern: Confucian dynamism, or long- term orientation = search for virtue

Implications for Global UI Design: Long-Term Orientation

- Practice more important than theory
- Accomplishing the task sufficient; expertise not required
- Personal network provides resources for achievement

Examples of Long/short-term time orientation on the Web

Siemens:

- Germany = 31 (14/23)
  - www.siemens.com/de
- China = 118 (highest LTO)
  - www.siemens.com.cn

Examples: Germany and China

Siemens Germany

Siemens China

Examples: Germany and China

Examples: Germany and China

Examples of Long/short-term time orientation on the Web

Siemens 2003:

- Pakistan = 0 (lowest LTO)
  - www.siemens.com.pk
- Germany = 31 (14/23)
  - www.siemens.com/de
- China = 118 (highest LTO)
  - www.siemens.com.cn

Examples: Siemens

- Siemens Pakistan
- Siemens Germany
- Siemens China

Examples: Siemens

Siemens Pakistan, 2003, Pakistan LTO = 0

Examples: Siemens

Siemens Germany, 2003, Germany LTO = 31

Examples: Siemens

Siemens China, 2003, China LTO = 118

Examples of Long/short-term time orientation on the Web

Hitachi 2003:

- Germany = 31 (14/23)
  - www.siemens.com/de
- China = 118 (highest LTO)
  - www.siemens.com.cn

Examples: Hitachi

Hitachi Germany, 2003 Hitachi China, 2003

Examples: Hitachi

Hitachi China, 2003, China LTO = 118

Examples: Hitachi

Hitachi Germany, 2003, Germany LTO = 31

Summary: China vs. Germany

- China (Long-term time orientation):
  - Soft focus
  - Warm, fuzzy images
  - Timeless, classic design
  - Emphasis on people images
- Germany
  - Design that is appropriate just for now (will be outdated in a certain amount of time)
  - Concentration on showing task or product
  - Function, mastery, organization-oriented

How to Work with Cultural Models: Examples from China and Germany

- Honold, Pia, "Learning How to Use a Cellular Phone: Comparison Between German and Chinese Users," *Jour.* STC, Vol. 46, No. 2, May 1999, pp. 196-205.
- Lee, Ook, "The Role of Cultural Protocol in Media Choice in a Confucian Virtual Workplace," *IEEE Transactions on Prof. Comm.*, Vol. 43, No. 2, June 2000, pp. 196-200.
- Choong, Salvendy study of Chinese/US mental models

Where do We Go from Here?

- New sources of insight
- Action within corporations and societies
- Action in the world

Additional Sources of Insight

- Additional dimensions to consider
  - Persuasion
  - Trust
  - Intelligence
  - Personality
  - Cognition
  - Emotions
- How do culture dimensions relate to these additional dimensions
- How do culture dimensions relate to user-interface components?

Dimensions of Persuasion

- Reciprocation
- Consistency
- Social validation
- Liking
- Authority
- Scarcity

Robert Cialdini, "The Science of Persuasion," *Sci. Amer.*, Vol, 284, No. 2, Feb. 2001, pp. 76-81 (www.influenceatwork.com)

Dimensions of Trust

- Attraction: Attractive people trusted more
- Dynamism: Activity, e.g., moving hands, text
- Expertness: Relevant skills
- Faith: Belief in predictable future
- Intentions: Revealed objectives and goals
- Localness: Presumed similar values, behavior
- Reliability: Dependable, predictable, consistent

Bailey, Gurak,and Konstan, "An Examination of Trust Production in Computer-Mediated Exchange," Human Factors and the Web 2001 Conference, http://www.optavia.com/hfweb

Dimensions of Intelligence

- Verbal/Image comprehension
- Word/image fluency
- Numerical/graphical fluency
- Spatial visualization
- Associative memory
- Perceptual speed
- Reasoning
- Image: Self/Other awareness

Gardner, *Frames of Mind*, 1985

Dimensions of Personality

- Agreeableness: Attitudes toward other people
  - Trust, honesty, altruism, cooperation, modesty, sympathy
- Extroversion: Energy, enthusiasm around others
  - Outgoing, sociable, assertive, energy, enthusiasm, excitement seeking
- Neuroticism: Emotional reaction to pressure, stress
  - Anxiety, irritability, depression, self-consciousness, moodiness, stress
- Conscientiousness: Organized, persistent in goals
  - Efficient, orderly, dutiful, achievement-oriented, self-disciplined, careful
- Openness: Open to and interested in culture
  - Imaginative, artistic, broad interests, curious, intellect., unconventional

[Source: Dr. Samuel D. Gosling, Psych Res Fndtn, U of TX, *NYT*, 010305, C1]

Even Cognition Culture-Biased?

- Nisbett, et al: Basic patterns of thought are cultural
- **Western: objects,** individual distinctiveness; "rational" logic, categories, causation; tunnel-vision
- **Eastern: relations** (harmonious social); inter-dependence, simultaneous conflicts; wide-angle
- Tests conducted on Japanese, USA participants

[Nisbett, Richard E., Kaipeng Penkg, Incheol Choi, and Ara Norenzayan (2001). "Culture and Systems of Thought: Holistic vs. Analytical Cognition," *Psychological Review,* 108, 291-310.
Nisbett, Richard E. (2003). *The Geography of Thought: How Asians and Westerners Think Differently…and Why.* New York: Free Press.]

Chinese *vs.* American Use of Metaphors, Mental Models

- USA: Inferences, categories; classify by functions, analyze components, infer common features
- Chinese: relations, contexts: classify by interde-pendence within wholes, rely on subjective ex-perience without sharp difference of self/others, facts/concepts
- Longer performance times for Chinese with USA organization, and similarly for USA with Chinese

Source: Choong and Salvendy, *Int Jour of HCI*, 1999

Example: Contrasting Sorting Styles

Sorting by thematic groupings	Sorting by Function
Kitchen	Appliances
Cooking	Major
Microwave, rice cooker, ...	Microwave ...
Cleaning	Small
Dishwashing liquid, scouring pad, ...	Toaster, blender, …
Small appliances	Laundry
Toaster, blender, coffee maker, ...	Washer,…
Food handling	Personal
Sandwich bags, paper plates, ...	Shaver,…
Bedroom	Home/personal fashion
Bedding ...	Bedding ...
Appliances ...	Brushing ...
Clothing ...	Bathing …
Dresser ...	Cleaning ...
Bathroom ...	Paper/plastic products ...

Resulting Differences: Thematic vs Functional Info Structures

- Lower error rates for USA with functions, for Chinese with thematic structures
- Better memory performance for Chinese with thematic
- Better performance (speed, accuracy) time for Chinese using thematic
- Better performance for Chinese using concrete metaphors

Ref: Carroll, John M., "Using Design Rational to Manage Culture-Bound Metaphors for International UIs," IWIPS 99, *Proceedings, p 125-131.*

Dimensions of Emotions

- Biological emotions (arousal, reward-punishment, fear/anger, love/bonding): based upon specific neurochemical systems
- Social emotions (pride, guilt, etc.): Based biologically upon attachment
- Cognitive emotions (interest, boredom, curiosity): Based biologically upon expectancy
- Moral emotions: based upon a combination of social attachment and expectancy

[Typology of Emotions, Ross Buck, U of CT, 2002, http://wattlab.coms.uconn.edu/ftp/users/rbuck/UConn9-00/sld001.htm]

Emotion Measuring Tool

- Desmet, Pieter, *Designing Emotions*, 2002 ISBN 90-15877-4, Info@DesigningEmotion.nl

Research Paradigms in Emotional Message Design

Research Paradigm	Expressive	Conventional	Rhetorical
Emotion/communication relationship	Emotion is focus; communication is byproduct	Communication is focus; emotion is content of message	Managing social life is goal; emotion communication is integral part
Metaphors(s)	Container	Playing catch	Dancing
Communicative goal	None	Accuracy	Social coordination
Skill needed	None, unless bottled up	Normal,but some better than others	Potentially highly skilled
Expressions studied	Spontaneous	Posed or spontaneous	Socially situated
Typical model of emotion	Categories	Categories or dimensions	Processes
Verbal/nonverbal link	Link is epiphenomenal; emphasis on nonverbal	Mutually compatible or competing	Multifunctional,flexible
Typical research	Emotion(s) as independent variable; cue(s) as dependent variable(s)	Cue(s) as independent variable(s), accuracy as dependent variable	Social goal(s) as independent variable(s); emotional mes-sage(s) as dependent variable(s)
Research problems	Experimental control, highly individualistic	Issue of what counts as ac-curacy, manipulating cues	Complexity; no clear boundaries
Research possibilities	Body movement, verbal	Evolving interpretations, under-standing, empathy	Effects on social variables

Source: Planalp, Sally, and Knie, Karen (Univ. of Montana), "Integrating Verbal and Nonverbal Emotion(al) Messages, in Fussell, Susan R. (2002). *The Verbal Communication of Emotions: Interdisciplinary Perspectives.* Mahway, New Jersey: Lawrence Erlbaum, p. 57.

URLs (as of April 2003) and Publications about Emotion Theory

- URL: Typology of Emotions, Ross Buck, U of CT: http://wattlab.coms.uconn.edu/ftp/users/rbuck/UConn9-00/sld001.htm
- Philosophy of emotions and faces:http://philsciar chive.pitt.edu/documents/disk0/00/00/06/04/PITT-PHILSCI00000060400/Machiavellian_Emotions.pdf
- Faces and emotions: http://www.paulekman.com/
- Fussell, Susan R. (2002). *The Verbal Communication of Emotions: Interdisciplinary Perspectives.* Mahway, New Jersey: Lawrence Erlbaum

Research Objective: Map Culture Dimensions to UI Components

	Metaphors	Mental Model	Navigation	Interaction	Appearance
Power Distance					
Individualism vs. Collectivism					
Masculinity vs. Femininity					
Uncertainty Avoidance					
Long-Term Time Orientation					

Culture vs. UI : Power Distance, 1/2

- Metaphors
  - **High:** Institutions, buildings with clear hierarchy: schools, government, monuments, *etc.*
  - **Low:** Institutions, buildings with equality, options: Summerhill, play/games, public spaces, *etc.*
- Mental Models
  - **High:** Reference data with no relevancy ranking
  - **Low:** Less structured data with relevancy
- Navigation
  - **High:** Restricted access, choices; authentication; passwords
  - **Low:** Open access, multiple options, sharable paths

Culture vs. UI: Power Distance, 2/2

- Interaction
  - **High:** Severe error messages: "Entry Forbidden," "You are wrong;" wizards or guides lead usage
  - **Low:** Supportive error messages, cue cards
- Appearance
  - **High:** Images of leaders, nations; official music, anthems; formal speech
  - **Low:** Images of people, daily activities; popular music; informal speech

Culture vs. UI: Individualism vs. Collectivism, 1/2

- Metaphors
  - **Individualist:** Action-oriented, tools
  - **Collectivist:** Relationship-oriented
- Mental Models
  - **Individualist:** Product- or task-oriented
  - **Collectivist:** Role-oriented
- Navigation
  - **Individualist:** Individual paths; popular choices, celebrity choices; stable across roles; customizable
  - **Collectivist:** Group-oriented, official choices; changes per role

Culture vs. UI: Individualism vs. Collectivism, 2/2

- Interaction
  - **Individualist:** Keyword searches; active-oriented; multiple devices; customizable;
  - **Collectivist:** Limited, official devices; role driven
- Appearance
  - **Individualist:** Images of products, people; low context; hyperbolic, dynamic speech; market-driven topics, imagery, language; customizable; direct, active verbs
  - **Collectivist:** Images of groups, organizations; images of roles; high context; official, static terminology; institution-driven topics, imagery, language; passive verbs

Culture vs. UI: Masculinity vs. Femininity, 1/2

- Metaphors
  - **Masculine:** Sports-oriented; competition-oriented; work-oriented
  - **Feminine:**Shopping carts; family-oriented
- Mental Models
  - **Masculine:** Work/business structures; high-level, "executive views;" goal-oriented
  - **Feminine:** Social structures; detailed views; relationship-oriented
- Navigation
  - **Masculine:** Limited choices, synchronic
  - **Feminine:** Multiple choices; multi-tasking, polychronic

Culture vs. UI: Masculinity vs. Femininity, 2/2

- Interaction
  - **Masculine:** Game-oriented; mastery-oriented; individual-oriented
  - **Feminine:** Practical, function-oriented; co-operation-oriented; team oriented
- Appearance
  - **Masculine:** "Masculine" colors, shapes, sounds
  - **Feminine:** "Feminine" colors, shapes, sounds; acceptance of cuteness

Culture vs. UI: Uncertainty Avoidance, 1/2

- Metaphors
  - **High:** Familiar, clear references to daily life; representation
  - **Low:** Novel, unusual references; abstraction
- Mental Models
  - **High:** Simple, clear articulation; limited choices; binary logic
  - **Low:** Tolerance for ambiguousness, complexity; fuzzy logic
- Navigation
  - **High:** Limited options; simple, limited controls
  - **Low:** Multiple options; varying, complex controls

Culture vs. UI: Uncertainty Avoidance, 2/2

- Interaction
  - **High:**Precise, complete, detailed input and feedback of status
  - **Low:** General, limited, or ambiguous input and feedback of status
- Appearance
  - **High:** Simple, clear, consistent imagery, terminology, sounds; highly redundant coding
  - **Low:** Varied, ambiguous, less consistent imagery, terminology, sounds

Culture vs. UI : Power Distance

- Metaphors
  - **High:** Institutions, buildings with clear hierarchy: schools, government, monuments, *etc.*
  - **Low:** Institutions, buildings with equality, options: Summerhill, playgames, public spaces, *etc.*
- Mental Models
  - **High:** Reference data with no relevancy ranking
  - **Low:** Less structured data with relevancy
- Navigation
  - **High:** Restricted access, choices; authentication; passwords
  - **Low:** Open access, multiple options, sharable paths

Culture vs. UI: Long-Term Orientation, 1/2

- Metaphors
  - **Long:** Stable family, Father: Mafia,Chinese state businesses, IBM in 1950s
  - **Short:** Interchangeable roles, jobs, objects
- Mental Models
  - **Long:** Love/devotion; social coherence, responsibility, support
  - **Short:**Liberty: socialincoherence, social irresponsibility, efficiency
- Navigation
  - **Long:** Tolerance for long paths, ambiguity; contemplation-oriented
  - **Short:** Bread-crumb trails, taxonomies; quick-results; action-oriented

Culture vs. UI: Long-Term Orientation, 2/2

- Interaction
  - **Long:** Preference for face-to-face communication, harmony; personalized messages; more links to people; live chats; interactio0n as “asking”
  - **Short:** Distance communication accepted as more efficient; anonymous messages tolerated; conflict tolearated, even encouraged; performance criticalr communication
- Appearance
  - **Long:** Cultural markers: flags, colors, national images; soft focus; warm, fuzzy images; pictures of groups inviting participation, suggestions of initimacy and close social distance
  - **Short:** Minimal and focused images; shart borders, lines, edges; concentaaion on showing task or product

5. Survival in a Multicultural World, 1/2

- Hofstede calls for some cultural relativism: no absolute criteria for low, noble activities
- No human being can escape from using value standards all the time; otherwise, no identity



Survival in a Multicultural World, 2/2

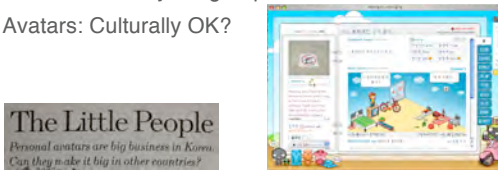
- No need to think, feel, act identically to agree on practical issues and to cooperate
- People with high UA and high PD will be more difficult, slower
- Research shows little evidence for cultural convergence
- Differences among and within countries increasing

UI Issues related to Culture Dimensions: 1/4

- Usability culture-biased? Efficiency, productivity, simplicity, usefulness...for what?
- How to merge theories: culture with utility, sociability, community, entertainment, design?
- How to map UI components to culture dimensions?
- How can developers include cultural theory?
- Interaction: informal vs. formal, harmony vs. honesty, sincerity vs. scheming?
- Online training: Friend/guru? Tradition/skills?

Additional Issues: 2/4

- Conflict: Frequent vs. seldom? Chatroom flaming OK? Clashing opinions OK?
- Content: challenging vs feel-good?
- Rewards: Money vs. group acclaim?
- Avatars: Culturally OK?



Additional Issues: 3/4

- Personal *vs.* group opinions? China: "Personality"?
- Shame *vs.* guilt: Personal Webcams, SMS OK?
- Individual *vs.* collective cultures: role of community, chatroom behavior, hiring sites, coop work sites?
- Management/training? Most for individual,not collective cultures, *e.g.*, honesty and confrontation

[Bangalore Times, 30 Mar 04, p1]

Additional Issues: 4/4

- Work sites: Task vs. personal relation?
- Different men, women sites? Service orientation?
- Role of advertising, hyperbole? Different in masculine vs. feminine cultures?
- Masculine vs feminine differences for job sites: Careers? Interest in subject? Skills vs contacts?
- Culture difference: Activities outside the home?
- Western vs. Eastern: Truth vs. virtue/practical?

List Servers

- ACM/SIGCHI Intercultural listserve:
  chi-intercultural@acm.org
  Moderator: Donald Day,d.day@acm.org
  www.HCIBib.org//SIGCHI/Intercultural
- Non-sponsored intercultural research:
  Cross-L, University of Denver
  Owner: Roberto Evaristo
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6. Conclusion

- Web UI+IV design is immediately global
- Develop specifications per target markets
- Resources of information exist
- Design, evaluate, document variations
- Future development of tools, templates

A Challenge: Bone vs. Bottle

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Cross-Cultural User-Interface Design for Work, Home, and On the Way: Accounting for Cultural Preferences, Acceptance, and Constraints

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Exercise 1: Role Playing of Cultural Dimension

Exercise Format
Each group will focus on interpersonal differences based on cultural origins and the cultural models introduced in the lecture. Groups/individuals will report their experiences.

Dialogue 1

More Study
[Mr. Johnson is from the USA and M. Trudeau is from France]

Mr. Johnson: What do you think of the new plan?
M. Trudeau: Seems OK, but I'm still studying it. I want to be sure.
Mr. Johnson: Still studying it after three weeks? It's not that complicated.
M. Trudeau: There are one or two aspects that might be a problem
Mr. Johnson: Oh, I know that. But we should put it in place and work the bugs out later
M. Trudeau: Seriously?

Dialogue 2

A Pat on the Back
[Ms. Walden is from the United States; Mr. Kaneda and his team are from Japan.]

Mr. Kaneda: Are you satisfied then, Ms. Walden, with the work of the accounting division?
Ms. Walden: Very Much, Their output has improved tremendously.
Mr. Kaneda: They're very proud of their work.
Ms. Walden: As soon as you put Mr.Yamamoto in charge, things began to turn around.
Mr. Kaneda: Yes, the whole team is working very smoothly now.
Ms. Walden: Will you be giving Mr. Yamamoto some kind of recognition then?
Mr. Kaneda: Excuse me?
Ms. Walden: You know. An award or something?
Mr. Kaneda I hardly think so. We wouldn't want to embarrass him after al he has done.

Dialogue 3

The Overdue Claim
[Ms. Harris is from Canada and Miss Chen is from China]

Ms. Harris: I was wondering if my claim has been processed yet.
Miss Chen: No, not just yet.
Ms. Harris: How long will it take?
Miss Chen: No longer than two weeks.
Ms. Harris: But it's been four weeks!
Miss Chen: This is unusual.

Ms. Harris: Maybe it's lost.
Miss Chen: Oh no. It can't be lost.

Dialogue 4 **Performance Evaluation**
[Mr. Coyle is form the United States and Khalil is from the Middle East]

Mr. Coyle: Thanks for coming, Khalil. Let's go over this performance evaluation together, shall we?
Khalil: Whatever you'd like, sir.
Mr. Coyle: As you know, you're quite strong in most areas, There are just a couple of areas where you could be stronger.
Khalil: I see.
Mr. Coyle: One is in writing, which isn't easy for you, is it?
Khalil: No, sir.
Mr. Coyle And the other is in identifying training needs. Some of your staff could use more computer training in particular.
Khalil: Yes.
Mr. Coyle: Anyway, it's all written here. You can read it. Otherwise, no serious problems.
Kahlil: I'm very sorry to disappoint you, sir.

Dialogue 5 **Dr. de Leon**
[Ms. Porter is from the United States and Mr. Domingo is from Mexico]

Ms. Porter: I heard the board has chosen a new CEO.
Mr. Domingo: Yes, they've appointed Dr. Manuel Cabeza de Leon of the de Leon family.
Ms. Porter Who is he?
Mr. Domingo It's an old family with large landholdings in Guadalajara Province.
Ms. Porter: What is his background?
Mr. Domingo: I just told you.
Ms. Porter: I mean does he know anything about the textile industry?
Mr. Domingo: I don't know.
Ms. Porter: Do you think he's a good choice?
Mr. Domingo: Dr. de Leon? I'm sure.

Dialogue 6 **Thumbs Down**
[Jenny is from the United States and Tomoko from Japan]

Jenny: How did the meetings go last night?
Tomoko: It was very a useful discussion.
Jenny: How so?
Tomoko: We all talked. And Mr. Takeda explained his reservations about the proposal
Jenny: Did anyone else agree with him?
Tomoko: No. He was the only one who has some doubts.
Jenny: Then we won the vote.
Tomoko: Oh, there was no vote of course. We postponed it.

Dialogue 7 **A Good Price**
[Ms. Young is from the United States and Mr. Kawabata is from Japan]

Ms. Young: We will charge you $5 per unit if you order 10,000 units.
Mr. Kawabata: That's a good price, Mr. Young.
Ms. Young: So you accept that price?
Mr. Kawabata: It's very good.
Ms. Young: Great! Let's talk about a delivery schedule then.

Dialogue 8 **The Division Chiefs Meet**
[Ms. Thompson is from the United States and Mrs. Thatcher is from the United Kingdom]

Ms. Thompson: Have production figures improved any since our last meeting?
Mrs. Thatcher: No, no improvement since our last division chiefs' meeting, I'm afraid. There's something not quite right.
Ms. Thompson: What do you think is going on?
Mrs. Thatcher: We don't really have the full picture. We need to know more about what's going on the shop floor.
Ms. Thompson: That's what I thought. But now I'm not so sure that is where the problem is.
Mrs. Thatcher: Why do you say that?
Ms. Thompson: I invited several shop managers to come to this meeting today, but they said there is nothing to report.

Dialogue 9 **Small Successes**
[Ms Thomas is from the United States and Mr. Ohmae is from Japan]

Ms Thomas: Well, I understand your company is one of the best architectural firms in Kyoto.
Me Ohmae: Thank you for this invitation.
Ms. Thomas: On the contrary, it's our pleasure. Now it says here you've had a very successful business for almost thirty years.
Mr. Ohmae: We've had some small success, yes. Did you speak to Mr. Mizawa?
Ms Thomas: Yes, I did. He said many of your buildings have won awards.
Mr. Ohmae: A few Perhaps.
Ms. Thomas: And you've had a lot of experience with office buildings.
Mr Ohmae: We have designed a few.
Ms. Thomas: Can you handle a project of this size?
Mr. Ohmae: That's possible.
Ms. Thomas: Do you have some hesitation in taking on this project?
Mr. Ohmae: Hesitation? Excuse me, but no.

Dialogue 10 **Basics**
[Mr. Holt is from the United States and Miss Li is from Taiwan]

Miss Li: And as we have said, this is all part of the vision of our founder.
Mr. Holt: I see. Well, Tsai International certainly has an interesting history. Perhaps now, if you don't mind, we could talk about how we might be able to do business together.
Miss Loi: You have nothing to add?
Mr. Holt: About us? Not really. As you know, we're a pretty young company, nothing like Tsai.
Miss Li: Well, then, as you say, we can talk about doing business. With your permission, we might begin by describing for you our organizational

structure and how it reflects our company principles. And then perhaps you could do the same.

Mr. Holt: I see. And then we can talk about specific terms?

Miss Li: Terms?

Mr. Holt: You know, some of the basics.

Dialogue1

Explanation: Uncertainty Avoidance

Americans take many risks -- "let the chips fall where they may." Most French people would rather know where the chips are going to fall, how many, and what size. The people who settled the United States -- making a dangerous ocean voyage into a completely unknown future and later moving the frontier across the continent -- could handle uncertainty, and a streak of that attitude has survived in the American character. Americans like to experiment, to try something new, not because they are dissatisfied with what they have, but because they value the new for its own sake. Newer is better or, at least potentially better.

Dialogue 2

Explanation: Individualism and Collectivism

Notice how Ms. Walden zeroes in on Mr. Yamamoto, whereas Mr. Kaneda keeps talking about the team and the group, In Japan, one identifies very strongly with one's group; it is the group that achieves and the group that traditionally has been recognized (or it is the group which fails and is collectively held responsible.) Individuals think of themselves primarily in terms of their group and very much want to be seen as such, cooperating and working in harmony with other members of the team for the good of all. When there is a choice to be made, the needs and wishes of the individual are usually subordinated to those of the group (which, of course, looks after its individual members in return.)

Mr. Yamamoto would be mortified if he were singled out for some kind of recognition. He would not regard what he has done as a personal achievement (which it probably wasn't) and would be very worried about how the members of his team would feel about being overlooked. The solution, of course, is to give recognition to the entire accounting division, being extremely careful not to leave anyone out.

This is not to say there is no spirit of competition in Japan; there is a great deal of often fierce competition between groups. Nor do Japanese people lack individuality, They consider themselves infinitely individual but it is a sign of immaturity to seek to stand out from the group. Children soon learn that self-discipline and concern for the group are critical skills for success in school.

As a result of the collapse of the "bubble economy," some of these attitudes have begun to change. Some companies have introduced individual evaluation, though often that evaluation is based on the individual's ability to cooperate with and support the work group. Changing attitudes to evaluation are also contributing to a generation gap between older and younger employees.

Dialogue 3

Explanation: Face (Confusion Dynamism and Collectivism)
The issue here is what is known as 'face" -- and the need to save it for oneself and for others. Face means the image one presents to the world, including one' s reputation. Naturally on e wants one's image or reputation to be as positive as possible. Face is closely linked to the notion of self-esteem and self-worth, and if at all possible one does not want to lose one's face, especially not in public. However, since people also identify strongly with their groups, one also wants to preserver the face of others. In saving their face, one saves one's own face.

In this example, a potentially embarrassing (or face-losing) thing has happened -- someone has evidently lost a claim form. Ms. Harris, not schooled in the matter of face, is just trying to find out what happened to her form, while causing Miss Chen increasingly exquisite agonies of humiliation. Because she doesn't understand, Ms. Harris misses all three of Miss Chen's hints that this matter is most embarrassing and should be dropped.

The first hint is when Miss Chen says, " No, not just yet." For Miss Chen to disappoint customer like this, it have to admit that a certain service has not been rendered, is humiliation, So much so, in face, that Miss Chen now fully expects the inquiry to stop before any more damage is done.

But it doesn't. Not picking up on Miss Chen's embarrassment, Ms. Harris now asks how long it normally takes to process a claim. Miss Chen, forced to go on. Says, "No longer than two weeks," signaling to Ms. Harris a second time that something has gone wring (Miss Chen knows full well how much time has passed) and that Ms. Harris should stop, But she again misses the hint and says, "But it's been four weeks."

Miss Chen, very upset (but perhaps laughing t cover her embarrassment), now abandons subtlety and admits something is wrong -- "This is unusual" -- convinced that now the interrogation will end. But Ms. Harris now exceeds all bounds and suggests the claim is lost Miss Chen, to save her own face and that of the people she works with, can't possibly admit this of course, So she doesn't. "It can't be lost," she says, capturing the essence of face in this response, She doesn't day it *isn't* lost (which it is), but that it *can't* be lost, for that would mean a loss of face for everyone and is intolerable.

This exchange doesn't not mean that mistakes are overlooked and that no one is ever criticized in Chinese business culture. Instead, such criticism is normally expressed indirectly and in such a way as to avoid public shame, Such indirect communication is very powerful I shaping behaviors in China; unfortunately, it is overlooked by most Western business people who favor direct and unambiguous statements of cause and effect.

Dialogue 4

Explanation: Face (Collectivism/Indirect and Direct Communication)

Throughout much of the Middle East, honor is a central virtue, and shame (the public loss of face) is the ultimate humiliation. Criticism therefore has to be handled with extreme delicacy - avoided whenever possible and, if it cannot be avoided, expressed with the utmost discretion and indirection. Everyone is part of a social group and one's face within the group is an individual's most important possession.

For his part, Mr. Cole is actually quite pleased with Khalil's overall performance, except for one or two areas which he thinks khalil can improve. He tells Khalil about them because he wants Khalil to improve himself. (We will assume Mr. Coyle's motives are entirely positive and intended to support his employee.) But, to Khalil, such a direct statement of his deficiencies can only mean that Mr. Coyle is very disappointed. Khalil naturally assumes that Mr. Coyle is trying to be as sensitive as possible to Khalil's honor. If this is the best Mr. Coyle can do then Khalil must conclude that his performance has been very poor.

How should Mr. Coyle have handled the matter? Mr. Coyle's proportions are off. He should have spent most of the interview praising Khalil lavishly and then mentioned any problems briefly in passing at the end. Even then, Khalil would have been very sensitive to the criticism but, his honor having been preserved, he would have been more receptive to Mr. Coyle's comments.

Failure is something to avoid because it damages the relationships between people -- and relationships are the basis of personal identity and social power.

Dialogue 5

Explanation: Power Distance / Ascription *vs.* Achievement
Ms. Porter assumes the CEO will know something about the textile business, that one's knowledge and expertise - one's experience -- are part of what qualify someone for a job. But that is not the case in many cultures, particularly at the top levels of many companies. What matters is who Dr. de Leon is, not what he knows. In a culture with a strong class system, the most important qualification for an executive position is one's personal background.

Mr. Domingo makes this clear from the very beginning when he mentions Dr. de Leon's distinguished family name. The right name guarantees access to the top of the social structure, and access is power. Dr. de Leon is someone of substance and an excellent representative for the company.

But Ms. Porter, having just been told, now asks: "Who is he?" Mr. Domingo, no doubt taken aback, elaborates about the family to give her more information about Dr. de Leon's value to the company. Once again, Ms. Porter asks the question he has just answered: "But what's his background?" And so on.

In cultures with high power distance, society is highly stratified and the classes cohere strongly together. Thus, people from the top of society often go to a few elite schools, know one another well, and work

effectively together, People farther down the social scale may be uncomfortable when they are expected to cross class lines and interact with social superiors as equals. They are proud of their own skills which are different (often more technical) than those of their managers. They expect their managers to do their part and provide vision and leadership. Such vision and leadership are expected to come naturally to those at the top of the society and don't require a technical background.

Under NAFTA and the maquiladora system, these attitudes are changing but the tendencies remain.

Dialogue 6

Explanation: Collectivism and Confucian Dynamism
Many Asians influenced by Confucianism believe the most important unit is the group, not the individual. In cultures where the group is paramount -- the family, one's classmates, the work group -- harmony becomes an essential value and consensus decision-making is the rule. (The Japanese will tell you that this cultural value is rooted in the traditions of rice cultivation.)

Jenny is from the United States where majority agreement is sufficient for making decisions. She finds it hard to believe that the proposal was not voted on and passed if everyone in the meeting except Mr. Takeda agreed with it. But Tomoko feels that I f MR. Takeda doesn't agree -- and he would have expressed his reservations very quietly and probably before rather that during the meeting -- then passing the proposal would have upset Mr. Takeda and upset the harmony of the group. Damaging group harmony is a much more serious matter than the outcome of any single vote.

The Japanese *ringi* system requires everyone -- at all levels of an organization -- to review and sign off on plans. Criticism is indirect (and often through third parties) but the process identifies most of the problems in a plan. Therefore, the system adds a great deal of time to decision-making but leads to smooth implementation once a decision has been taken.

By contrast, Americans find it hard to identify with consensus decision-making, not only because of their individualism but because it takes so much "extra time." For Americans, time is money. They often forget that, although 51% of the people initially accept the decision, the other 49% do not and have to be encouraged to support it. In the end, the biggest difference between Japanese and American decision-making may be that the Japanese do their consensus building first and Americans do it later. Both processes take about the same time.

Dialogue 7

Explanation: Confucian Dynamism (Collectivism and Indirect Communication)
Ms. Young hasn't learned that the Japanese "yes" can only be appreciated in the context of the Japanese "no" which, for all practical purposes, doesn't exist. No one is to be publicly embarrassed or humiliated in Japan. Because saying no or even implying displeasure or

disappointment risks humiliating the other party, direct negative statements are avoided. Needless to say, in a world where you must never say no, yes gets quite a workout.

Instead of the offensive no, the Japanese have devised a number of ways of not quite saying yes. Among these are: 1) to ask a question; 2) to say they don't understand; 3) to change the subject; 4) to say that they can't answer at this time; 5) to give a conditional yes; 6) to say that the question is very difficult; and 7) to claim that this question is not within their authority to answer. To another Japanese, not saying yes means no.

In the present case, Mr. Kawabata doesn't want to embarrass Ms. Young by refusing her price outright, so he mekes what for him is an exceedingly unenthusiastic response -- "That's a good price." He fully expects Ms. Young to take this for the lukewarm answer that it is. Ms. Young, of course, assumes that a good price is just that. But she does check to make sure -- "So you accept the price?" The answer -- " It's very good" -- is as close to an outright no as Mr. Kawabata dares come but for Ms. Young it is and affirmation.

So how does a Western business person know when the Japanese are just being polite and when they have actually accepted an offer? It is not difficult. If they have accepted and offer, then the conversation shifts naturally to a discussion of the implementation details. Conversely, if they have not accepted the offer and a Westerner tries to discuss such details, the Japanese will come back to the unresolved issue at hand.

Dialogue 8

Explanation: Power Distance
Ms. Thompson has a poorly developed appreciation of rank and status. This is a division chief's meeting in England. People form the shop floor (in this case, floor managers) is not used to being invited to division chief's meetings -- and the division chiefs are not used to seeing them there. Neither is comfortable in the others' presence. It would be quite appropriate and normal for a division chief to consult with a floor manage one-on-one or to meet personally with all the floor managers but not to mix the two groups at the same meeting. In al likelihood, the floor managers do have something to report but are uncomfortable about being invited to this particular meeting. They say they have nothing to report rather then refuse Ms. Thompson's invitation.

The division between rank and file and middle management exists in America too but is not as wide. The chain of command is less sacrosanct and the hierarchy can be bypassed whenever it is more efficient to do so.

Contrast both situations with Germany where society is strongly structured yet egalitarian. Each class has its area of expertise and expects to be recognized for it. The failure of Rover's unionized labour to solve its own production problems led to immense frustration at BMW.

Dialogue 9

Explanation: Collectivism and Confucian Dynamism
Americans see an interview as an exercise in persuasion. If you don't sing your praises of or at least point out your strengths, then you either aren't interested in or qualified for the position or contract. If you don't make your case, how can the interviewer know that you're qualified?

In Japan, an interview is often just a formality -- the occasion to validate a decision that has already been made or to verify that the person selected doesn't have homicidal tendencies! Frequently, you do not get to the interview stage unless it has already been determined -- through third partied -- that you are essentially fit for the job. And when you do get to the interview, protocol (modesty) requires that you understate your qualifications and accomplishments. It is not proper to praise yourself (or to put down the competition.)

In this case, Mr. Ohmae is getting increasingly uncomfortable as Ms. Thomas pressures him to praise himself. By contrast, from her point of view, as Mr. Ohmae resists her openings, she begins to wonder if he wants the job or is capable of it. The most significant part of the dialogue is when Me. Ohmae asks Ms. Thomas if she has talked to Mr. Mizawa. If she has -- and Mizawa-san has done his job properly -- then Ms. Thomas will have been filled in on all of Mr. Ohmae's achievements and capabilities. Therefore, Ms. Thomas's request for an interview should mean she is satisfied from Mr. Mizawa that Mr. Ohmae is completely qualified. To press Mr. Ohmae for further details suggests that Mr. Mizawa did not convince Ms. Thomas and that she is now trying to find out this information on her own.

Dialogue 10

Explanation: Collectivism and Individualism
Miss Li's company is looking for a business partner -- a company with which they will ever into a long-term relationship that will bring many years of profit to both. Because a great deal of time, money, and effort will be committed to this relationship (if it is to work,) the Chinese want to be satisfied about the essential integrity and compatibility of their prospective partner.

What is the history of the company and its corporate philosophy? What was the vision of the people who founded it? What are its guiding principles, its organizational approach, and its key policies? In short, can this relationship last? Depending on the answers to these questions, Miss Li and her colleagues will know the prospects for the solid, enduring, relationship they seek. To the Chinese, these rather abstract issues are the essential foundation for any kind of agreement -- what they would call "the basics."

Naturally, it is a bit unsettling for Miss Li when Mr. Holt doesn't reciprocate with a history of his company (however young it may be) and seems anxious to skip over the important questions and move to minor details. Are they hiding something? Why don't they ask more questions on their own?

But Mr. Holt has something else in mind here. He is looking for short-term profits, not a long-term relationship. From his point of view, the partnership needs to endure only long enough for his company to recoup its investment and make some profit. To this end, the vision of Tsai International is irrelevant. It is not that Mr. Holt is against a long-term relationship; he just sees it as a possible outcome of the immediate short-term opportunity.

Nor are the Chinese uninterested in short-term profit. However, they feel about it much as Mr. Holt feels about a long-term relationship. If it should happen, so much the better, but it is not the immediate objective. While Americans believe in seizing opportunities now; the Chinese believe in creating them.

Практическое задание 1:
Культурные измерения посредством ролевой игры

Формат упражнения
Каждая группа фокусируется на межличностных разногласиях, основанных на культурных происхождениях и моделях, описанных в лекции.
Группы/отдельные участники затем расскажут о своем опыте.

Диалог 1 Детальное изучение
[г-н Джонсон из США и г-н Трюдо из Франции]
Г-н Джонсон: Что вы думаете о новом плане?
Г-н Трюдо: Звучит неплохо, но я все еще изучаю его. Хочу быть уверен.
Г-н Джонсон: Спустя три недели все еще изучаете? Он не настолько сложен.
Г-н Трюдо: Один-два аспекта могут стать проблемой.
Г-н Джонсон: О, я знаю об этом. Тем не менее, мы должны его запустить, а все недочеты устранить позже.
Г-н Трюдо: Серьезно?

Диалог 2 Одобрение
[Г-жа Вальден из США; г-н Канеда и его команда из Японии]
Г-н Канеда: Г-жа Вальден, теперь вы довольны работой бухгалтерского отдела?
Г-жа Вальден: Очень, их производительность чрезвычайно возросла.
Г-н Канеда: Они очень гордятся своей работой.
Г-жа Вальден: Как только вы назначили г-на Ямамото руководителем, дела сдвинулись с мертвой точки.
Г-н Канеда: Да, вся команда теперь работает достаточно гладко.
Г-жа Вальден: В связи с этим вы как-то поощрите г-на Ямамото?
Г-н Канеда: Простите?
Г-жа Вальден: Ну, что-нибудь вроде премии?
Г-н Канеда Я не думаю. Мы не хотели бы смутить его после всего, что он сделал.

Диалог 3 Просроченная претензия
[Г-жа Харрис из Канады и мисс Чен из Китая]
Г-жа Харрис: Я хотела бы узнать, рассмотрена ли моя претензия.
Мисс Чен: Нет, пока не рассмотрена.
Г-жа Харрис: Сколько времени это займет?
Мисс Чен: Не более двух недель.
Г-жа Харрис: Но прошло уже четыре недели!
Мисс Чен: Это странно.
Г-жа Харрис: Может быть она утеряна?
Мисс Чен: О нет, она не может быть утеряна.

Диалог 4 Оценка показателей
[Г-н Койл из США и Халил с Ближнего Востока]
Г-н Койл: Спасибо, что пришли, Халил. Теперь давайте перейдем к оценке ваших показателей, хорошо?
Халил: Как вам будет угодно, сэр.
Г-н Койл: Как известно, вы достаточно уверенно чувствуете себя в большинстве областей. Есть лишь пара вопросов, по которым вы могли улучшить свои показатели.
Халил: Я понимаю.
Г-н Койл: Во-первых, навыки письма, которые вам с трудом даются, не так ли?
Халил: Верно.
Г-н Койл: И второе – определение необходимости обучения. В частности, некоторые ваши сотрудники могли бы больше изучать компьютер.
Халил: Да.
Г-н Койл: Так или иначе, здесь все написано. Вы можете ознакомиться. В остальном, ничего серьезного.
Kahlil: Сожалею, что разочаровал вас, сэр.

Диалог 5 Доктор Де Леон
[Г-жа Портер из США и г-н Доминго из Мексики]

Г-жа Портер: Я слышала, правление выбрало нового исполнительного директора?
Г-н Доминго: Да, они назначили доктора Мануэля Кавеса де Леон из семьи Де Леон.
Г-жа Портер: Кто он?
Г-н Доминго: Он из старейшего рода крупных землевладельцев в провинции Гвадалахара.
Г-жа Портер: Какой у него опыт?
Г-н Доминго: Я только что пояснил.
Г-жа Портер: Я имею ввиду, знает ли он что-либо о текстильной промышленности?
Г-н Доминго: Я не в курсе.
Г-жа Портер: Вы считаете, что это хороший выбор?
Г-н Доминго: Доктор Де Леон? Я уверен в этом.

Диалог 6 Несогласие
[Дженни из США и Томоко из Японии]
Дженни: Как вчера прошли собрания?
Томоко: Состоялась весьма полезная дискуссия.
Дженни: Почему?
Томоко: Мы все высказывались. А г-н Такеда пояснил свои замечания по поводу предложения.
Дженни: Кто-нибудь еще с ним согласился?
Томоко: Нет. Он был единственным сомневающимся.
Дженни: В таком случае мы выиграли голосование.
Томоко: О нет, разумеется, не было никакого голосования. Мы его отложили.

Диалог 7 Хорошая цена
[Г-жа Янг из США и г-н Кавабата из Японии]
Г-жа Янг: Наша цена - $5, если закажете 10 000 штук.
Г-н Кавабата: Это хорошая цена, г-жа Янг.
Г-жа Янг: Так вы ее принимаете?
Г-н Кавабата: Она очень хорошая.
Г-жа Янг: Отлично! В таком случае давайте обсудим график поставок.

Диалог 8 Собрание руководителей отделов
[Г-жа Томпсон из США и г-жа Тэтчер из Великобритании]
Г-жа Томпсон: Улучшились ли производственные показатели с момента нашей последней встречи?
Г-жа Тэтчер: Нет, боюсь, никакого улучшения с момента последнего собрания руководителей отделов не произошло. Что-то идет не так.
Г-жа Томпсон: Что, по вашему мнению, происходит?
Г-жа Тэтчер: У нас нет полной картины. Нам необходимо больше информации о положении дел в цехах.
Г-жа Томпсон: Об этом я и думала. Но теперь я не уверена, что проблема кроется именно там.
Г-жа Тэтчер: Почему вы так считаете?
Г-жа Томпсон: Я пригласила некоторых начальников цехов на сегодняшнее собрание, но они сказали, что им не о чем докладывать.

Диалог 9 Скромные успехи
[Г-жа Томас из США и г-н Омэ из Японии]
Г-жа Томас: И так, насколько я понимаю, ваша архитектурная компания является одной из лучших в Киото.
Г-н Омэ: Благодарю вас за приглашение.
Г-жа Томас: Нам также приятно видеть вас. Здесь сказано, что вы весьма успешно вели дела на протяжении почти тридцати лет.
Г-н Омэ: Да, мы добились определенных скромных успехов. Вы разговаривали с г-ном Мизава?
Г-жа Томас: Да, разговаривала. Он сказал, что многие ваши здания отмечены наградами.
Г-н Омэ: Возможно, некоторые.
Г-жа Томас: И у вас богатый опыт в области строительства офисных зданий.
Mr Ohmae: Мы спроектировали несколько.
Г-жа Томас: Вы справитесь с проектом такого масштаба?
Г-н Омэ: Это возможно.
Г-жа Томас: У вас есть определенные сомнения относительно участия в этом проекте?
Г-н Омэ: Сомнения? Извините, но их нет.

Диалог 10 Основные условия
[Г-н Хольт из США и мисс Ли из Тайваня]
Мисс Ли: И, как мы сказали, все это является частью образа, созданного нашим основателем.
Г-н Хольт: Я понимаю. Что ж, Tsai International, безусловно, обладает впечатляющей историей. Возможно, теперь, если вы не против, мы могли бы обсудить наши возможности по совместному ведению дел.
Мисс Ли: Вам нечего добавить?
Г-н Хольт: О себе? Нет. Как вы знаете, по сравнению с Tsai, мы достаточно молодая компания.
Мисс Ли: Хорошо, в таком случае, мы можем обсудить ведение дел. С вашего позволения, мы хотели бы начать с описания нашей организационной структуры и того, как она отражает принципы нашей компании. А затем вы могли бы рассказать нам о том же.
Г-н Хольт: Ладно. А после этого мы можем перейти к конкретным условиям?
Мисс Ли: Условиям?
Г-н Хольт: Ну, к некоторым из основ.

Пояснение к Диалогу 1: Избегание неопределенности
Американцы часто рискуют – как говорится, «пусть чипсы упадут там, где должны». При этом большинство тех же французов в подобном случае знают, где именно эти чипсы должны упасть, в каком количестве и каких размеров. Однако люди, поселившиеся в Соединенных Штатах, проделав опасный путь в абсолютно непредсказуемое будущее и впоследствии расширив границы обитания по всему континенту, могли смириться с неопределенностью, и эта черта до сих пор присуща американскому характеру. Американцы любят экспериментировать, пробовать что-то новое не из-за неудовлетворенности тем, что имеют, а потому, что ценят это новое за его собственные достоинства. Чем новее – тем лучше, или, по крайней мере, возможно лучше.

Пояснение к Диалогу 2: Индивидуализм и коллективизм
Обратите внимание, как г-жа Вальден сосредоточилась на г-не Ямамото, в то время как г-н Канеда продолжает говорить о команде и группе в целом. В Японии индивидуум очень четко отождествляется со своей группой, которая достигает целей и традиционно получает признание (либо не справляется с задачей и несет коллективную ответственность). Отдельные личности видят себя, в первую очередь, в контексте своей группы и очень хотят, чтобы их так и воспринимали - сотрудничающими и работающими в гармонии с другими членами команды на общее благо. Если стоит выбор, нужды и желания индивидуума, как правило, подчиняются нуждам и желаниям группы (которая со своей стороны, безусловно, заботится о собственных конкретных участниках).
Г-н Ямамото был бы оскорблен, если бы удостоился какого-либо персонального признания. Он не стал бы считать то, что он сделал, собственным достижением (что, скорее всего, соответствовало действительности) и обеспокоился бы чувствами остальных членов команды, оставшихся незамеченными. Верным решением, конечно же, станет признание заслуг всего бухгалтерского отдела при внимательном отношении к каждому его сотруднику.
Это не говорит о том, что в Японии отсутствует дух соревнования – зачастую имеют место случаи жесткого соперничества между группами. Также японцам не чужды черты индивидуальности характера. Они считают себя безгранично индивидуальными, но это лишь признак незрелости попыток выделиться из группы. Дети усваивают тот факт, что самодисциплина и забота о своей команде являются ключевыми навыками для достижения успеха в школе.
В результате коллапса «экономики мыльного пузыря» некоторые из этих подходов начали меняться. Отдельные компании ввели методику индивидуальной оценки, хотя, как правило, эта оценка основана на способности индивидуума к сотрудничеству и поддержке рабочей группы. Принятие оценочного подхода также способствует развитию конфликта поколений между старшими и младшими сотрудниками.

Пояснение к Диалогу 3: Лицо (Динамизм стеснения и коллективизм)
Здесь речь идет о таком понятии, как «лицо», и о необходимости его сохранения перед собой и остальными. Лицо подразумевает образ, который каждый представляет собой в окружающем мире, включая также собственную репутацию. Естественно, человек стремится к тому, чтобы его образ или репутация оставались максимально положительными. Понятие лица тесно связано с самоуважением и самооценкой, и каждый стремится сделать все возможное, чтобы не потерять свое лицо, особенно на публике. Однако, поскольку люди также отождествляют себя со своими группами, им хочется сохранить лица остальных, таким образом, сохраняя и свое собственное. В данном примере имеет место потенциально стеснительный (ведущий к потере лица) случай – кто-то, очевидно, потерял бланк претензии. Г-жа Харрис, не задумываясь о смущении, пытается выяснить, что же произошло с ее

документом, тем самым вызывая у мисс Чен острые приступы унижения. При этом г-жа Харрис просто игнорирует все три намека мисс Чен о том, что данная проблема ставит ее в очень неловкое положение и посему должна быть отложена.
Первым намеком мисс Чен стали слова «нет, еще не рассмотрена». Для нее расстроить клиента тем фактом, что определенная услуга не была предоставлена, является унижением. Поэтому мисс Чен надеется, что вопросы на этом и закончатся, пока не наступили более тяжелые последствия.
Но они не заканчиваются. Не обращая внимания на смущение мисс Чен, г-жа Харрис теперь спрашивает о том, как долго обычно рассматривается претензия. Мисс Чен вынуждена продолжить бой и ответить «не более двух недель», тем самым уже второй раз дав понять г-же Харрис, что что-то произошло не так (мисс Чен прекрасно знает, сколько времени прошло), и что ей следует остановиться. Но та вновь игнорирует намек и утверждает, что «прошло уже четыре недели»!
Мисс Чен, будучи очень расстроенной (но, возможно, улыбаясь, дабы скрыть свое смущение) изысканно сдает свои позиции и соглашается с тем, что что-то случилось, сказав «это странно» и надеясь, что уж теперь-то переговоры окончены. Но г-жа Харрис переходит все границы и высказывает опасение в том, что претензия утеряна. Мисс Чен, дабы сохранить свое лицо и лица коллег, не может согласиться с этим – и она не соглашается. «Она не может быть утеряна», говорит китаянка, свидетельствуя своим ответом о затронутой репутации. Она не утверждает, что претензия *не потеряна* (хотя, наверняка потеряна), а говорит о том, что она *не может быть потеряна,* так как в противном случае это будет означать унижение для всех, а потому недопустимо.
Данный диалог не свидетельствует о том, что ошибки остаются невыявленными, и что критика отсутствует в китайской бизнес-культуре. Вместо этого, подобный критицизм выражается в косвенной форме таким образом, чтобы избежать публичного стыда. Такая косвенная коммуникация является мощным инструментом для формирования поведенческих моделей в Китае. К сожалению, ей не придают значения многие западные бизнесмены, предпочитающие прямые и недвусмысленные формулировки причины и следствия.

Пояснение к Диалогу 4: Лицо (Коллективизм/Косвенная и прямая коммуникация)
На большей части Ближнего Востока честь представляет собой главное достоинство, в то время как позор (публичная потеря лица) является самым страшным унижением. В связи с этим критика должна осуществляться с предельной деликатностью, по возможности ее стоит избегать, а если это невозможно – критиковать следует окольными путями с максимальной осторожностью. Каждый человек является членом социальной группы, и собственное лицо в глазах этой группы представляет для него наиважнейшую суть.
Со своей стороны г-н Койл в целом доволен показателями Халила, за исключением пары моментов, над которыми, по его мнению, Халилу стоило бы поработать. И он говорит о них Халилу, поскольку хочет, чтобы тот совершенствовался (допустим, мотивы г-на Койла исключительно благие и направлены на поддержку своего сотрудника). Однако для Халила подобное прямое оглашение его недостатков может означать лишь одно – г-н Койл им разочарован. Естественно, Халил допускает, что г-н Койл старается как можно бережнее отнестись к его чести, в связи с чем он делает следующий вывод: раз это все, что г-н Койл может в данной ситуации сделать, значит дела Халила очень плохи.
Как следовало г-ну Койлу поступить в данной ситуации? Ему стоило хвалить Халила на протяжении всего разговора, лишь вкратце затронув проблему в конце. Даже в этом случае сотрудник отнесется к критике крайне чувствительно, однако его честь останется сохраненной, и комментарии г-на Койла возымеют на него больше действия.
Неудач в общении стоит избегать, поскольку они вредят человеческим отношениям, являющимся основой для самоопределения и социального авторитета.

Пояснение к Диалогу 5: Субординация/ Определение и Достижение
Г-жа Портер считает, что новый исполнительный директор должен знать что-то о текстильном бизнесе, что знания, квалификация и опыт определяют годность человека для той или иной работы. Но это не характерно для многих культур, в особенности в верхних эшелонах управления компаний. Главное - кто такой этот доктор Де Леон, а не что он знает. В культуре с мощной классовой системой самой важной характеристикой для руководящей должности являются личные данные.
Г-н Доминго ясно дает об этом понять с самого начала беседы, когда указывает на принадлежность доктора Де Леона к уважаемой семье. «Правильное» происхождение открывает путь к высшим ступеням социальной лестницы, тем самым обеспечивая доступ к власти. Доктор Де Леон является состоятельным человеком, и поэтому может великолепно представлять компанию.
Но в ответ г-жа Портер спрашивает: «Кто он?». Г-н Доминго, безусловно будучи удивлен, рассказывает ей о семье, дабы у г-жи Портер было больше понимания ценности доктора Де Леона для компании. И

опять она задает вопрос, на который г-н Доминго уже вроде бы ответил: «Какой у него опыт?». И так далее.
В культурах с высокой степенью уважения к авторитетам общество образуется из множества слоев, а представители класса тесно связаны между собой. Так люди из высшего слоя, как правило, посещают отдельные элитные школы, хорошо знают друг друга и продуктивно работают вместе. Представители более низкого класса могут оказаться в неудобном положении, если им придется взаимодействовать с социально возвышенными над ними людьми на равных. Они гордятся своими собственными навыками, выгодно отличающимися (как правило, в техническом направлении) от навыков управляющих. Эти люди ожидают от администрации выполнения собственной определяющей и направляющей роли. Подобная роль считается естественной для высших слоев общества, не требующей особого технического опыта.
В компаниях, работающих в рамках NAFTA и по системе Maquiladora, подобные взгляды меняются, но тенденция все еще остается.

Пояснение к Диалогу 6: Коллективизм и Конфуцианский динамизм
Находясь под влиянием конфуцианства, многие азиаты полагают, что группа является более важной единицей, нежели индивидуум. В культурах, ориентированных на группу – семью, одноклассников, рабочую команду, – гармония представляет собой ключевую ценность, а консенсус при принятии решений носит характер правила. По мнению японцев, эта культурная особенность уходит корнями в традиции сбора риса.
Дженни родом из США, где одобрение большинства является достаточным для принятия решений. Ей тяжело поверить в то, что предложение не было вынесено на голосование и утверждено, тогда как все участники собрания, за исключением г-на Такеда, согласились с ним. Но Томоко уверен в том, что если г-н Такеда не согласился с чем-то, при этом высказав свои замечания в спокойной форме и наверняка до, а не во время собрания, то одобрение данного предложения могло бы расстроить г-на Такеда и нарушить гармонию всей группы. Угроза этой гармонии – гораздо более серьезное дело, нежели итоги любого голосования.
Японская система *ринги* требует от каждого работника (на всех организационных уровнях) изучать и подписывать планы. Критика носит косвенный характер (и, как правило, доводится через третью сторону), но в ее процессе выявляется большинство проблем при планировании. Таки образом, данная система увеличивает время, необходимое для принятия решения, однако гарантирует четкое внедрение на следующем этапе.
В свою очередь, американцам тяжело принимать решения методом консенсуса, не только ввиду их индивидуализма, но и потому, что это потребует массу «дополнительного времени». Для американцев время – деньги. И они часто забывают о том, что при 51% одобривших решение, существует еще 49% несогласных, которых необходимо убедить к его целесообразности. Наконец, самое большое различие между японским и американским методами принятия решений, возможно, заключается в том, что японцы находят консенсус сперва, а американцы – впоследствии. На оба процесса тратится практически одинаковое количество времени.

Пояснение к Диалогу 7: Конфуцианский динамизм (Коллективизм и Косвенная коммуникация)
Г-жа Янг не знала, что японское «да» может восприниматься только лишь в контексте понимания японского «нет», которое, в свою очередь, в утилитарных целях вообще не используется. Никто не должен подвергаться публичному смущению или унижению в Японии. Поскольку слово «нет» или даже намек на неудовольствие или разочарование может повлечь унижение противоположной стороны, прямые негативные утверждения избегаются. Стоит ли говорить о том, что в мире, где вам запрещено говорить «нет», слову «да» приходится работать за двоих. Вместо агрессивного «нет» японцы придумали ряд способов выражать неполное согласие. В том числе: 1) задать вопрос; 2) сказать, что не понимают; 3) сменить тему разговора; 4) сказать, что не могут ответить прямо сейчас; 5) условно согласиться; 6) сослаться на трудность вопроса; и 7) сообщить, что данный вопрос находится вне их компетенции. Для некоторых японцев не сказать «да» уже означает «нет».
В данном случае г-н Кавабата не желает смущать г-жу Янг категорическим несогласием с ее ценой, поэтому он дает, с его точки зрения, весьма сдержанный ответ – «Это хорошая цена». Он ожидает, что г-жа Янг воспримет это исключительно в качестве равнодушного комментария. Разумеется, г-жа Янг считает, что цена действительно хорошая. Но она хочет быть уверена – «Так вы принимаете ее?» Ответ «она очень хорошая» близок к категорическому «нет», что и имеет ввиду г-н Кавабата, но для его собеседницы это является утверждением.
Так как же западному бизнесмену разобраться в том, когда японцы просто демонстрируют вежливость, а когда – действительно принимают предложение? Это не сложно. Если они соглашаются с предложенным, дискуссия плавно переходит к обсуждению деталей реализации. И наоборот, если они не согласны, а их

западные партнеры попытаются перейти к этим деталям, японцы предложат вернуться к неразрешенным вопросам.

Пояснение к Диалогу 8: Субординация

У г-жи Томпсон слабо развита оценка статуса и служебного положения. События происходят на собрании руководителей отделов в Англии. Сотрудники завода (в данном случае начальники цехов) не привыкли к приглашениям на подобные собрания, а руководители, в свою очередь, не привыкли их там видеть. И те, и другие будут испытывать неудобство в присутствии друг друга. Руководителю отдела было бы гораздо более целесообразно и естественно пообщаться с начальником цеха один на один, либо лично встретиться со всеми начальниками, но не смешивать обе группы сотрудников на одной встрече. Вполне возможно, что у руководителей цехов есть о чем сказать, однако они испытывают неудобство от приглашения на такое совещание. Им проще сослаться на отсутствие предмета для доклада, нежели отказаться от приглашения г-жи Томпсон. Разграничение между рядовым персоналом и менеджментом среднего звена также существует в Америке, однако оно не столь распространено. Вертикаль власти не так неприкосновенна, а иерархия может быть нарушена, если в этом есть разумная целесообразность.

В качестве контраста для обоих подходов можно привести пример Германии, где общество четко структурировано, но все еще эгалитарно. Каждый класс обладает опытом в конкретной области и стремится к соответствующему признанию. Так неспособность поддерживаемых профсоюзами рабочих Rover решить собственные производственные проблемы привела к огромному спаду на заводах BMW.

Пояснение к Диалогу 9: Коллективизм и Конфуцианский динамизм

Американцы воспринимают любое интервью как процесс убеждения. Если вы не хвастаетесь или хотя бы не указываете на свои сильные стороны, значит, либо вы не заинтересованы в получении должности или контракта, либо просто для этого не подходите. Если не изложить собственные доводы, как интервьюеру понять, что вы компетентны?

В Японии интервью всегда представляет собой формальность – это лишь способ объявить о решении, которое уже было принято, либо выяснить, не имеет ли выбранный человек суицидальных наклонностей. Как правило, вас не пригласят на интервью до тех пор, пока уже не будет определено – через третью сторону – что вы определенно подходите для данной работы. И когда вы на него попадаете, протокол (скромность) потребует от вас приуменьшения своей компетентности и достижений. Некорректно превозносить себя (или отказываться от конкуренции).

В данном случае г-н Омэ чувствует нарастающий дискомфорт, так как г-жа Томас заставляет его хвалить себя. Поскольку он сопротивляется ее доводам, она в свою очередь не уверена, желает ли г-н Омэ получить этот проект и способен ли он с ним справиться. Самой важной частью диалога является вопрос г-на Омэ о том, общалась ли г-жа Томас с г-ном Мизава. Если это так, и если Мизава-сан все сделал как надо, у нее должно сложиться полное представление обо всем потенциале и достижениях г-на Омэ. Таким образом, приглашение от г-жи Томас на интервью должно свидетельствовать о полной компетентности г-на Омэ. Вынуждать его рассказывать об остальных деталях значит указывать на то, что г-н Мизава не убедил г-жу Томас, и что теперь она пытается выяснить все сама.

Пояснение к Диалогу 10: Коллективизм и индивидуализм

Компания мисс Ли ищет делового партнера, с которым они вступят в долгосрочные отношения для получения взаимной выгоды. Поскольку на строительство этих отношений (если они сложатся) уйдет масса времени, денег и усилий, китайская сторона хочет быть уверена в прямоте и адекватности их возможного партнера.

Какова история компании, какова ее корпоративная философия? Каковы были задумки людей, которые ее основали? Какие у нее основополагающе принципы, как она организована и какова ее политика? В двух словах, могу ли продолжиться эти отношения? В зависимости от ответов на эти вопросы, мисс Ли и ее коллегам станут понятны перспективы целенаправленного и устойчивого сотрудничества, которое они ищут. У китайцев подобные пространные понятия являются ключевыми для любого соглашения – то, что они бы назвали «основами».

Естественно мисс Ли слегка встревожена тем, что г-н Хольт в свою очередь не рассказывает об истории собственной компании (не важно, насколько она молода) и беспокоится по поводу перехода от более важных проблем к мелким деталям. Они что-то скрывают? Почему они сами не задают вопросов?

Но у г-на Хольта свои мысли на этот счет. Он находится в поисках быстрой прибыли, а не долгосрочных отношений. С его точки зрения, для его компании это партнерство должно продлиться лишь столько времени, сколько потребуется для возврата инвестиций и получения определенного дохода. В данном случае видение отношений со стороны Tsai International не существенно. Не то, чтобы г-н Хольт был

против долгосрочных отношений, просто он воспринимает их как возможное развитие краткосрочной перспективы.
Китайцы также не против быстрой прибыли. Однако, у них к этому отношение то же, что и у г-на Хольта к длительному сотрудничеству. Если так случится – замечательно, но это не первоочередная цель. В то время как американцы стараются воспользоваться возможностями сразу, китайцы предпочитают эти возможности создавать.

How to Work with Cultural Models: Examples from China and Germany

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Overview

- Mobile phone study: Objects and methods
- Assumptions about cultural models in Germany and China
- Empirical results
- Lessons learned

Cultural Models: An Overview

- Geert Hofstede:
  - Individualism/ Collectivism
  - Power Distance
  - Uncertainty Avoidance
  - Masculinity/Femininity
  - Confucian Dimension *
- David A. Victor:
  - Language
  - Environment and Technology
  - Social Organization
  - Contextualizing
  - Authority Conception
  - Nonverbal Behavior
  - Temporal Conception

Cultural Models: An Overview

- Edward Hall:
  - High Context/ Low Context
  - Fast Message/ Slow Message
  - Monochronic/ Polychronic
  - Sense of Space
- Fons Trompenaars:
  - Universalism/ Particularism
  - Individualism/ Collectivism
  - Neutral/ Emotional
  - Specific/ Diffuse
  - Achievement/ Ascription
  - Attitudes to time
  - Attitudes to the environment

Practical Examples: The Use of Mobile Phones in Germany (Munich) and China (Shanghai), 1/2

Practical Examples: The Use of Mobile Phones in Germany (Munich) and China (Shanghai), 2/2

- Objectives
  - Finding out more about the way, people use a mobile phone in different cultures
  - Finding out, how people learn to use a mobile phone
- Methods
  - Focus Groups (4 groups with 5-7 persons in each country)
  - Usability Testing (12 test persons in each country)

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Assumptions about cultural models in Germany and China

- Objective of learning
- Traditions of learning
- Information gathering strategies
- Learning material

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Objective of Learning

China: Pragmatism

"Master only the directly useful features. Improve learning time/ efficiency ratio"

Germany: Idealism

"Master all relevant or maybe relevant features. Enlarge possibilities of usage"

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Traditions of Learning

China: Rote Learning

"Knowing by heart"

"Learning by imitating"

Germany: Understanding

"Knowing the principles"

"Learning by exploring"

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Information Gathering Strategies

China: Collectivism

"Gather information by a network of relationships"

Germany: Individualism

"Gather information by formal information source (books, timetables, etc.)"

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Learning Material

China: Pictorial Orientation

"Pictures are important, because Chinese is a pictorial language"

Germany: Text Orientation

"Trust in the written word"

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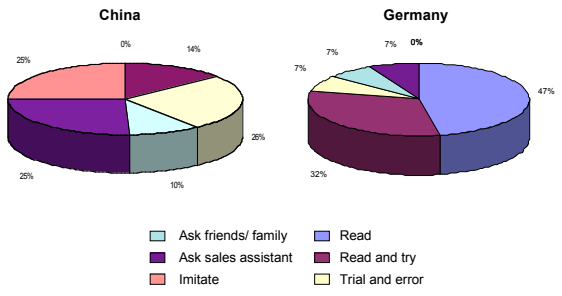
Empirical Results



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Objective of Learning

China: Pragmatism	Germany: Idealism
"Master only the directly useful features. Improve learning time/ efficiency ratio"	"Master all relevant or maybe relevant features. Enlarge possibilities of usage"

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Traditions of Learning

China: Rote Learning	Germany: Understanding
~~"Knowing by heart"~~	"Knowing the principles"
"Learning by imitating"	"Learning by exploring"

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Information Gathering Strategies

China: Collectivism	Germany: Individualism
"Gather information by a network of relationships..."	"Gather information by formal information source (books, timetables, etc.)"
But think of face saving!!	

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Learning Material

China: Pictorial Orientation	Germany: Text Orientation
"Pictures are important, because Chinese is a pictorial language"	"Trust in the written word"
Pictures are necessary to create context	

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Suggestions for Informing Strategies

Improve sales material and training for sales persons. Animated instructions on CD-ROM are well accepted. Online Help must be available, because it often substitutes for user manuals	"Traditional" user manual is still the main information source.

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Suggestions for Informing Strategies

Start with "Step by Step" information about basic functions. Stress pictorial information about procedures. Size of characters should correlated with importance of information.	Start with a clear overview of all possible functions Stress pictorial information which gives an overview Provide a detailed index.

Lessons Learned

- Cultural models help to focus on potentially culturally different user habits and requirements
- Cultural models must be made more concrete regarding the questions one wants to answer
- Cultural models are very context sensitive

The influence of cultural models on user requirements must be "tested" empirically!

How to Work with Cultural Models: Examples from China and Germany

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[Honold, Pia (1999). "Learning How to Use a Cellular Phone: Comparison Between German and Chinese Users," *Jour.* STC, Vol. 46, No. 2, May 1999, pp. 196-205]

User-Interface Design vs. Culture in Corporate Web Design

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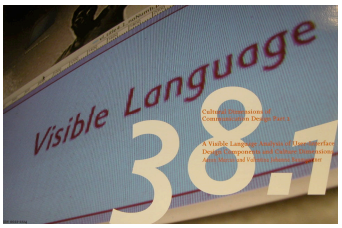
Based on IWIPS 2004 presentation and case study published in *Visible Language* 2004

Presentation Summary

- 1. Introduction
- 2. Method
- 3. Analysis of culture dimensions and UI components
- 4. Visual syntax patterns
- 5. Conclusion



1. Introduction

- User-interface (UI) design for Websites develops cultural artifacts
- Goal of this research: Analyze Websites to understand to what extent corporate designs seem to exhibit differences that relate to cultural differences, even if *complying with corporate standards*!
- Supports AM+A's published Web UI analyses that apply Hofstede's culture dimensions to the field of UI design

User-Interface Components, 1/2

- **Metaphors:** Easy recognition and retention of fundamental concepts via terms, images, sounds, etc.
- **Mental Models:** Appropriate organization and representation of data, functions, tasks, roles, and people in organizations of work or play.
- **Navigation:** Efficient movement within mental models via menus, dialogue boxes, and control panels, etc.

User-Interface Components, 2/2

- **Interaction:** Effective input/output sequencing, including feedback; overall behavior of human-computer and human-human systems.
- **Appearance:** How the product/service appears to the senses (visual, acoustic, tactile, etc), especially related to visual identity and/or branding objectives.

Hofstede's 5 Dimensions of Culture, 1/2

- **Power-distance** (PD)
  - Focuses on the degree of equality, or inequality, among people in the country's society
- **Collectivism vs. individualism** (IDV)
  - Focuses on the degree the society reinforces individual or collective, achievement and interpersonal relationships
- **Femininity vs. masculinity** (MAS)
  - Focuses on the degree the society reinforces, or does not reinforce, the traditional masculine work role model of male achievement, control, and power (vs. feminine cultures in which the roles are more closely related)

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Hofstede's 5 Dimensions of Culture, 2/2

- **Uncertainty avoidance** (UA)
  - Extent to which the members of a culture feel threatened by uncertain or unknown situations
- **Long- vs. short-term orientation** (LTO)
  - Focuses on the degree the society embraces, or does not embrace, long-term devotion to traditional, forward thinking values (strongly related to Confucian societies).

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2. Method

- Combining the scheme of Hofstede's cultural dimensions and the scheme of design components in a five-by-five matrix

	PD	IDV	MAS	UA	LTO
Metaphor					
Mental Model					
Navigation					
Interaction					
Appearance					

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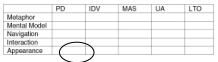
Cross-Cultural Matrix



		Hofstede Culture Dimension: Power Distance (PD)	
		Low PD	**High PD**
User-Interface Component: Appearance	**Appearance**	Images of people, groups; daily activities; popular music, symbols, typefaces, layouts, colors; informal speech	Images of leaders; national/corporate/government themes, slogans, insignia, logos, symbols, typefaces, layouts, colors; official music, anthems; formal speech

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Websites Analyzed

- Objective was to be as inclusive as possible
- "Mature" company Websites with parallel content in multiple countries
- Consumer and business-to-business (B2B) sites

	US	EU	Asia
Business	Sapient (S)	Siemens (SIE)	Hitachi (HIT)
	Peoplesoft (PEO)	SAP (SAP)	
Consumer	McDonalds (McD)	IKEA (IKE)	Sony (SON)
	Coca Cola (COC)	Mercedes (MER)	Mazda (MAZ)

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Key Findings

- Website examples studied
- Note: Not all cells are filled

	PD	IDV	MAS	UA	LTO
Metaphors	SIE HIT	SIE McD	McD	S SIE SAP IKE MER	
Mental Model	HIT	S SIE PEO MER	SIE	SIE	SIE
Navigation	S		SIE	SIE McD	
Interaction	COC		SIE McD MER		HIT
Appearance	SIE PEO		McD COC MER	SIE McD	SIE

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3. Analysis of Culture Dimensions and UI Components

- Examples discuss Hofstede's culture dimensions and within them user-interface components

Power Distance: Metaphors

- **Low:** Informal, or popular institutions, buildings, and objects, that emphasize equality, options

  Examples: Summerhill, play/games, public spaces, *etc.*
- **High:** Government or corporate institutions and buildings; objects with clear hierarchies

  Examples: the human body, schools, government, monuments, *etc.*

Power Distance: Metaphors

- **Siemens Website:** Personal images vs. official buildings
- Netherlands (PD 38) Malaysia (PD 104)

Metaphor for "Home": the face / eyes of a person

Metaphor for "Home": an official building

Power Distance: Mental Model

- **Low:** Simple, informally organized and categorized structures; less structured data with some or much relevancy
- **High:** Complex, highly organized, highly categorized, highly populated structures, e.g., large corporate and/or government organizational models or charts; reference data with little or no relevancy ranking

Power Distance: Mental Model

- **Hitachi Website:** Amount of categorization
- Canada (PD 39) Singapore (PD 47)

Simple, informally organized and categorized structures

Highly categorized

Power Distance: Navigation

- **Low:** Open access, multiple options, sharable paths
- **High:** Restricted access, choices; authentication; passwords; prescribed routes

Power Distance: Navigation

- **Sapient Website:** amount of options provided
- Germany (PD 35) India (PD 77)

How do I apply for a position at Sapient?Send your complete application with CV, picture and job reference to our hiring team in Düsseldorf or Munich. Furthermore you have the possibility to apply via email. Fill out the online form or send your own digital application to: Karriere@sapient.com. It does no matter, how you apply, we try hard for a quick handling and you will hear from us soon.

Open access, multiple options

How do I apply for a position at Sapient?Register now to set up your profile and apply for jobs right away, or search jobs now.

Restricted access and choices, prescribed routes

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Power Distance: Interaction

- **Low:** Supportive error messages, cue cards; many user-driven options available
- **High:** Severe error messages: "Entry Forbidden," "You are wrong;" wizards or guides lead usage

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Power Distance: Interaction

- **Coca Cola Website:** Feedback language
- Denmark (PD 18) Malaysia (PD 104)

Supportive error messages

Severe error messages

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Power Distance: Interaction

- Denmark (PD 18)

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Power Distance: Interaction

- Malaysia (PD 104)

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Power Distance: Appearance

- **Low:** Images of people, groups; daily activities; popular music, symbols, typefaces, layouts, colors; informal speech
- **High:** Images of leaders; national/corporate/government themes, slogans, insignia, logos, symbols, typefaces, layouts, colors; official music, anthems; formal speech

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Power Distance: Appearance

- **Siemens Website:** People vs. leaders
- Italy (PD 50) Singapore (PD 74)

Images of people

Images of leaders, official Websites

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Collectivism vs. Individualism: Metaphors

- **Low:** Relationship-oriented, content-oriented
- **High:** Action-oriented, tool-oriented

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Collectivism vs. Individualism: Metaphors

- **McDonalds Website:** Focusing on groups vs. focusing on individuals
- Brazil (IDV 38)

Images of groups in organizations that visualize the section "McDonalds in Brazil"

United States (IDV 91)

Images of a single person to visualize the "Corporate" section of McDonalds USA.

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Collectivism vs. Individualism: Metaphors

- Brazil (IDV 38)

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Collectivism vs. Individualism: Metaphors

- United States (IDV 91)

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 29

Collectivism vs. Individualism: Mental Model

- **Low:** Role-oriented
- **High:** Product- or task-oriented

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 30

Collectivism vs. Individualism: Mental Model

- **PeopleSoft Website:** Personal achievement
- Singapore (IDV 20)

About Peoplesoft: (1st paragraph of page)Established in 1987, PeopleSoft is the world's leading provider of application software for the real-time enterprise. More than 4,800 organisations in 140 countries use PeopleSoft pure Internet software to reduce costs and increase productivity by directly connecting customers, suppliers, partners and employees to business processes on-line, in real time. PeopleSoft's integrated, best-in-class applications include Customer Relationship Management, Supply Chain Management, Human Capital Management and Financial Management.

Personal achievement is underplayed

Germany (IDV 67)

PeopleSoft GmbH was founded in 1995. The headquarter is located in Munich. CEO is Stefan Höchbauer.

Direction

(Translated)

Personal achievement is maximized

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 34

Femininity vs. Masculinity: Metaphors

- **Low:** Shopping carts; family-oriented, people-oriented
- **High:** Sports-oriented; competition-oriented; work-oriented

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 35

Femininity vs. Masculinity: Metaphors

- **McDonalds Website:** Family vs. competition
- Finland (MAS 26)

Family oriented: On the start screen of the Finish Website one can find more emphasis on products, shopping and family related imagery.

Austria (MAS 79)

Competition oriented: The Austria McDonalds Website offers right at the start screen a competitive game.

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 36

Femininity vs. Masculinity: Mental Models

- **Low:** Social structures; detailed views; relationship-oriented
- **High:** Work/business structures; high-level, "executive views;" goal-oriented

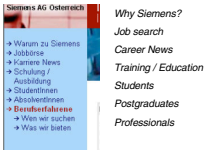
AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 37

Femininity vs. Masculinity: Mental Model

- **Siemens Website:** Social orientation vs. personal goals
- Norway (MAS 8)

Social structures: relationship oriented

Austria (MAS 79)



Work / business structures: goal oriented

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 38

Femininity vs. Masculinity: Navigation

- **Low:** Multiple choices; multi-tasking, synchronic
- **High:** Limited choices, sequential

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 39

Femininity vs. Masculinity: Navigation

- **Siemens Website:** Amount of choices offered
- Sweden (MAS 5)

Multiple choices: Many possibilities

Japan (MAS 95)

Limited choices: only one possibility, to write an email.

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 40

Femininity vs. Masculinity: Interaction

- **Low:** Practical, function-oriented; co-operation-oriented; team oriented
- **High:** Competitive-game-oriented; mastery-oriented; individual-oriented

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 41

Femininity vs. Masculinity: Interaction

- **McDonalds Website:** Practice-oriented vs. game-oriented
- Sweden (MAS 5)

Practical, function-oriented: Client service section much more prominent then gaming section, direct contact possible.

Austria (MAS 79)

Game-oriented, technical content: Fun section that offers wall paper, extras and screen savers. No client service section.

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 42

Femininity vs. Masculinity: Appearance

- **Low:** "Feminine" colors, shapes, sounds; acceptance of cuteness
- **High:** "Masculine" colors, shapes, sounds

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 43

Femininity vs. Masculinity: Appearance

- **Mercedes Benz Website:** Use of "soft" design
- Sweden (MAS 5)

Softer edges and shapes

Germany (MAS 66)

Clear structure, no cuteness

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 44

Uncertainty Avoidance: Metaphors

- **Low :** Novel, unusual references; abstraction
- **High:** "Familiar, stable, clear references to daily life; representation

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 45

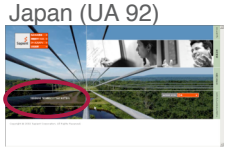
Uncertainty Avoidance: Metaphors

- **Sapient Website:** Abstraction vs. clear reference to daily life
- United Kingdom (UA 35)

Tagline: MAKING TECHNOLOGY MATTER

Abstraction

Japan (UA 92)



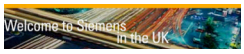
Tagline: DESIGNING TECHNOLOGY HUMANS CAN USE

Clear reference to daily life

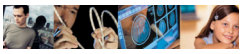
AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 46

Uncertainty Avoidance: Metaphors

- **Siemens Website:** Abstraction vs. representation
- United Kingdom (UA 35) Belgium (UA 94)



Novel, unusual references, abstractions



Familiar, clear references to daily life, representations

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 47

Uncertainty Avoidance: Mental Models

- **Low :** Tolerance for ambiguousness, implicit structures or relations, complexity; fuzzy logic
- **High:** Simple, explicit, clear articulation; limited choices; binary logic

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 48

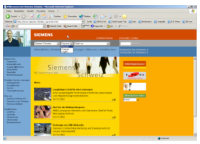
Uncertainty Avoidance: Navigation

- **Low :** Tolerance for ambiguous, possibly redundant options; tolerance for risk, gambling; tolerance for simple controls, e.g., simple searches on the Web, or www.Google.com's "I Feel Lucky" button.
- **High:** Desire for limited, clear organized options; tolerance for complex, fine tuning controls to "master" or "control" a situation, *e.g.*, advanced searches on the Web, consumer electronics controls.

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 49

Uncertainty Avoidance: Mental Models and Navigation

- **Siemens Website:** Fuzzy logic vs. binary thinking
- Switzerland (UA 58) Belgium (UA 94)



Fuzzy logic: User can chose languages but also dive directly into the Website.

Binary logic: User must choose language before entering content.

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 50

Uncertainty Avoidance: Interaction

- **Low :** General, limited, or ambiguous input and feedback of status; devices that may have gross tuning.
- **High:** Precise, complete, detailed input and feedback of status; devices that permit fine-tuning.

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 51

Uncertainty Avoidance: Appearance

- **Low :** More varied, ambiguous, less-consistent imagery, terminology, sounds; tolerance for more perceptual characteristics involved in purely ornamental or aesthetic use; less redundant coding of perceptual cues.
- **High:** Simple, clear, consistent imagery, terminology, sounds; highly redundant coding of perceptual cues.

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 52

Uncertainty Avoidance: Appearance

- **Siemens Website:** Variety vs. consistency
- United Kingdom (UA 35) Belgium (UA 94)

Ambiguous, varied imagery

Simple, clear, consistent imagery

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 54

Long- vs. Short-term Orientation: Mental Models

- **Low :** Liberty: social incoherence, social irresponsibility, efficiency
- **High:** Love/devotion; social coherence, responsibility, support

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 55

Long- vs. Short-term Orientation: Mental Models

- **Siemens Website:** Variety vs. consistency
- Pakistan (LTO 0) China (LTO 118)

Siemens Pakistan Engineering Co. Ltd., with headquarters in Karachi and two regional branches in Lahore and Islamabad, is one of the largest international companies in Pakistan.

Siemens co-operation with China began in 1872.

Emphasis on size

Emphasis on history

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 57

Long- vs. Short-term Orientation: Interaction

- **Low :** Distance communication accepted as more efficient; anonymous messages tolerated; conflict tolerated, even encouraged; performance-critical communication
- **High:** Preference for face-to-face communication, harmony; personalized messages; more links to people; live chats; interaction as “asking”

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 58

Long- vs. Short-term Orientation: Interaction

- **Hitachi Website:** Use of communication methods
- US (LTO 29) Singapore (LTO 48)

No personal info, non-electronic information; just Web form mail contact

Personal info, non- electronic communication information on top

Distance communication accepted as more efficient

Preference for face-to-face communication

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 59

Long- vs. Short-term Orientation: Appearance

- **Low :** Minimal and focused images; short borders, lines, edges; concentration on showing task or product
- **High:** Cultural markers: flags, colors, national images; soft focus; warm, fuzzy images; pictures of groups inviting participation, suggestions of intimacy and close social distance

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 60

Long- vs. Short-term Orientation: Appearance

- **Siemens Website:** Task-oriented vs. group-oriented
- Pakistan (LTO 0)

Concentration on showing tasks or products

China (LTO 118)

Warm, fuzzy images, pictures of groups

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 61

4. Visual Syntax Patterns

- Broader research on patterns of visual syntax
- Images found on home pages of Websites of Siemens and PeopleSoft
- Comparison

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 62

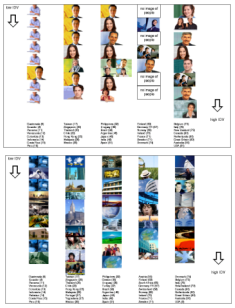
Power Distance

- Patterns found
  - All countries not putting a picture on the front page have low PD value.
  - The eight countries with the highest PD value show a picture of a male person.

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 63

Collectivism vs. Individualism

- Patterns found
  - The "individualism" of the pictures at the PeopleSoft Website increases with the amount of IDV value
  - The arrangement of the pictures of the low IDV countries is very symmetrical.
  - Among the 15 lowest rated countries regarding IDV, there are no people shown on the Siemens localized Website imagery, but one can find images of people in those countries that have a higher ID.



AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 64

5. Conclusion

- Matrix-oriented method helps to organize and analyze data collection
- Research method seems useful and productive
- Cultural habits run deeply and operate even under constraints of corporate global Web design specifications
- Designer must account for context *and* culture
- Patterns may influence cultures and design conventions: continuous process of change

AM+A Aaron Marcus and Associates, Inc., www.AMandA.com, 65

Culturebase

- One likely result of such research: "Culturebase" with specific conditions and predictable results that would inform a content management system (CMS)
- More data is needed
- Further research could produce quantitative and qualitative results that may feed culture-localization templates and tools

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User-Interface Design vs. Culture in Corporate Web Design

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Exercise 2:
Analysis of Cultural Dimensions *vs.* User-Interface Design Components

Exercise Format

Participants will divide into groups to explore possible design implications of each of Hofstede's five culture dimensions on one of five user-interface components. Consider ways culture might affect the component, *e.g.*, a training user interface for a highly individualist culture might emphasize competition and present information using the metaphors of a game. Be prepared to present your ideas to the tutorial participants.

	Metaphor	Mental Model	Navigation	Interaction	Appearance
Power Distance					
Individualism/ Collectivism					
Masculinity/ Femininity					
Uncertainty Avoidance					
Confucian Dynamism					

User Interface Design Components

Demographics, experience, education, and roles in organizations of work or leisure can define users. Individual needs as well as group roles can define a user's tasks. A user-centered, task-oriented design method accounts for these aspects in effective user-interface design. User interfaces conceptually consist of metaphors, mental models, navigation, appearance, and interaction, For simplicity, clarity and consistency with the reader's interpretation, these terms are defined as follow: [Marcus, 1992; Marcus, 1995; Marcus, 1997; Marcus, 1998]:

Metaphors

Essential concepts conveyed through words and images, or through acoustic or tactile means. Metaphors concern both over-arching concepts as well as individual items, like the "trashcan" standing for "deletion" within the "desktop" metaphor.

Mental Models

Organization of data, functions, tasks, roles, and people in groups at work or play. The term, similar to, but distinct from cognitive models, task models, user models, *etc.*, is intended to convey the organization observed in the user interface itself, which is presumably learned and understood by users and which reflects the content to be conveyed as well as users' tasks.

Navigation

Movement through mental models afforded by windows, menus, dialogue areas, control panels, etc. The term implies process, as opposed to structure, *i.e.*, sequences of content potentially accessed by users, as opposed to the static structure of that content.

Appearance

Verbal, visual, acoustic, and tactile perceptual characteristics of the displays. The term implies all aspects of visual, acoustic, and haptic languages, *e.g.*, typography or color; musical timbre or cultural accent within a spoken language; and surface texture or resistance to force. For the purposes of this exercise, one group may consider textual appearance and style; a second may look at graphic, acoustic, and haptic appearance and style.

Interaction

The means by which users input changes to the system and the feedback supplied by the system. The term implies all aspects of command- control devices, *e.g.*, keyboards, mice, joysticks, microphones, as well as sensory feedback, *e.g.*, changes of state of virtual graphical buttons, auditory displays, and tactile surfaces.

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Упражнение 2:
Анализ культурных измерений применительно к компонентам дизайна пользовательского интерфейса

Формат упражнения
Участники делятся на группы для исследования возможностей реализации каждого из пяти культурных измерений Хофстеда в дизайне одного из пяти компонентов пользовательского интерфейса. Обратите внимание на то, как культурные характеристики могут повлиять на компонент. Например, интерфейс обучающих программ для культуры с яркими индивидуалистическими чертами может акцентироваться на соперничестве и преподносить информацию с помощью метафор игры. Будьте готовы поделиться своими мыслями с участниками встречи.

	Метафора	Ментальная модель	Навигация	Взаимодействие	Внешние параметры
Субординация					
Индивидуализм/ Коллективизм					
Мужественность/ Женственность					
Неопределенность Избегание					
Конфуцианский Динамизм					

Компоненты дизайна пользовательского интерфейса
Демографические показатели, опыт, образование и роли, отводимые в работе и на отдыхе, позволят определить целевых пользователей. Индивидуальные потребности, также как и групповые роли, могут сформулировать задачи пользователя. Ориентированная на потребителя и выполнение задач методика благодаря этим аспектам обеспечивает создание эффективного пользовательского интерфейса. Концептуально он состоит из метафор, ментальных моделей, навигации, внешних параметров и взаимодействия. Для прозрачности, последовательности и простоты восприятия читателем, этим терминам даются следующие формулировки [Маркус, 1992; Маркус, 1995; Маркус, 1997; Маркус, 1998]:

Метафоры Основные понятия, передаваемые с помощью слов и образов, либо акустическими или тактильными средствами. Метафоры могут быть как всеобъемлющими, так и индивидуальными понятиями: например, слово «корзина», обозначающее «удаление» в контексте метафоры «десктоп».

Ментальные модели Организация данных, функций, задач, ролей и людей в группы на рабочем месте или на отдыхе. Находясь в одном ряду с когнитивными, целевыми, пользовательскими, и т.д. моделями, при этом являясь самостоятельным понятием, данная модель выражает организацию внутри самого пользовательского интерфейса, которая предположительно познается и понимается пользователями, и которая отображает содержание и пользовательские задачи.

Навигация Перемещение между метальными моделями посредством окон, меню, панелей инструментов, диалоговых окон, и т. д. Термин предполагает процесс (в противовес структуре), *т. е.* пользователи имеют потенциальный доступ к последовательностям, а не статической структуре контента.

Внешние параметры Вербальные, визуальные, акустические и тактильные характеристики данных.

Термин подразумевает все аспекты визуальных, акустических и тактильных языков, например, оформление или цвет, музыкальный тембр или акцент в разговорном языке, текстура поверхности или противодействие силе. Для выполнения данного упражнения одна группа может рассмотреть текстуальные признаки и стиль, а вторая - сконцентрироваться на графических, акустических и тактильных характеристиках.

Взаимодействие Средства ввода пользователями изменений в систему и обратной связи самой системы. Термин охватывает все виды устройств командного управления, например клавиатуры, мыши, джойстики, микрофоны, а также тактильные реакции, как-то изменение состояния виртуальных графических кнопок, звуковых дисплеев и сенсорных поверхностей.

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A Practical Culture Dimensions Set for Global UI Development

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Introduction, 1/3

- Different countries/cultures use UIs differently
- Differences: Metaphors, mental models, navigation, interaction, and appearance
- Graphics, layouts, behavior patterns change to provide optimum user experience.
- Current content management systems (CMS) not able to handle most culture aspects of content
- International usability engineering is challenging and often avoided

Introduction, 2/3

- To support development of culture-sensitive CMS, desirable to identify most important dimensions of culture for UI development
- This study of optimum culture dimensions based on Marcus study of Hofstede's cultural dimensions and applying them to the field of UI design [Marcus and Gould]
- This research goes further: seeks to find optimum dimensions for culture-oriented evaluation of UIs

Introduction, 3/3

- Baumgartner surveyed experts to obtain their opinions of best dimensions
- Experts asked to rank dimensions according to their perceptions of importance
- Baumgartner analyzed which dimensions most important for the field of UI design and why they are important.
- Much was controversial; but results are valuable
- Goal: Derive a concrete result that provides a basis for further discussion

Culture Definitions, 1/2

- "the set of shared attitudes, values, goals, and practices …" [Webster, online]
- "…Culture can also be affected by nationality, language, history, and level of technical development." [del Galdo]
- *"Dimensions of culture* are…categories that organize cultural data." [Hoft]
- Idea cultural dimensions originated in cross-cultural communication research … by Hall… Kluckhohn and Strodtbeck in the 1950s." [Gould]

Culture Definitions, 2/2

- Geert Hofstede's highly cited study in 1970s and 80s determined five culture dimensions
  - Survey at IBM that "dealt mainly with the employees' personal *values* related to work situation…"
  - Covered 72 national subsidiaries, 38 occupations, 20 languages, and about 116,000 people. [Hofstede]
- Other anthropologists and communication scientists determined different cultural dimensions

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Basis of Survey by Baumgartner

- Marcus combined scheme of Hofstede's five cultural dimensions and scheme of five UI design components to create a five-by-five matrix that allows for 25 fields of interest
- Previous studies sought to determine which dimensions might be most useful in mapping culture dimensions to UI components
- Survey used authors selected by informal polling of limited number of initial experts regarding primary resources

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11 Authors in 9 Sources used for Survey

- Adler, Nancy J.
- Condon, John C.
- Hall, Edward T.
- Hofstede, Geert
- Kluckhohn, F. R.
- Parsons, Talcott
- Strodtbeck, Fred
- Trompenaars, Fons
- Victor, David A.
- Wright, Quincy
- Yousef, Fathi S.

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Two Categories of Culture Dimensions: Objective, Subjective

- Objective: "easy-to-research cultural differences like political and economic contexts, text directions in writing systems, and differences in the way that you format the time of day, dates, and numbers."
  - Easy to extract from a culture
  - Localizaton techniques already consider/use most objectives
  - Economic progress, country resources nevertheless included in survey because not used in localization and measured diffferences in expert's ratings
- Subjective: information "…like value systems, behavioral systems, and intellectual systems…" [Hoft]
  - Survey focuses on subjective primarily

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29 Dimensions by 9 Sources Used in Survey

- Achievement *vs.* ascription
- Activity orientation
- Affective *vs.* neutral
- Authority conception
- Context
- Degree of power
- Economic progress
- Experience of technology
- Face-saving
- Gender roles
- Human nature orientation
- Individualism *vs.*collectivism
- Instrumental *vs.* expressive
- Internal *vs.* external control
- International trade, community
- Long *vs.* short time orientation
- Meaning of life
- Non-verbal communication
- Political decentralization
- Power distance
- Property
- Resources
- Space
- Specific *vs.* diffuse
- Technological development
- Time orientation
- Time perception
- Uncertainty avoidance
- Universalism *vs.*particularism

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Most of 57 Experts Surveyed

- Adelman, Denny
- Amend, Sabine
- Begley, Suzanne
- Beu, Andreas
- Bonnaudet, Jean-Marc
- Campbell, Tanya
- Chen, Eugene
- Cole, Melissa
- Deaton, Mary
- El Said, Ghada Refaat
- Epstein, Andre
- Gargeshwari, Malinirao
- Gould, Emilie
- Guan, Larry
- Hedges, Andrew
- Hidasi, Judit
- Hoffmann, Anja
- Hoplaros, Costas
- Hugo, Jacques
- Jettmar, Eva
- Kalbach, James
- Khan, Zayera
- Knapheide, Claus
- Kumar, Ripul
- Laurel, Brenda
- Lee, Junghwa
- Marcus, Aaron
- Martlage, Aaron
- Massey, Anne
- McAllister, Pamela
- Meek, Amanda
- Mitra, Romit
- Müller-Prove, Matthias
- Nowell, Jessica
- Paulsen, Susan
- Penn, Dick
- Robinowitz, Christina J.
- Schlatter, Tania
- Scholts, Stijn
- Schutz, Bart
- Scott, Josephine
- Sheridan, E.F.
- Simlinger, Peter
- Simons, George
- Southerton, Laurie
- Stamboulie, Mary
- Sturm, Christian
- Vöhringer-Kuhnt, Thomas
- Wright, Matthew
- Yankee, Everyl
- Yunker, John
- Zimmermann, Claus

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Survey Results, 1/2

- Survey definitions, rating scheme, and comments area pre-tested with Austrian UI design students
- 57 experts from 21 countries completed survey
  - Australia, Austria, Belgium, Canada, China, Cyprus, Egypt, France, Germany, Hungary, India, Japan, Mexico, Netherlands, Pakistan, Scotland, South Africa, Switzerland, Sweden, UK, and USA
  - 19 experts work in a non-native country
  - c. 43% originally from N. America, 39% form Europe.
  - 47% currently work in N. America and 37% in Europe
  - 27 had 3-7 y, 14 had 7-11 y of UI design experience
- More than 40 institutions
  - Global firms (*e.g.*, Siemens, Peoplesoft, and Ogilvy) and smaller
  - Universities (*e.g.*, Kanda University of International Studies, Stanford University, The George Washington University).

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Survey Results, 2/2

- Experts' comments positive
  - Many mentioned: set of 29 dimensions itself would be helpful tool
  - Nearly all mentioned: general opinion on topic very hard because "everything depends;" nevertheless, all provided rankings of dimensions
- Analyzing data purely statistically risky; survey is qualitative, not quantitative
  - Deviation and variance in raw date not very meaningful
  - Ordinal values, not metrical more useful
- Factor analysis presents results

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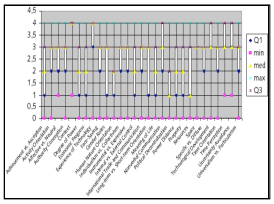
Boxplot (Whisker) Factor Analysis: Shows Distribution of Expert Ratings

- Boxplot Measures central location (median), two measures of dispersion (range and inter-quartile range), skewness (from orientation of median relative to quartiles) and potential outliers (marked individually)
- Anaysis of ordinal values uses parameters like first quartile (Q1), third quartile (Q3), minimum (min), median (med), maximum (max)



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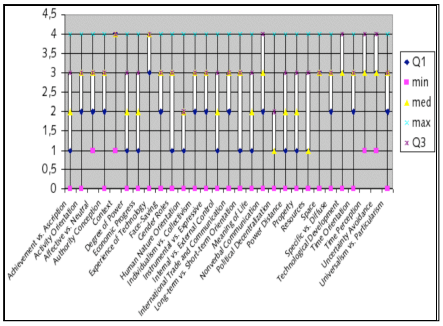
Boxplot (Whisker) Factor Analysis



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Coming Up with Winners

- Filtering out most important dimensions all after rank of Authority conception dimension somewhat subjective
- Statistical rationale
  - 5 Dimensions clearly located in space between "very important" (4) and "important" (3): Context, Environment and technology, Technological development, Time perception, and Uncertainty avoidance
  - Because Authority conception is, on average, still very high and in statistical ranking of experts with more than five years of experience even at rank 5, it seemed reasonable to include this dimension in the top five dimensions

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Ranking of Most Important Dimensions + List After Merging

Context	Context
Environment, technology	Technological development
Uncertainty avoidance	Uncertainty avoidance
Technological devlpmnt	Time perception
Time perception	Authority conception
Authority conception	

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Detailed Explanation of Rationale, 1/3

- *Context*, described as "the amount and specificity of information in a given situation,"
  - Heads ranking with average rating of 3.73 among all participants and average of 3.79 among participants with more than 5 years of UID (among latter group noone rated dimension lower than 3 out of 4)
- *Experience of technology (second)* combined with *Technological development (fourth)*, and renamed Technological development (having to do with development and attitude of members of a certain society towards technological development).
  - Both dimensions rated as very important (3.30 and 3.18) for UID

Detailed Explanation of Rationale, 2/3

- *Uncertainty avoidance* (third), with average rating of 3.21/4, and no one rated dimension as unimportant, was assumed to be important for nearly every UI to take into account for behavior of user in uncertain or unknown situations
- *Time perception* (among top 6), with an average ranking of 3.14, was considered unimportant by no one. *Authority conception* had an average of rating of 2.86.

Detailed Explanation of Rationale, 3/3

- *Power distance (*similar to *Authority conception)* ranked 22nd
  - Possible explanation of this contradiction could be wording: Authority conception denotes with its name what this dimension is about unlike Power distance. It was assumed how people think of authority heavily influences their behavior in handling a UI

Practical Use of "Best-of-Breed" Culture Dimensions

- Project objective: present ideas for how survey findings might be used for practical work
- Difficult to determine most important dimensions for UI design in general
  - More research must be done to filter out which dimensions are most important for special fields of UI design
- Example: the design of medical instruments might demand different cultural emphases than a general telecommunication tool
- Paper/thesis provide a grouped and ranked list of dimensions

Ranked List of 29 Dimensions, 1/2

- 01 D05 Context
- 02 D25 Technological development
  D08 Experience of technology
- 03 D28 Uncertainty avoidance
- 04 D27 Time perception
- 05 D27 Authority conceptio
  D20 Power distance
- 06 D03 Affective vs. neutral
- 07 D09 Face-saving
  D24 Specific vs. diffuse
  D13 Instrumental vs. expressive
- 08 D02 Activity orientation
  D17 Meaning of life
- 09 D18 Nonverbal communication
  D23 Space

Ranked List of 29 Dimensions, 2/2

- 10 D12 Individualism vs. collectivism
- 11 D26 Time orientation
  D16 Long-term vs. short-term orientation
- 12 D29 Universalism vs. particularism
- 13 D15 International trade and communication
- 14 D10 Gender roles
- 15 D01 Achievement vs. ascription
- 16 D21 Property
- 17 D07 Economic progress
- 18 D14 Internal vs. external control
- 19 D22 Resources
- 20 D06 Degree of power
- 21 D11 Human nature orientation
- 22 D19 Political decentralization

Details of Ranking, 1/2

- List gives overview of how dimensions are related to each other and how they could be grouped together
- Listed in order of statistical average (gained through survey) and grouped (for reasons to be described later), they form a practical list/tool to decide which dimension must be focused on in next step to cover most important differences

Details of Ranking, 2/2

- Example: For localization, one should focus on top five dimensions
  - If more time available, project manager can decide which dimension should be focused on next using list as decision support tool
  - Grouping dimensions is very difficult and requires more empirical studies about how culture influences UI design. Currently, most theories based on assumptions; more studies and test required.
- Survey provides groupings based on idea that challenges UI designer faces when focusing on one dimension might relate to similar issues for related dimensions

Groups Based on Survey, 1/4

- 1: D08 Experience of technology, D25 Technological development:
  - These are clearly similar in relation to technology
- 2: D27 Authority conception, D20 Power distance:
  - Hoft describes these two dimensions as very similar. Although the two dimensions have not been ranked by experts on similar levels, one can assume that cultural differences in this field have same impact on UI design because they are so similar

Groups Based on Survey, 2/4

- 3: D09 Face-saving, D24 Specific *vs.* diffuse, D13 Instrumental *vs.* expressive: all three dimensions cope with the problems of interpersonal relationships
  - Interaction UI component influenced mainly by these dimensions and examples mentioned within the very same chapters point in the direction of community tools. Similar impacts on design of UIs design are therefore expected

Groups Based on Survey, 3/4

- 4: D02 Activity orientation, D17 Meaning of life:
  - Regarding metaphor building one can assume that societies that focus on material goals value doing more than being, the opposite might be true for spiritual oriented cultures. This assumption must be verified through research and testing
- 5: D18 Nonverbal communication, D23 Space:
  - Dimension of space is mentioned within dimension of nonverbal communication, called proxemics.

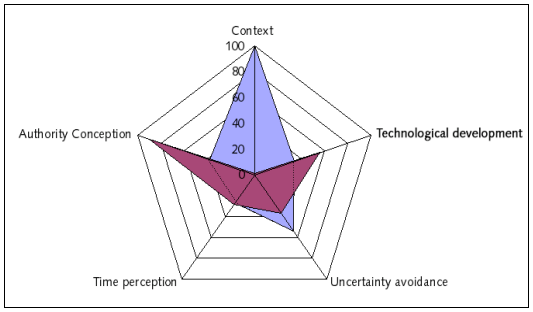
Groups Based on Survey, 4/4

- D26 Time orientation, D16 Long-term vs. Short-term orientation:
  - These two dimensions are complementary: The first mainly affects metaphors and navigation, the latter mental models and interaction.
  - Within statistical ranking of average value, the two dimensions are followed by each other
  - Dimensions seem to cover different areas of a society, but some implications on UI design might be the same, for example, future-oriented cultures are likely to be willing to learn how to use UI if they know that it will be necessary to know how to use it in future. Same can be true for long-term oriented societies

Example of Using Groups

- With researched values for all cultural dimensions for particular country, easy to generate tool to answer : “Is it necessary to change the UI for a certain culture/country?” and “Regarding which dimensions must changes be considered?”
- Tool basis: use pentagonal star charts, but expandable to more dimensions if needed for complexity of localization project
- Chart can show what changes are necessary and in what dimension, as Smith has demonstrated for different dimensions

Theoretical Comparison with Culture-Dimensions Pentagonal Star Chart



Conclusions and Recommendations, 1/2

- Generating a set of most important 7±2 cultural dimensions for localizing UIs is difficult task
- Expert believe everything depends on knowing the domain and purpose of the UI
- Survey ranked culture dimensions for UI design components and filtered out 5 primary dimensions:
  - Context, Technological development, Uncertainty avoidance, Time perception, and Authority conception
- Cross-Model Culture Dimension List
  - Baumgartner thesis describes 29 culture dimensions with concrete examples of their influence on certain UI domains and especially affected design components

Conclusions and Recommendations, 2/2

- Practical groups and ranked list of cultural dimensions can inform a decision making tool kit for localization
- Diagram tool can facilitate determining culture-related changes necessary for localizing to a specific target country
- Culturebase could automatically or semi-automatically handle cultural changes for CMS based on these dimensions

Next Steps

- Determine top dimensions for special fields of UI design could contribute and verify the findings of this general survey
- Develop database with examples for the implication on each design component by each cultural dimension and gathering cultural values of each country/culture through empirical research to support culturebase
- Future: Much remains to be researched; survey is a start

References

- Detailed references appear with the paper
- More publications and URLs available upon request
- Baumgartner's thesis URL available upon request

A Practical Culture Dimensions Set for Global UI Development

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Exercise 3: Culture-Oriented Web User-Interface Design

Overview
Participants will divide into equal groups. Each team will receive an assigned description of target cultures. Participants will analyze the target culture description for aspects that may impact product acceptance, then assemble a Web home page design that the team feels would be suitable for the target culture. Participants will be asked to explain separately any behavioral aspects that they feel should be implemented to match expectations in the primary target culture.

All participants will work on the same kind of Website, namely, a government Website for health-related social services, such as that providing information about women's health, infectious or communicable diseases, etc. The Website must be directed to citizens of the country assigned to each group. The countries will be assigned during the tutorial. Information will be provided to each group about their assigned country's cultural markers (e.g., the flag) and other information about the country (e.g., demographics, typical cultural attributes, etc.).

As with all exercises, the presenter(s) will roam among the teams, offering encouragement, making suggestions, and making notes as part of the later critique. Each team will report to the group lessons learned.

Specifications
Use pen and paper to write/draw the designs. Color pens may be used as an optional additional implement. Keep in mind the user interface design comments discussed earlier in the tutorial (metaphors, mental models, navigation, appearance and interaction). Then, discuss within your team why each design decision was made, how it is related to presumptions about the target culture, and what (if any) behavioral expectations your team has of users as they encounter the user-interface that you have devised. Take notes of these things, and be ready to discuss them with the class.

Site Mission Statement
The site your team is designing is meant to provide detailed information to users in the target culture regarding government services and regulations that may impact their personal as well as professional activities. You should assume for this exercise that users from other cultures are *not* taken into account. Therefore, the site you are designing should be specific to the “home culture” of use as possible. See the additional information below for a classic/general description of target cultures. The descriptions are all based upon and/or, related to Hofstede’s work cited below.

Cultural Groupings
These descriptions are based on Jordan’s work cited below.

Democrats	Tough, short-term oriented cultures in which there is a very strong emphasis on individual expression. People in these cultures tend to be comfortable with uncertainty and have less respect for authority. Countries include: Australia, Canada, Ireland (Republic), New Zealand, South Africa, United Kingdom, United States of America.
Meritocrats	Tend to be uncomfortable with uncertainty and put less emphasis on individuality than do Democrats. Otherwise, the values are similar to those in Democratic cultures. Countries include: Austria, Germany (Federal Republic), Israel, Italy, Switzerland.
Egalitarians	Extremely tender cultures, with less pressure to 'get ahead.' Otherwise, similar to Democratic cultures. Countries include: Denmark, Finland, Netherlands (The), Norway, Sweden.
Supportives	Tender cultures that are very uncomfortable with uncertainty. These cultures have respect for authority and are not particularly individualistic. Countries include: Belgium, France, Portugal, Spain.
Libertarians	Tough, collectivist cultures with less respect for authority. These cultures are comfortable with uncertainty and people are encouraged to succeed on their own terms. Countries include: Jamaica.
Planners	Very tough, very future oriented cultures, with a strong dislike of uncertainty. Moderately collectivist with a moderate respect for authority. Countries include: Japan.
Collectivists	Very collectivist with much respect for authority. Future oriented and uncomfortable with uncertainty. Not much pressure to "get ahead." Countries include: Arab Countries, Argentina, Brazil, Chile, Columbia, Costa Rica, East Africa, Equador, Greece, Guatemala, Iran, Mexico, Pakistan, Panama, Peru, Salvador (El), South Korea, Taiwan, Thailand, Turkey, Uruguay, Venezuela, Yugoslavia .
Authoritarians	Very high respect for authority. These are collectivists cultures with moderate toughness. Moderately future oriented and comfortable with uncertainty.

Countries include: Hong Kong, India, Indonesia, Malaysia, Philippines, Singapore, West Africa.

These following descriptions are based on Scarborough's work cited at the end of this paper.

Target Culture 1: Japan

The core values developed by primary forces that shaped Japanese culture include:

- **Collectivism:** encouraged by an island nation; a sense of uniqueness and difference from others; concern about deprivation, invasion, and disaster; rice culture; a strong class system; Shinto-based nationalism, and Confucian teachings regarding the value of order and duty and obligations to others.
- **Harmony:** Encouraged by a powerful sense of collectivism, but also a resultant of Confucian reaching regarding the need for social order and of crowded living conditions, which demand politeness and consideration.
- **High-context Communications:** Necessary to maintain harmony but also caused by an hierarchical power structure and facilitated by homogeneity of culture and commonality of values and experience.
- **Hierarchy:** Status accorded through hereditary ascription, a result of a long entrenched agrarian class system; Shinto-based respect for elders and heroic figures; Confucian teachings regarding the appropriateness of centralized power; and long-lived feudalism.
- **Strong Uncertainty Avoidance:** Atypical of Asian cultures, due to historic geographical/political isolation and concern about external threat, the comfortable familiarity of ethnic homogeneity, and the pervasive tradition of *kata*.

Target Culture 2: China

The core values developed by primary forces that shaped Chinese culture include:

- **Large Power Distance:** Resultant of Confucianism, amplified by legalism and continuous strong, centralized political orders. Fatalism resultant of cosmological subjugation to nature (*feng shui*), Taoist teaching, Confucian disdain of science, and personal powerlessness throughout millennia of powerful central governments.
- **Collectivism:** Centered on the family. Derived from communal ownership, agricultural roots, the need for unity against hardship, immobility, and Buddhist attitudes toward individualism.
- **Strong Uncertainty Avoidance:** Caused by a Confucian emphasis on order, ritual behavior, predictability, and the value of tradition.
  Masculinity/Femininity: Balanced between Confucian emphasis on achievement and patriarchy on one hand and the importance of maintaining relationships on the other.

Target Culture 3: Arab Culture

The core values developed by primary forces that shaped Arab culture include:

- **Large Power Distance:** A vestige of a long history of authoritarian rule, a bipolar, two-class social system, and the intense, pervading discipline of Islam.
- **Collectivism:** Grounded in ancient traditions of tribal loyalty and the prevalence of the extended family as the primary social and economic unit.
- **Individualism:** Idealized in the nomadic, Bedouin life-style.
- **Strong Masculinity:** Emphasis on traditional gender roles resulting from chivalric romanticism that reduces the female to secondary role. Masculinity allows for hospitality and acceptance of other Muslims.
- **Moderate Uncertainty Avoidance:** Confidence in the support of Allah to guide decisions and actions partially offsets strong inhibitions posed by the perceived dominance of man by Allah and Nature.

Target Culture 4: India

The core values developed by primary forces that shaped Indian culture include:

- **Large Power Distance:** Institutionalized by the caste system and rationalized as *karma* (fate/destiny/person's aura or atmosphere).
- **Collectivism:** Necessitated by the extended family, clan, and village structure typical of agrarian roots, especially a wet-rice culture, and amplified by the need to maintain harmonious relationships within and between castes.
- **Individualism:** Necessitated by the need to compete for scarce resources, encouraged by religious imperatives for individual responsibility, and amplified by the extended British example.
- **Strong Masculinity:** Separation of traditional gender roles, amplified by aggressiveness required to ensure survival in the face of scarcity.
- **Weak Uncertainty Avoidance:** A result of Hindu beliefs in a universe in constant flux, *karma*, submission to the will of gods and nature, the lack of ethical absolutism, and the ability to rely upon hierarchical guidance in anomalous situations.

Target Culture 5: Mexico

The core values developed by primary forces that shaped Mexican culture include:

- **Large Power Distance:** Strong hierarchies derived from the centralized, vertical power structures of the Aztec class system, by Spanish military power and social class ranking, by the bureaucratic Church on which the Mexicans came to depend for meaning in their lives, and by the patriarchal family typical of agrarian societies.
- **Strong Collectivism:** Centered in the highly extended, agricultural family, and grounded in interdependence engendered by harsh conditions. Ascribed status often based on military power and cultural factors attributable to the Spanish, who replaced the Aztec meritocracy.
- **Emergent Individualism:** Due primarily to the influence of the United States in recent centuries.
- **Strong Masculinity:** In terms of traditional gender roles, aggressiveness and competitiveness are driven by Aztec militarism and meritocracy, Spanish-Arab machismo and romanticism, the effort

required to survive harsh conditions, and, more recently, by the example and economic necessities created by the United States.

Target Culture 6: Russia

The core values developed by primary forces that shaped Russian culture include:

- **Large Power Distance:** Resulting from more than 1,200 years of strong, autocratic rule and from the Orthodox faith, which teaches and venerates submission to authority.
- **Strong Collectivism:** A result of a tradition of communal self-government with an ethic of equality in sharing scarce resources in addition to the necessity of mutual interdependence for protection against a hostile environment, omnipotent rulers, and foreign invaders.
- **Universalist ethics**: stem from the absolutism of Orthodox dogma and the unifying fraternal, egalitarian sentiments of nationalism.
- **Individualism:** Individualism and high-context communications are results of the survival instinct and a reaction to prolonged suppression of free expression.
- **Femininity:** Resulting from the mutual interdependence required to cope with a hostile physical environment and political oppression, which made essential the cultivation and maintenance of close personal relationships.

Target Culture 7: Western Europe

The core values developed by primary forces that shaped Western European culture include:

- **Individualism:** Europeans are individualistic but with some qualifications. Southern Europeans, given relatively late industrialization, still rely heavily on the support of the same extended families and personal networks seen in many non-Western, less-industrialized cultures, The French, although highly egalitarian and democratic, feel a very strong sense of patriotism and national unity arising from their central role in shaping European history and culture.
- **Power Distance:** Latin countries have larger power distances than the United States, Scandinavian, or North European countries, reflecting the more autocratic, top-down, and paternalistic management style found in countries with a long history of strong central rule, social stratification, and largely agrarian economies.
- **Uncertainty Avoidance:** The dimension with greatest variability. It is strong in the more fatalistic Catholic countries, all of which have a long history of obedience to Rome. It is weakest in those countries most remote from Rome.
- **Masculinity:** Europeans cultures are generally masculine; the strongest evidence being a strong achievement orientation, especially among Germanic cultures that have traditionally selected their leaders primarily on merit.

Target Culture 8: Sub-Saharan Africa

The core values developed by primary forces that shaped Sub-Saharan African culture include:

- **Large Power Distance:** Stemming from recognition of and submission to the authority of age-based wisdom and experience, essential in an agrarian, subsistence economy; amplified by the emergence of authoritarian monarchies and confirmed by the relatively brief colonial experience and the statist influence of European powers.
- **Collectivism:** Based on the extended family as the primary collective unit; essential for survival in a demanding environment poor in resources and supporting only small, widely dispersed, communities. Egalitarianism reflects mutual dependence and respect for each individual as a vehicle for nature's life force and the kinship lineage.
- **Femininity:** Associated with maintaining harmonious relationships within the collective unit and with attempts to temper supernatural and natural forces.
- **Low Uncertainty Avoidance:** A result of fatalistic dependence on the supernatural and nature, with its unpredictable events and cyclical rhythms of constant change.

References

Hofstede, G. (1997). *Cultures and Organizations: Software of the Mind.* New York: McGraw-Hill.

Jordan, Patrick W. (2000). *Designing Pleasurable Products: An Introduction to the New Human Factors*. London: Taylor and Francis.

Scarborough, J. (1998).*The Origins of Cultural Differences and their Impacts on Management*. Greenwood Publishing Group, 30 March 1998.

Упражнение 3:
Культурно-ориентированный дизайн пользовательского интерфейса

Обзор
Участники делятся на равные группы. Каждая команда получает заданное описание целевых культур. Члены команд знакомятся с конкретной культурой и ищут аспекты, способные повлиять на отношение к предлагаемому продукту, а затем разрабатывают дизайн домашней веб-страницы, которая, по их мнению, подойдет представителям данной культуры. Участникам необходимо отдельно пояснить любые поведенческие параметры, которые, как им кажется, должны быть учтены, дабы отвечать требовниям основного культурного слоя. Все команды работают над одним и тем же типом веб-сайта - правительственным ресурсом, посвященным социальным услугам в области здравоохранения и содержащим информацию о женском здоровье, инфекционных заболеваниях, и т. д. Сайт должен быть ориентирован на граждан той страны, над которой работает соответствующая группа. Государства выбираются во время семинара. Каждой команде предоставляется информация о культурных маркерах ее страны (например, о флаге), а также другие данные (демографические показатели, характерные культурные атрибуты, и т. д.).
Как и во время остальных занятий, ведущий переходит от группы к группе, предлагая поддержку и выдвигая свои предложения, делая заметки для последующих комментариев. Каждая команда впоследствии рассказывает всей группе об усвоенных уроках.

Подробности
Используйте ручку и бумагу для изображения/описания вашего дизайна. Цветные ручки могут применяться в качестве дополнительного инструмента. Не забывайте об аспектах дизайна пользовательского интерфейса, которые обсуждались ранее во время семинара (метафоры, ментальные модели, навигация, внешние данные и взаимодействие). Затем обсудите со своей группой, почему то или иное дизайнерское решение было принято, как оно связано с предположениями относительно целевой культуры, и какие поведенческие стратегии (если есть таковые) вы ожидаете увидеть у потенциальных пользователей созданного вами интерфейса. Делайте заметки по этим вопросам и будьте готовы обсудить их с классом.

Цели веб-сайта
Сайт, разрабатываемый вашей командой, должен обеспечить принадлежащих к целевой культуре пользователей точной информацией о правительственных услугах и законодательстве, влияющих на их персональную и профессиональную деятельность. При выполнении данного упражнения имейте ввиду - представители других культур *не рассматриваются*. Поэтому создаваемый вами сайт должен быть максимально обращен к пользователям «основного культурного слоя». Ниже вы найдете дополнительную информацию, содержащую классическое/общее описание целевых культур. Все характеристики основаны и/или связаны с научной работой Хофстеда, указанной в ссылках.

Культурные группы
Данные описания основаны на трудах Джордана, указанных в ссылках.
Демократы Твердые, ориентированные на короткую перспективу культуры с сильным уклоном в сторону выражения индивидуальности. Представители этих культур чувствуют себя комфортно по отношению к неопределенности, у них меньше уважения к авторитетам.
Страны: Австралия, Канада, Ирландии (Республика), Новая Зеландия, Южная Африка, Великобритания, США.

Меритократы Испытывают дискомфорт относительно неопределенности и уделяют меньше внимания индивидуальности, чем Демократы. В остальном набор ценностей схож с культурами предыдущей группы.
Страны: Австрия, Германия (ФРГ), Израиль, Италия, Швейцария

Эгалитаристы Очень мягкие культуры с меньшим стремлением к движению вперед. В остальном схожи с Демократами.
Страны: Дания, Финляндия, Нидерланды, Норвегия, Швеция.

Одобряющие Мягкие культуры с высокой степенью дискомфорта относительно неопределенности. В них высок уровень уважения к власти, они не отличаются индивидуалистическими чертами.
Страны: Бельгии, Франция, Португалия, Испания.

Либертарианцы Твердые, коллективистские культуры с низким уровнем уважения к власти. Эти культуры легко справляются с неопределенностью, а их представителям свойственно добиваться успехов своими силами.
Страны: Ямайка

Планировщики Очень упорные, ориентированные на будущее культуры с высокой степенью отвращения к неопределенности. Умеренно-коллективистические со средним уровнем уважением к власти.
Страны: Япония

Коллективисты Весьма коллективистические культуры с высоким уровнем уважении к авторитетам. Ориентированы на будущее, не любят неопределенность. Не особо мотивированы к «процветанию».
Страны: Арабские страны, Аргентина, Бразилия, Чили, Колумбия, Коста-Рика, Восточная Африка, Эквадор, Греция, Гватемала, Иран, Мексика, Пакистан, Панама, Перу, Сальвадор, Южная Корея, Тайвань, Таиланд, Турция, Уругвай, Венесуэла, Югославия.

Авторитаристы Очень высокий уровень уважения к власти. Достаточно коллективистические культуры со средним уровнем твердости. Умеренно ориентированы на будущее, не испытывают дискомфорта относительно неопределенности.
Страны: Гонконг, Индия, Индонезия, Малайзия, Филиппины, Сингапур, Западная Африка.
Следующие описания основаны на исследовании Скарборо, указанном в конце этого материала.

Целевая культура 1: Япония. Базовые ценности, развитые основными силами, сформировавшими японскую культуру:

- **Коллективизм:** Присущ островной нации; чувство уникальности и отличия от остальных; беспокойство относительно угнетения, оккупации и катастроф; рисовая культуры; мощная классовая система; синто-национализм и конфуцианские учения относительно ценности порядка, долга и обязательств перед окружающими.
- **Гармония:** Возникает вследствие мощного чувство коллективизма, а также как результат конфуцианских учений о необходимости социального порядка и тесных условий проживания, требующих вежливости и внимания.
- **Высокий контекст коммуникации:** Необходим для поддержания гармонии, вызван иерархической структурой власти. Ему способствует гомогенность культуры, а также общность ценностей и опыта.
- **Иерархия:** Статус соответствует социальному происхождению, что присуще устоявшейся аграрной классовой системе; характерное для синто уважение к старшим поколениям и мифическим героям; конфуцианские учения о правомерности централизованной власти; долгий период феодализма.
- **Высокий уровень избегания неопределенности:** Нетипичен для азиатских культур ввиду исторической, географической и политической изоляции и беспокойства относительно внешней угрозы; удобство и близость этнической гомогенности, а также распространенная традиция *ката.*

Целевая культура 2: Китай. Базовые ценности, развитые основными силами, сформировавшими китайскую культуру:

- **Высокий уровень субординации:** Происходит из конфуцианства и усиливается за счет легализма и длительного централизованного политического порядка. Присущ фатализм ввиду космологического подчинения природе (фэншуй), таоистских учений, конфуцианского презрения к науке и персонального безвластия на протяжении эпох централизованного управления страной.
- **Коллективизм:** Ориентация на семью. Происходит из коммунального владения собственностью, имеет аграрные корни, является результатом сплоченности в борьбе с трудностями, иммобильности и буддистского отношения к индивидуализму.
- **Высокий уровень избегания неопределенности:** Вызван конфуцианским акцентированием порядка, ритуальности в поведении, предсказуемости и ценности традиций.
- **Мужественность/женственность:** Баланс между конфуцианским упором на достижения и патриархию с одной стороны и важностью поддержки отношений с другой.
- **Целевая культура 3: Арабская культура. Базовые ценности, развитые основными силами, сформировавшими арабскую культуру:**

- **Высокий уровень субординации:** Наследие давней истории авторитарного правления, биполярной двухклассовой социальной системы, а также распространенной дисциплины ислама.
- **Коллективизм:** Основан на древних традициях племенной верности и культа большой семьи как первостепенной социальной и культурной единицы.
- **Индивидуализм:** Идеализируется в кочевом, бедуинском образе жизни
- **Высокий уровень мужественности:** Акцент на традиционное распределение гендерных ролей ввиду «рыцарского» романтизма, ставящего женщину на второй план. Мужественность подразумевает гостеприимство и расположение по отношению к другим мусульманам.
- **Средний уровень избегания неопределенности:** Уверенность в поддержке Аллаха при принятии решений и действиях частично смещает жесткие запреты, наложенные осознаваемым влиянием Аллаха и Природы над человеком.

Целевая культура 4: Индия. Базовые ценности, развитые основными силами, сформировавшими индийскую культуру:

- **Высокий уровень субординации:** Регламентирован кастовой системой, нашел обоснование в виде кармы (удел/судьба/аура и оболочка человека).
- **Коллективизм:** Вызван культом большой семьи, клановостью и деревенским укладом жизни, типичными для аграрных культур, в частности рисовой, а также укреплен необходимостью поддержания гармоничных отношений внутри и между кастами.
- **Индивидуализм:** Является результатом борьбы за скудные ресурсы, стимулируется религиозными требованиями индивидуальной ответственности, кроме того, подкреплен длительным британским примером.
- **Высокий уровень мужественности:** Традиционное разделение гендерных ролей, усиленное агрессивностью, необходимой для выживания в условиях нужды.
- **Низкий уровень избегания неопределенности:** Результат индуистских верований в вечное течение вселенной, карму, подчинение воле богов и природы, недостаток этнического абсолютизма, а также способность уповать на иерархическое управление в аномальных ситуациях.
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Целевая культура 5: Мексика. Базовые ценности, развитые основными силами, сформировавшими мексиканскую культуру:

- **Высокий уровень субординации:** Мощные иерархии, получившие свое начало в централизованных вертикальных структурах власти классовой системы ацтеков, испанском милитаристском управлении и социально-классовом ранжировании, а также семейном патриархате, типичном для аграрных обществ.
- **Высокий уровень коллективизма:** Сосредоточен на ценностях большой аграрной семьи, исходит из взаимной зависимости, вызванной проживанием в жестких условиях. Приписываемый статус, как правило, основан на причастности к военной власти и культурных факторах, типичных для испанцев, сменивших меритократию ацтеков.
- **Зарождающийся индивидуализм:** В основном формируется под влиянием США в течение последних столетий.
- **Высокий уровень мужественности:** В контексте гендерных ролей агрессивность и дух соперничества уходят корнями в милитаризм и меритократию ацтеков, испано-арабский мужской шовинизм и романтизм; они сформировались ввиду необходимости выживания в жестких условиях, а в последнее время – на примере и в условиях экономических потребностей, экспортируемых Соединенными Штатами.

Целевая культура 6: Россия. Базовые ценности, развитые основными силами, сформировавшими российскую культуру:

- **Высокий уровень субординации:** Уходит корнями в более чем 1200 лет мощного, автократического правления, а также православной веры, которая учит и чтит подчинение власти.
- **Высокий уровень коллективизма:** Результат традиционного общинного самоуправления с присущей ему этикой равноправия в пользовании скудными ресурсами, а также необходимой взаимозависимости для защиты от враждебной среды, всемогущих правителей и иностранных завоевателей.
- **Универсалистская этика**: Следствие абсолютизма православной догмы и объединяющего эгалитарного братства национализма.

- **Индивидуализм:** Индивидуализм и коммуникация высокого контекста являются результатом инстинкта выживания и реакцией на длительное подавление свободы выражения.
- **Женственность:** Исходит из взаимной зависимости в борьбе с враждебной природной средой и политическим угнетением, что привело к росту доминанты создания и поддержки тесных личностных отношений.
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Целевая культура 7: Западная Европа. Базовые ценности, развитые основными силами, сформировавшими западноевропейскую культуру:

- **Индивидуализм:** Европейцы являются индивидуалистами, но с определенными оговорками. Жители Южной Европы, прошедшие индустриализацию позднее, все еще опираются на поддержку семейных кланов и личные связи, типичные для неевропейских и менее индустриализованных культур. Французы хоть и являются эгалитаристами и демократами, тем не менее, испытывают высокие чувства патриотизма и национального единства, которые восходят к их главенствующей роли в формировании европейской истории и культуры.
- **Субординация:** Страны латинского происхождения имеют более высокий уровень субординации, нежели Соединенные Штаты, скандинавские или североевропейские страны, что выражается в более авторитарном, вертикальном, патерналистском стиле управления, характерном для стран с богатым опытом жесткой централизованной власти, социальной стратификацией и преимущественно аграрной экономикой.
- **Избегание неопределенности:** Показатель с большой степенью вариативности. Он высок в католических странах с фаталистическими настроениями ввиду их длительного подчинения Риму. Тем менее свойственен он для остальных государств, чем более они удалены от Рима.
- **Мужественность:** Мужественность в основном присуща европейским культурам. Самым явным свидетельством этого служит твердая ориентация на успешность, в особенности в германских культурах, в которых лидеры традиционно выбирались за боевые заслуги.

Целевая культура 8: Тропическая Африка. Базовые ценности, развитые основными силами, сформировавшими культуру Тропической Африки:

- **Высокий уровень субординации:** Уходит корнями в признание и подчинение вековой мудрости и опыту, играющим главенствующую роль в аграрной экономике выживания. Развивался и закреплялся с приходом авторитарных монархий и ввиду относительно короткого колониального периода, а также государственного влияния европейских стран.
- **Коллективизм:** Основывается на культе большой семьи как фундаментальной ячейки коллектива. Необходим для выживания в бедной ресурсами жесткой среде, пригодной для жизнедеятельности лишь малых разрозненных общин. Эгалитаризм отражает взаимную зависимость и уважение к близости родственных связей и к каждому индивидууму, являющемуся проводником жизненной силы природы.
- **Женственность:** Ассоциируется с поддержкой гармоничных отношений внутри ячейки коллектива и попытками ублажить сверхъестественные и природные силы.
- **Низкий уровень избегания неопределенности:** Результат роковой зависимости от сверхъестественных и природных факторов с характерными для них цикличными ритмами непрерывных изменений и непредсказуемостью событий.

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Cultural Dimensions and Global Web UI Design:
What? So What? Now What?

This white paper by Aaron Marcus and Associates, Inc. (AM+A) introduces dimensions of culture, as analyzed by Geert Hofstede in his classic study of cultures in organizations, and considers how they might affect user-interface designs. Examples from the Web illustrate the cultural dimensions.

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Contents

Introduction

Companies that want to do international business on the web should consider the impact of culture on the understanding and use of Web-based communication, content, and tools.

The Web enables global distribution of products and services through Internet Websites, intranets, and extranets. Professional analysts and designers generally agree that well-designed user interfaces improve the performance and appeal of the Web, helping to convert "tourists" or "browsers" to "residents" and "customers." The user-interface development process focuses attention on understanding users and acknowledging demographic diversity. But in a global economy, these differences may reflect world-wide cultures. Companies that want to do international business on the web should consider the impact of culture on the understanding and use of Web-based communication, content, and tools. This paper contributes to the study of this complex and challenging issue by analyzing some of the needs, wants, preferences, and expectations of different cultures through reference to a cross-cultural theory developed by Geert Hofstede.

A few simple questions illustrate the depth of the problem.

Consider your favorite Website. How might this Website be understood and used in New York, Paris, London, Beijing, New Delhi, or Tokyo, assuming that adequate verbal translation were accomplished? Might something in its metaphors, mental model, navigation, interaction, or appearance confuse, or even offend and alienate, a user?

Consider what year this is. Is it 2000? In some other counting systems, it is 4698, 5760, or 1420. Even to refer to the counting system of another culture might confuse or alienate people used to their own native system. Let us not forget that Hindu-Arabic numerals, which Western society now takes for granted, were once viewed as the work of the devil by Christian Europe, and educated people for hundreds of years blocked their introduction into European society. Whether people view imports from other cultures as delightful gifts or poisonous viruses is often a matter of socio-political context.

Consider the order in which you prefer to find information. If you are planning a trip by train, do you want to see the schedule information first or read about the organization and assess its credibility? Different cultures look for different data to make decisions.

A New Issue for User-Interface Designers

In most projects, the complex interplay of user, business, marketing, and engineering requirements needs to be resolved by Web user-interface and information visualization designers. Their development process includes iterative steps of planning, research, analysis, design, evaluation, documentation, and training. As they carry out all of these tasks, however, they would do well to consider their own cultural orientation and to understand the preferred structures and processes of other cultures. This attention would help them to achieve more desirable global solutions or to determine to what extent localized, customized designs might be better than international or universal ones.

Cultures, even within some countries, are very different. Sacred colors in the Judeo-Christian West (e.g., red, blue, white, gold) are different from Buddhist saffron yellow or Islamic green. Subdued Finnish designs for background screen patterns (see Figure 1) might not be equally suitable in Mediterranean climates, in Hollywood, USA, or Bollywood, India. These differences go deeper than mere appearance; they reflect strong cultural values. How might these cultural differences be understood without falling into the trap of stereotyping other cultures?

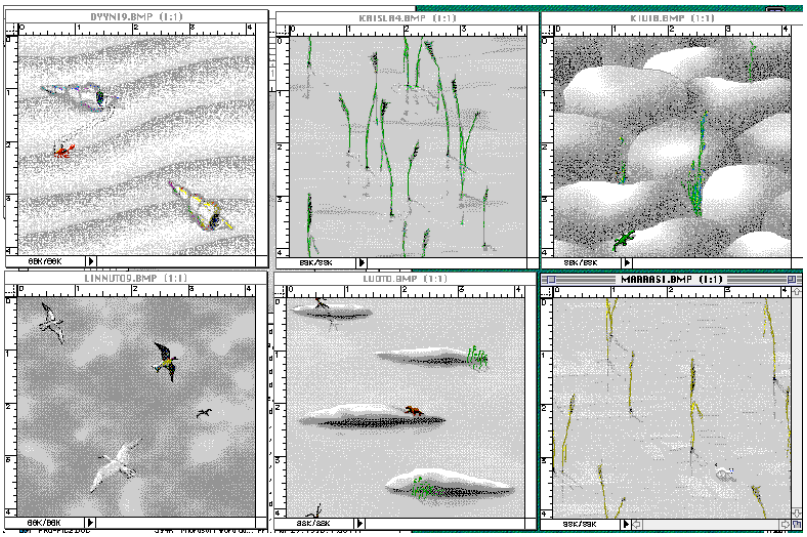

Figure 1. TeamWare Finnish screen patterns

Many analysts in organizational communication have studied cultures thoroughly and published classic theories; other authors have applied these theories to analyze the impact of culture on business relations and commerce (see Bibliography). Few of these works are well known to the

user-interface design community. This paper introduces the well-respected work of one theorist, Geert Hofstede, and applies some of his cultural dimensions to Web user interfaces. Edward T. Hall, David Victor, and Fons Trompenaars would have been equally valuable in illuminating the problems of cross-cultural communication on the Web, but our application of Hofstede will demonstrate the value of this body of research for our field.

Hofstede's Dimensions of Culture

During 1978-83, the Dutch cultural anthropologist Geert Hofstede conducted detailed interviews with hundreds of IBM employees in 53 countries. Through standard statistical analysis of fairly large data sets, he was able to determine patterns of similarities and differences among the replies. From this data analysis, he formulated his theory that world cultures vary along consistent, fundamental dimensions. Since his subjects were constrained to one multinational corporation's world-wide employees, and thus to one company culture, he ascribed their differences to the effects of their national cultures. (One weakness is that he maintained that each country has just one dominant culture.)

In the 1990s, Hofstede published a more accessible version of his research publication in *Cultures and Organizations: Software of the Mind* [Hofstede]. His focus was not on defining culture as refinement of the mind (or "highly civilized" attitudes and behavior) but rather on highlighting essential patterns of thinking, feeling, and acting that are well-established by late childhood. These cultural differences manifest themselves in a culture's choices of symbols, heroes/heroines, rituals, and values.

Hofstede identified five dimensions and rated 53 countries on indices for each dimension, normalized to values (usually) of 0 to 100. His five dimensions of culture are the following:

- Power-distance
- Collectivism vs. individualism
- Femininity vs. masculinity
- Uncertainty avoidance
- Long- vs. short-term orientation

Each of Hofstede's terms appears below with our explanation of implications for user-interface and Web design, and illustrations of characteristic Websites.

Power Distance (PD)

Hofstede claims that high PD countries tend to have centralized political power and exhibit tall hierarchies in organizations with large differences in salary and status. Low PD countries tend to view subordinates and supervisors as closer together and more interchangeable, with flatter hierarchies in organizations and less difference in salaries and status.

Power distance refers to the extent to which less powerful members expect and accept unequal power distribution within a culture.

Hofstede claims that high PD countries tend to have centralized political power and exhibit tall hierarchies in organizations with large differences in salary and status. Subordinates may view the "boss" as a benevolent dictator and are expected to do as they are told. Parents teach obedience, and expect respect. Teachers possess wisdom and are automatically esteemed. Inequalities are expected, and may even be desired.

Low PD countries tend to view subordinates and supervisors as closer together and more interchangeable, with flatter hierarchies in organizations and less difference in salaries and status. Parents and children, and teachers and students, may view themselves more as equals (but not necessarily as identical.) Equality is expected and generally desired. There are some interesting correlations for power distance: low PD countries tend to have higher geographic latitude, smaller populations, and/or higher gross domestic product (GDP) per capita than high PD countries.

Hofstede notes that these differences are hundreds or even thousands of years old. He does not believe they will disappear quickly from traditional cultures, even with powerful global telecommunication systems. Recent research has shown that the dimensions have remained quite stable for the last twenty years.

Based on this definition, we believe power distance may influence the following aspects of user-interface and Web design:

- Access to information: highly (high PD) vs. less-highly (low PD) structured.
- Hierarchies in mental models: tall vs. shallow.
- Emphasis on the social and moral order (e.g., nationalism or religion) and its symbols: significant/frequent vs. minor/infrequent use.
- Focus on expertise, authority, experts, certifications, official stamps, or logos: strong vs. weak.
- Prominence given to leaders vs. citizens, customers, or employees.
- Importance of security and restrictions or barriers to access: explicit, enforced, frequent restrictions on users vs. transparent, integrated, implicit freedom to roam.
- Social roles used to organize information (e.g., a managers' section obvious to all but sealed off from non-managers): frequent vs. infrequent

These PD differences can be illustrated on the Web by examining university Web sites from two countries with very different PD indices (Figures 2 and 3). The Universiti Utara Malaysia (www.uum.edu.my) is located in Malaysia, a country with a PD index rating of 104, the highest in Hofstede's analysis.

Figure 2. High power distance: Malaysian Unversity Web site.

The Website from the Ichthus Hogeschool (www.ichthus-rdam.nl) and the Technische Universiteit Eindhoven (www.tue.nl) are located in the Netherlands, with a PD index rating of 38.

Figure 3a. Low power distance: Dutch Educational Website.

Figure 3b. Low power distance: Dutch Educational Website

Note the differences in the two groups of Websites. The Malaysian Website features strong axial symmetry, a focus on the official seal of the university, photographs of faculty or administration leaders conferring degrees, and monumental buildings in which people play a small role. A top-level menu selection provides a detailed explanation of the

symbolism of the official seal and information about the leaders of the university.

The Dutch Websites feature an emphasis on students (not leaders), a stronger use of asymmetric layout, and photos of both genders in illustrations. These Websites emphasize the power of students as consumers and equals. Students even have the opportunity to operate a WebCam and take their own tour of the Ichthus Hogeschool.

Individualism vs. Collectivism (IC)

Individualistic cultures value personal time, freedom, challenge, and such extrinsic motivators as material rewards at work. Collectivist cultures value training, physical conditions, skills, and the intrinsic rewards of mastery.

Individualism in cultures implies loose ties; everyone is expected to look after one's self or immediate family but no one else. Collectivism implies that people are integrated from birth into strong, cohesive groups that protect them in exchange for unquestioning loyalty.

Hofstede found that individualistic cultures value personal time, freedom, challenge, and such extrinsic motivators as material rewards at work. In family relations, they value honesty/truth, talking things out, using guilt to achieve behavioral goals, and maintaining self-respect. Their societies and governments place individual social-economic interests over the group, maintain strong rights to privacy, nurture strong private opinions (expected from everyone), restrain the power of the state in the economy, emphasize the political power of voters, maintain strong freedom of the press, and profess the ideologies of self-actualization, self-realization, self-government, and freedom.

At work, collectivist cultures value training, physical conditions, skills, and the intrinsic rewards of mastery. In family relations, they value harmony more than honesty/truth (and silence more than speech), use shame to achieve behavioral goals, and strive to maintain face. Their societies and governments place collective social-economic interests over the individual, may invade private life and regulate opinions, favor laws and rights for groups over individuals, dominate the economy, control the press, and profess the ideologies of harmony, consensus, and equality.

Based on this definition, we believe individualism and collectivism may influence the following aspects of user-interface and Web design:

- Motivation based on personal achievement: maximized (expect the extra-ordinary) for individualist cultures vs. underplayed (in favor of group achievement) for collectivist cultures
- Images of success: demonstrated through materialism and consumerism vs. achievement of social-political agendas.
- Rhetorical style: controversial/argumentative speech and tolerance or encouragement of extreme claims vs. official slogans and subdued hyperbole and controversy
- Prominence given youth and action vs. aged, experienced, wise leaders and states of being
- Importance given individuals vs. products shown by themselves or with groups
- Underlying sense of social morality: emphasis on truth vs. relationships
- Emphasis on change: what is new and unique vs. tradition and history

- Willingness to provide personal information vs. protection of personal data differentiating the individual from the group

The effects of these differences can be illustrated on the Web by examining national park Web sites from two countries with very different IC indices (Figures 4 and 5). The Glacier Bay National Park Website (www.nps.gov/glba/evc.htm) is located in the USA, which has the highest IC index rating (91).

Figure 4. High individualist value: US National Park Website.

The Website from the National Parks of Costa Rica (www.tourism-costarica.com/) is located in a country with an IC index rating of 15.

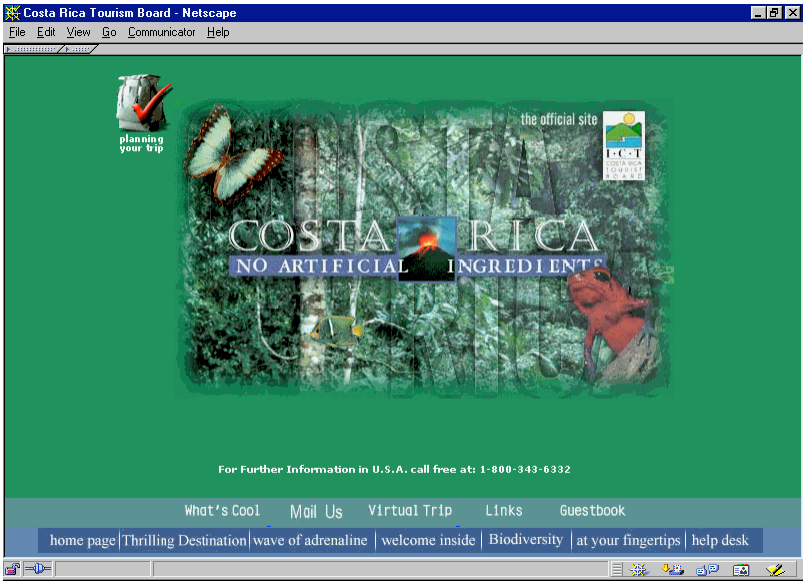

Figure 5. Low individualist value: Costa Rican National Park Website.

The third image (Figure 6) shows a lower level of the Costa Rican Website.

Figure 6. Costa Rican Website What's Cool contents: Political message about exploitation of children.

Note the differences in the two groups of Websites. The USA Website features an emphasis on the visitor, his/her goals, and possible actions in coming to the park. The Costa Rican Website features an emphasis on nature, downplays the individual tourist, and uses a slogan to emphasize

a national agenda. An even more startling difference lies below the What's Cool menu. Instead of a typical Western display of new technology or experience to consume, the screen is filled with a massive political announcement that the Costa Rican government has signed an international agreement against the exploitation of children and adolescents.

Masculinity vs. Femininity (MAS)

In masculine cultures, the traditional distinctions are strongly maintained, while feminine cultures tend to collapse the distinctions and overlap gender roles (both men and women can exhibit modesty, tenderness, and a concern with both quality of life and material success.)

Masculinity and femininity refer to gender roles, not physical characteristics.

Hofstede focuses on the traditional assignment to masculine roles of assertiveness, competition, and toughness, and to feminine roles of orientation to home and children, people, and tenderness. He acknowledges that in different cultures different professions are dominated by different genders. (For example, women dominate the medical profession in the Soviet Union, while men dominate in the USA.) But in masculine cultures, the traditional distinctions are strongly maintained, while feminine cultures tend to collapse the distinctions and overlap gender roles (both men and women can exhibit modesty, tenderness, and a concern with both quality of life and material success.) Traditional masculine work goals include earnings, recognition, advancement, and challenge. Traditional feminine work goals include good relations with supervisors, peers, and subordinates; good living and working conditions; and employment security.

The following list shows some typical MAS index values, where a high value implies a strongly masculine culture:

95 Japan
79 Austria
62 USA
53 Arab countries
47 Israel
43 France
14 Netherlands
05 Sweden

Since Hofstede's definition focuses on the balance between roles and relationships, we believe masculinity and femininity may be expressed on the Web through different emphases. High-masculinity cultures would focus on the following user-interface and design elements:

- Traditional gender/family/age distinctions
- Work tasks, roles, and mastery, with quick results for limited tasks
- Navigation oriented to exploration and control
- Attention gained through games and competitions
- Graphics, sound, and animation used for utilitarian purposes
- Feminine cultures would emphasize the following:
- Blurring of gender roles

- Mutual cooperation, exchange, and relational support (rather than mastery and winning)
- Attention gained through poetry, visual aesthetics, and appeals to unifying values

Examples of MAS differences on the Web can be illustrated by examining Websites from countries with very different MAS indices (Figures 7 and 8). The Woman.Excite Website (woman.excite.co.jp) is located in Japan, which has the highest MAS value (95). This Website narrowly orients its search portal toward a specific gender, which this company does not do in other countries.

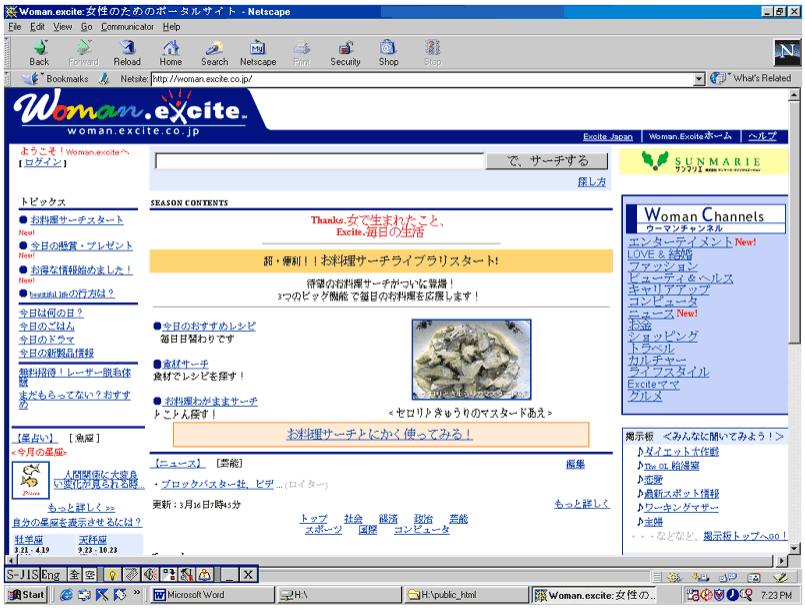

Figure 7. High masculinity Website: Excite.com for women in Japan

The ChickClick USA Website (MAS = 52) consciously promotes the autonomy of young women (although it leaves out later stages in a woman's life.)

Figure 8. Medium masculinity Website: ChickClick.com in the USA.

The Excite Website (www.excite.com.se) from Sweden, with the lowest MF value 5, makes no distinction in gender or age. (With the exception of the Netherlands, another low MAS country, all other European Websites provide more pre-selected information.)

Figure 9Low masculinity Website: Swedish Excite.com.

Uncertainty Avoidance (UA)

Cultures with high uncertainty tend to be expressive; people talk with their hands, raise their voices, and show emotions. People seem active, emotional, even aggressive; shun ambiguous situations. By contrast, low UA cultures tend to be less expressive and less openly anxious; people behave quietly without showing aggression or strong emotions.

People vary in the extent that they feel anxiety about uncertain or unknown matters, as opposed to the more universal feeling of fear caused by known or understood threats. Cultures vary in their avoidance of uncertainty, creating different rituals and having different values regarding formality, punctuality, legal-religious-social requirements, and tolerance for ambiguity.

Hofstede notes that cultures with high uncertainty avoidance tend to have high rates of suicide, alcoholism, and accidental deaths, and high numbers of prisoners per capita. Businesses may have more formal rules, require longer career commitments, and focus on tactical operations rather than strategy. These cultures tend to be expressive; people talk with their hands, raise their voices, and show emotions. People seem active, emotional, even aggressive; shun ambiguous situations; and expect structure in organizations, institutions, and relationships to help make events clearly interpretable and predictable. Teachers are expected to be experts who know the answers and may speak in cryptic language that excludes novices. In high UA cultures, what is different may be viewed as a threat, and what is “dirty” (unconventional) is often equated with what is dangerous.

By contrast, low UA cultures tend to have higher caffeine consumption, lower calorie intake, higher heart-disease death rates, and more chronic psychosis per capita. Businesses may be more informal and focus more on long-range strategic matters than day-to-day operations. These cultures tend to be less expressive and less openly anxious; people behave quietly without showing aggression or strong emotions (though their caffeine consumption may be intended to combat depression from their inability to express their feelings.) People seem easy-going, even relaxed. Teachers may not know all the answers (or there may be more than one correct answer), run more open-ended classes, and are expected to speak in plain language. In these cultures, what is different may be viewed as simply curious, or perhaps ridiculous.

Based on this definition, we believe uncertainty avoidance may influence contrary aspects of user-interface and Web design. High-UA cultures would emphasize the following:

- Simplicity, with clear metaphors, limited choices, and restricted amounts of data
- Attempts to reveal or forecast the results or implications of actions before users act
- Navigation schemes intended to prevent users from becoming lost
- Mental models and help systems that focus on reducing "user errors"

- Redundant cues (color, typography, sound, etc.) to reduce ambiguity.
- Low UA cultures would emphasize the reverse:
- Complexity with maximal content and choices
- Acceptance (even encouragement) of wandering and risk, with a stigma on “over-protection”
- Less control of navigation; for example, links might open new windows leading away from the original location.
- Mental models and help systems might focus on understanding underlying concepts rather than narrow tasks
- Coding of color, typography, and sound to maximize information (multiple links without redundant cueing.)

Examples of UA differences can be illustrated on the Web by examining airline Websites from two countries with very different UA indices (Figures 9 and 10). The Sabena Airlines Website (www.sabena.com) is located in Belgium, a country with a UA of 94, the highest of the cultures studied. This Website shows a home page with very simple, clear imagery and limited choices.

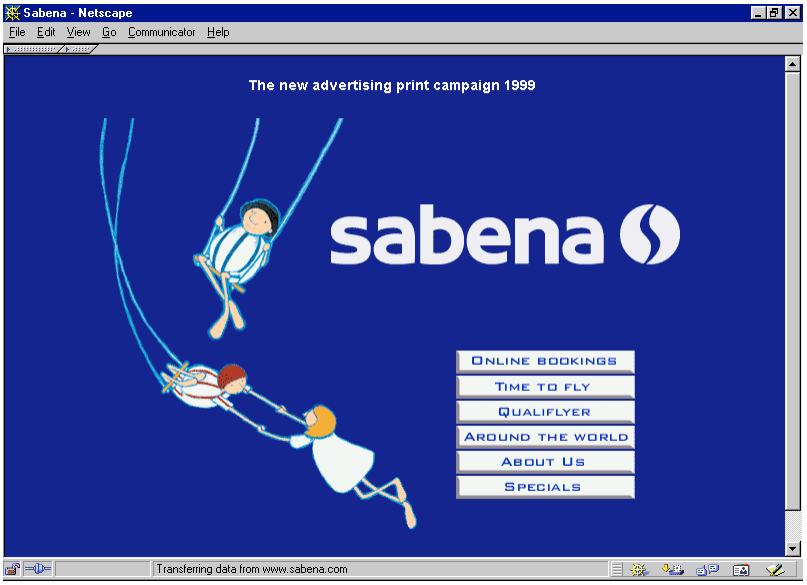

Figure 10. High uncertainty avoidance: Sabema Airlines Website from Belgium.

The British Airways Website (www.britishairways.com) from the United Kingdom (UA = 35) shows much more complexity of content and choices with popup windows, multiple types of interface controls, and “hidden” content that must be displayed by scrolling.

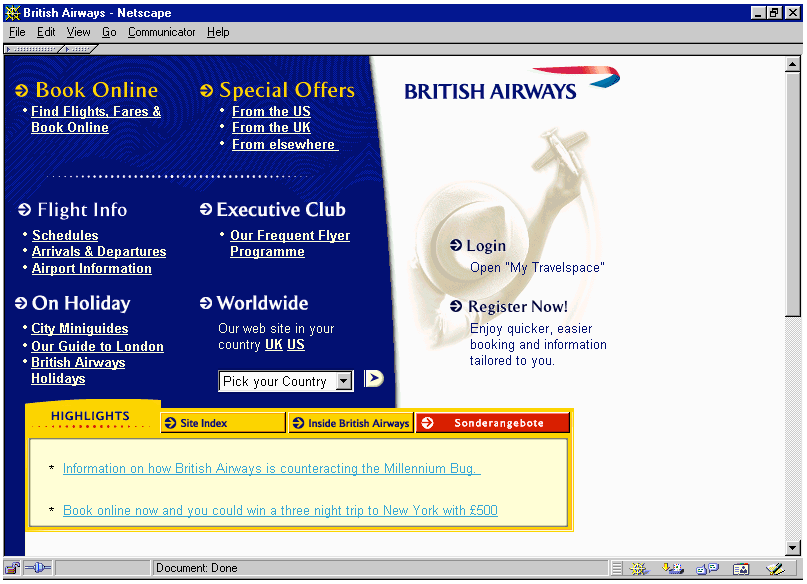

Figure 11. Low uncertainty avoidance: British Airways Website from United Kingdom.

Long- vs. Short-Term Time Orientation (LTO)

Long-Term Orientation seemed to play an important role in Asian countries that had been influenced by Confucian philosophy over many thousands of years. They concluded that Asian countries are oriented to practice and the search for virtuous behavior while Western countries are oriented to belief and the search for truth.

In the early 1980s, shortly after Hofstede first formulated his cultural dimensions, work by Michael Bond convinced him that a fifth dimension needed to be defined. Long-Term Orientation seemed to play an important role in Asian countries that had been influenced by Confucian philosophy over many thousands of years. Hofstede and Bond found such countries shared these beliefs:

- A stable society requires unequal relations.
- The family is the prototype of all social organizations; consequently, older people (parents) have more authority than younger people (and men more than women).
- Virtuous behavior to others means not treating them as one would not like to be treated.
- Virtuous behavior in work means trying to acquire skills and education, working hard, and being frugal, patient, and persevering.

Western countries, by contrast, were more likely to promote equal relationships, emphasize individualism, focus on treating others as you would like to be treated, and find fulfillment through creativity and self-actualization. When Hofstede and Bond developed a survey specifically for Asia and reevaluated earlier data, they found that long-term orientation cancelled out some of the effects of Masculinity/Femininity and Uncertainty Avoidance. They concluded that Asian countries are oriented to practice and the search for virtuous behavior while Western countries are oriented to belief and the search for truth. Of the 23 countries compared, the following showed the most extreme values:

118 China (ranked 1)
80 Japan (4)
29 USA (17)
0 Pakistan (23)

Based on this definition, we believe high LTO countries would emphasize the following aspects of user-interface design:

- Content focused on practice and practical value
- Relationships as a source of information and credibility
- Patience in achieving results and goals
- Low LTO countries would emphasize the contrary:
- Content focused on truth and certainty of beliefs
- Rules as a source of information and credibility
- Desire for immediate results and achievement of goals

Examples of LTO differences on the Web can be illustrated by examining versions of the same company's Website from two countries with different LT values (Figures 11 and 12). The Siemens Website (www.siemens.co.de) from Germany (LT=31) shows a typical Western corporate layout emphasizing crisp, clean functional design aimed at achieving goals quickly.

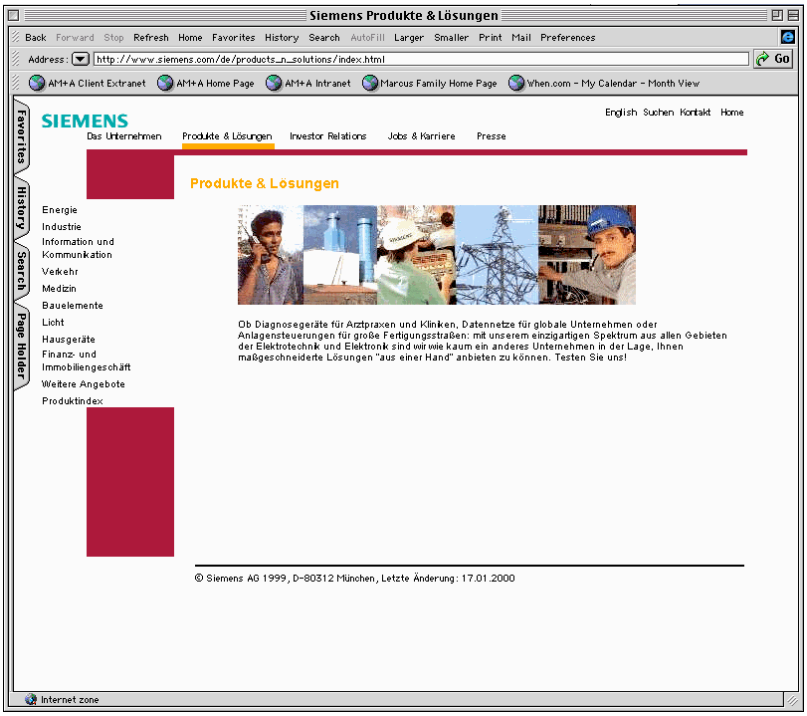

Figure 12. Low Long-term orientation: Website form Siemens Germany.

The Chinese version from Beijing requires more patience to achieve navigational and functional goals.

Figure 13. High Long-Term Orientation. Website fromSiemens in China.

Conclusions

Finally, if crosscultural theory becomes an accepted element of user-interface design, then we need to change our current practices and develop new tools. We need to make it feasible to develop multiple versions of Websites in a cost-effective manner, perhaps through templates or through specific versioning tools.

Hofstede notes that some cultural relativism is necessary: it is difficult to establish absolute criteria for what is noble and what is disgusting. There is no escaping bias; all people develop cultural values based on their environment and early training as children. Not everyone in a society fits the cultural pattern precisely, but there is enough statistical regularity to identify trends and tendencies. These trends and tendencies should not be treated as defective or used to create negative stereotypes but recognized as different patterns of values and thought. In a multi-cultural world, it is necessary to cooperate to achieve practical goals without requiring everyone to think, act, and believe identically.

This review of cultural dimensions raises many issues about UI design, especially for the Web. We have explored a number of design differences through sample Websites but other, more strategic questions remain. In crafting Websites and Web applications, the questions can be narrow or broad:

- How formal or rewarding should interaction be?
- What will motivate different groups of people? Money? Fame? Honor? Achievement?
- How much conflict can people tolerate in content or style of argumentation?
- Should sincerity, harmony, or honesty be used to make appeals?
- What role exists for personal opinion vs. group opinion?
- How well are ambiguity and uncertainty avoidance received?
- Will shame or guilt constrain negative behavior?
- What role should community values play in individualist vs collectivist cultures?

Other questions might relate to specific types of Websites:

- Does the objective of distance learning change what can be learned in individualist vs. collectivist cultures? Should these sites focus on tradition? Skills? Expertise? Earning power?
- How should online teachers or trainers act – as friends or gurus?
- Would job sites differ for individualist vs. collectivist cultures?
- Should there be different sites for men and women in different cultures?
- Would personal Webcams be OK or Not OK?
- How much advertising hyperbole could be tolerated in a collective culture focused on modesty?
- Would an emphasis on truth as opposed to practice and virtue require different types of procedural Websites for Western or Asian audiences?

Finally, if crosscultural theory becomes an accepted element of user-interface design, then we need to change our current practices and develop new tools. We need to make it feasible to develop multiple versions of Websites in a cost-effective manner, perhaps through templates or through specific versioning tools. As the Web continues to develop globally, answering these questions, and exploring, then exploiting, these dimensions of culture, will become a necessity and not an option for successful theory and practice.

Appendix A: Bibliography

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Appendix B: URLs and Other Resources

Selected URLs from the list at http://www.AmandA.com.

ACM/SIGCHI Intercultural listserve: chi-intercultural@acm.org.
Moderator: Donald Day, d.day@acm.org.

African-American Websites: bet.com, netnoir.com, blackfamilies.com

Color: colortool.com

Cultural comparisons: culturebank.com

Digital divide: digitaldivide.gov, digitaldivide.org, digitaldividenetwork.org/

Indian culture: indiagov.org/culture/overview.htm

Internationalization resources: world-ready.com/r_intl.htm, world-ready.com/biblio.htm

Internet statistics by language: euromktg.com/globstats/index.html, world-ready.com/biblio.htm
Localization: http://www.lisa.org/home_sigs.html

Native-American-oriented Website: hanksville.org/NAresources/

Simplified English: userlab.com/SE.html

Women: wow.com, oxygen.com, chickclick.com

www.HCIBib.org//SIGCHI/Intercultural

Appendix C: Hofstede's Dimensions of Culture Index Table

Hofstede, Geert, *Cultures and Organizations: Software of the Mind: Intercultural Cooperation and its Importance for Survival,* McGraw Hill, New York, 1991, ISBN:0-07-029307-4.

PDI Power distance Index
UDV Individualism Index
MAS Masculinity Index
UAI Uncertainty Avoidance Index
LTO Long-Term Orientation Index

	PDI		IDV		MAS		UAI		LTO	
	rank	score	rank	score	rank	score	rank	score	rank	score
Arab Countries	7	80	26/27	38	23	53	27	68		
Argentina	35/36	49	22/23	46	20/21	56	10/15	86		
Australia	41	36	2	90	16	61	37	51	15	31
Austria	53	11	18	55	2	79	24/25	70		
Bangladesh									11	40
Belgium	20	65	8	75	22	54	5/6	94		
Brazil	14	69	26/27	38	27	49	21/22	76	6	65
Canada	39	39	4/5	80	24	52	41/42	48	20	23
Chile	24/25	63	38	23	46	28	10/15	86		
China									1	118
Columbia	17	67	49	13	11/12	64	20	80		
Costa Rica	42/44	35	46	15	48/49	21	10/15	86		
Denmark	51	18	9	74	50	16	51	23		
East Africa	21/23	64	33/35	27	39	41	36	52		
Ecuador	8/9	78	52	8	13/14	63	28	67		
Finland	46	33	17	63	47	26	31/32	59		
France	15/16	68	10/11	71	35/36	43	10/15	86		
Germany FR	42/44	35	15	67	9/10	66	29	65	14	31
Great Britain	42/44	35	3	89	9/10	66	47/48	35	18	25
Greece	27/28	60	30	35	18/19	57	1	112		
Guatemala	2/3	95	53	6	43	37	3	101		
Hong Kong	15/16	68	37	25	18/19	57	49/50	29	2	96
India	10/11	77	21	48	20/21	56	45	40	7	61
Indonesia	8/9	78	47/48	14	30/31	46	41/42	48		
Iran	29/30	58	24	41	35/36	43	31/32	59		
Ireland (Republic of)	49	28	12	70	7/8	68	47/48	35		
Israel	52	13	19	54	29	47	19	81		
Italy	34	50	7	76	4/5	70	23	75		

Jamaica	37	45	25	39	7/8	68	52	13		
Japan	33	54	22/23	46	1	95	7	92	4	80
Malaysia	1	104	36	26	25/26	50	46	36		
Mexico	5/6	81	32	30	6	69	18	82		
Netherlands	40	38	4/5	80	51	14	35	53	10	44
New Zealand	50	22	6	79	17	58	39/40	49	16	30
Nigeria									22	16
Norway	47/48	31	13	69	52	8	38	50		
Pakistan	32	55	47/48	14	25/26	50	24/25	70	23	0
Panama	2/3	95	51	11	34	44	10/15	86		
Peru	21/23	64	45	16	37/38	42	9	87		
Philippines	4	94	31	32	11/12	64	44	44	21	19
Poland									13	32
Portugal	24/25	63	33/35	27	45	31	2	104		
Salvador	18/19	66	42	19	40	40	5/6	94		
Singapore	13	74	39/41	20	28	48	53	8	9	48
South Africa	35/36	49	16	65	13/14	63	39/40	49		
South Korea	27/28	60	43	18	41	39	16/17	85	5	75
Spain	31	57	20	51	37/38	42	10/15	86		
Sweden	47/48	31	10/11	71	53	5	49/50	29	12	33
Switzerland	45	34	14	68	4/5	70	33	58		
Taiwan	29/30	58	44	17	32/33	45	26	69	3	87
Thailand	21/23	64	39/41	20	44	34	30	64	8	56
Turkey	18/19	66	28	37	32/3	45	16/17	85		
Uruguay	26	61	29	36	42	38	4	100		
USA	38	40	1	91	15	62	43	46	17	29
Venezuela	5/6	81	50	12	3	73	21/22	76		
West Africa	10/11	77	39/41	20	30/31	46	34	54		
Yugoslavia	12	76	33/35	27	48/49	21	8	88		
Zimbabwe									19	25

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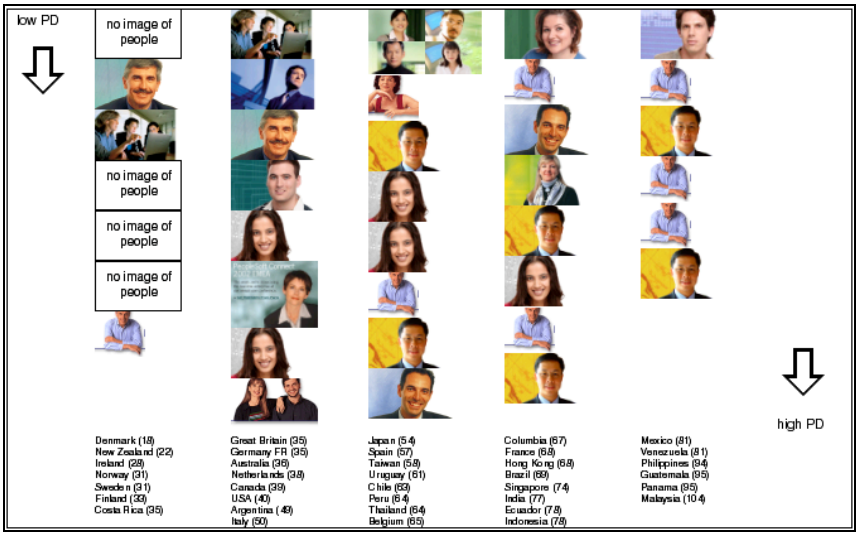
Culture *vs.* Corporate Global Web UI Design



This white paper by Aaron Marcus and Associates, Inc. (AM+A) analyzes corporate global Web user-interface design standards under the influence of culture differences. Culture differences are described in terms of dimensions of culture, as analyzed by Geert Hofstede, among others. Examples from the Web illustrate the impact of culture on corporate global Web user-interface design.

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Abstract

Using examples from corporate Websites in several countries, this analysis compares user-interface components (metaphors, mental models, navigation, interaction, and appearance) with Hofstede's cultural dimensions (power distance, individualism-collectivism, gender roles, uncertainty avoidance, and long-term time orientation). Several typical patterns are observable.

1.0 Introduction

User-interface (UI) design for Websites are cultural artifacts. A goal of this paper is to analyze Websites in order to understand to what extent the corporate designs seem to exhibit differences that relate to cultural differences. We also wish to show to what extent Geert Hofstede's culture theory [Hofstede], which establishes five dimensions of culture, is appropriate for such research. Hofstede's dimensions (and ranges) are the following: power-distance (PD) (high vs. low) focuses on the degree of equality among people in the country's society; collectivism vs. individualism (IDV) focuses on the degree to which the society reinforces individual or collective, achievement or interpersonal, relationships; femininity vs. masculinity (MAS) focuses on the degree to which the society reinforces, or does not reinforce, the traditional masculine work role model of male achievement, control, and power (vs. feminine cultures in which the roles are more closely related); uncertainty avoidance (UA) (high vs. low) focuses on the extent to which the members of a society feel threatened by uncertain or unknown situations; time orientation (long vs. short) (LTO) focuses on the degree to which a society embraces, or does not embrace, long-term devotion to traditional values (strongly related to Confucian societies). Combining Hofstede's five dimensions with five components of UI design (metaphors, mental model, navigation, interaction, and appearance) [Marcus, 1997], one may examine 25 possible areas to evaluate how a Website is localized.

2.0 Method

When combining the schemes of Hofstede's cultural dimensions and design components, a 5x5 matrix that allows for 25 fields of interest.

	PD	IDV	MAS	UA.	LTO
Metaphor					
Mental Model					
Navigation					
Interaction					
Appearance					

An article by Marcus and Gould [Marcus and Gould, 2000] points out possible implications of Hofstede's dimensions for UI components. To find out if these assumptions match with "real life" is one goal of this article: *i.e.*, can examples be found in localized Websites? For this analysis, the authors attempted to be generally inclusive under constraints of time and chose reasonably complex, different "B2B" and "B2C" Websites from three different continents (USA, Europe, and Asia), as shown below. The exact circumstances of each Website design could not be determined; however, we examine evidence from the sites themselves.

	US	Europe	Asia
Business	Sapient (S)	Siemens (SIE)	Hitachi (HIT)
	Peoplesoft (PEO)	SAP (SAP)	
Consumer	McDonalds (McD)	IKEA (IKE)	Sony (SON)
	Coca Cola (COC)	Mercedes (MER)	Mazda (MAZ)

2.1 Key findings

The matrix below shows the Website examples studied. The abbreviations stand for the companies and appear in the corresponding positions of the above matrix. Note: examples do not appear in all of the matrix cells.

	PD	IDV	MAS	UA	LTO
Metaphors	SIE HIT	SIE McD	McD	S SIE SAP IKE MER	
Mental Model	HIT	S SIE PEO MER	SIE	SIE	SIE
Navigation	S		SIE	SIE McD	
Interaction	COC		SIE McD MER		HIT
Appearance	SIE PEO		McD COC MER	SIE McD	SIE

3.0 Analysis of culture dimensions and UI components

The following section discusses Hofstede's culture dimensions and within them user-interface components. For each component, visual examples from the selected Websites appear to provide context and clarification. Because of space limitations, we are not able to include all the visual examples researched. (More will appear in a forthcoming article [Marcus et al, 2003].)

3.1 Power Distance

3.1.1 Metaphors: According to Hofstede, countries with a very high power distance focus on expertise, authority, and/or experts. Applied to the field of UI design and working with the term “metaphor” one can assume that visual metaphors in such high power distance countries would show institutions, buildings or objects with a clear hierarchy. On the Siemens Website we see the Netherlands (low power distance) uses the eye-level portion of a person’s face as a metaphor for the home “button”, whereas Malaysia (high power distance) uses a city’s skyline. The Netherland’s picture is an “equal” (level) look into someone’s eyes (see [Kress and van Leeuwen]); Malaysia’s skyline view shows official buildings.

Table 1. Siemens Website: personal images vs. official buildings

Netherlands (low power distance)	Malaysia (high power distance)
 Metaphor for “Home”: the face / the eyes of a person	 Metaphor for “Home”: an official building

3.1.2 Mental Model: Considering mental models, it seems likely that countries with a high PD will prefer complex, highly organized, highly categorized, highly populated structures and reference data with little or no relevancy ranking. Countries with a low power distance will prefer simpler, informally organized and categorized structures, with less structured data with some or much relevancy. The Hitachi Website shows a contact page in Canada (low power distance) that offers limited, but well-structured contact data. The Hitachi Website in Singapore (slightly higher power distance) offers much contact information on one page. As opposed to the Canadian contact page, the information on the Singaporean contact page is highly categorized.

3.1.3 Navigation: Regarding navigation through a UI, and following Hofstede’s dimension definition, we assume that low power distance countries prefer open access, multiple options, and sharable paths; whereas high power distance countries have a higher use of authentication and passwords, and they prefer prescribed routes and restricted choices. A Website of Sapient supports this assertion. The careers frequently-asked questions (FAQ) page from the German

Website (low power distance) offers a variety of possibilities about how to apply for a job at Sapient. The same page within the Indian Website (high power distance) describes only one very restricted way to apply: the applicant must go through a standardized process by using the Web job-search engine and applying via a Web form.

3.1.4 Interaction: Interaction in the field of UI design refers to input and output sequences, including feedback for the user, as well as larger-scale behavioral aspects. The Coca Cola Website provides a good example that feedback in low power distance countries can mean "supportive error messages", whereas feedback in high power distance countries contains severe error messages. When one tries to login to the members' section on the Denmark site and types in an incorrect password, the error message is very polite (using words like "unfortunately…, please…"), tries to give an overview of what went wrong, and offers possible solutions by telling the user what to do. Exactly the contrary is true for the Malaysian feedback after a failed login: The expression "Bzzzzt!" seems not polite and does not explain what went wrong. The actual error message "wrong password!" seems more like a stern scolding, and the phrase "now for your next attempt…" does not guide the user to a possible solution.

3.1.3 Appearance: Applying Hofstede's research to visual appearance, we assume that countries with low PD prefer Websites that use "normal" people or groups; show daily activities; use popular music, symbols, typefaces, layouts, and colors; and employ informal speech. Countries with high power distance might use images of leaders, national, corporate, and government themes, slogans, insignia, logos, symbols, typefaces, layouts, and colors; official music or anthems; and formal speech. We can find supporting examples for this assertion on the PeopleSoft and Siemens Websites. A very strong supporting example can be found by comparing the Italian localization of Siemens with the Singaporean. The image used as a Home button in the upper-left corner shows a man and a woman in the Italian version, whereas the Singaporean Website uses the picture of an official monument surrounded by Singaporean skyscrapers.

Table 2. Siemens Website: people vs. leaders

Italy (PD 50)	Singapore (PD 74)
	
Images of **people**	Images of **leaders**, **official Websites**

3.2 Collectivism vs. Individualism

3.2.1 Metaphors: Applying Hofstede's theory, we assume metaphors used in collectivist countries might be relationship-oriented and content-oriented, whereas those in individualist countries might be action- or tool-oriented. Comparing Brazil's (collectivist) corporate McDonalds Website with the US (individualist), we see much more individualism in the US. We see the image of a single individual (one man) who represents the company. On the Brazilian Website we see a mixture of group images to represent the company.

Table 3. McDonalds Website: focusing on groups vs. focusing on individuals

Brazil (collectivist)	United States (individualist)
 Images of **groups** an organizations that should visualize the section "McDonalds in Brazil"	 Images of a **single person** to visualize the "Corporate" section of McDonalds USA.

3.2.2 Mental Model: When considering the mental model of individualist countries, we assume the individual is the most important part in such a model. Individualist countries therefore might use very product- or task-oriented mental models in which personal achievement is maximized, whereas collectivist countries might emphasize role-oriented models underplaying personal achievement. For individualist and collectivist approaches within text, we show an example of the PeopleSoft Website. Comparing the Singaporean (collectivist) and the German (individualist) "About PeopleSoft" sections, we find a significant difference regarding emphasizing personal achievement. Singapore's Website speaks about the role the company plays in the world's economy, mentions the employees and partners, and talks about how PeopleSoft can help its customers. The German Website simply mentions the company's founding date and location, and it emphasizes the CEO, who is mentioned by name.

3.3 Femininity vs. Masculinity

3.3.1 Metaphors: Comparing the Finnish (feminine) with the Austrian (masculine) McDonalds Website, we find a metaphor on the front page

that supports the idea that feminine countries focus on family and shopping, whereas masculine countries prefer sports and competition.

3.3.2 Mental Model: Applying Hofstede's assumptions about femininity and masculinity to the component of mental models, we assume we shall find social structures in feminine countries and work/business structures in masculine countries. We also might expect detailed views and relationship-oriented approaches in feminine countries, whereas we might find high-level, "executive views" and goal-oriented approaches in masculine countries. The Siemens Website supports this assertion: Whereas the Norwegian (feminine) careers page focuses on social structures and is very relationship-oriented (the main sections are entitled "What we are looking for" and "What we can offer"), the Austrian page (masculine) emphasizes the quality of the company and advanced education possibilities for employees, which seems goal oriented.

3.3.3 Navigation: The contact page of the Siemens Website offers multiple choices in Sweden (feminine) but only one possibility to contact the local company in Japan (masculine). This example supports the assertion that feminine countries would prefer multiple choices, multi-tasking, and polychronic approaches, whereas masculine countries would prefer limited choices and synchronic approaches.

3.3.4 Interaction: Regarding interaction, we assume high masculinity countries prefer game-oriented, mastery-, and individual-oriented approaches. In countries emphasizing gender differentiation and competitiveness less, we expect these approaches less and more practical, function-oriented approaches. The McDonalds Website is an example that supports this assertion: The Swedish (feminine) Website focuses on the client service by providing many ways to get into direct contact with the company. On the Austrian (masculine) Website, it is much easier to find the fun and games section than contact information. The fun section contains technical content such as screensavers and wallpapers, a link to send an e-card, and a score-based game. A client-service section is not available on the Austrian Website.

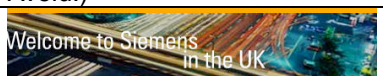
3.3.5 Appearance: In countries with a feminine index, we expect harmonious colors and shapes. Among three examples found, we present a study of the Mercedes-Benz Website: Although the Mercedes-Benz Website is very similar in all the localized Websites, we find a major difference in the design for Sweden (feminine) and Germany (masculine). The visual design approach from Sweden uses softer edges and shapes than the German approach. The German layout focuses more on clear structure and avoids cuteness.

3.4 Uncertainty Avoidance

3.4.1 Metaphors: Applying Hofstede's theory about uncertainty avoidance to the UI component of metaphors, we assume countries with low uncertainty avoidance would not shun, and might even prefer, novel, unusual references and abstraction, whereas cultures with a high amount of uncertainty avoidance would ask for familiar, stable, and clear references to daily life and for representation instead of abstraction. IKEA is a European furniture store that is known for its casual, easy-going advertisement style and its low prices. The Swedish (low uncertainty avoidance) Website uses the slogan "Nothing is impossible" which is quite ambiguous. The French (high uncertainty avoidance) Website uses the very specific slogan "Design at [a] small [low] price". We find a similar situation at the Sapient Website: All Websites localized for countries with a low uncertainty avoidance value (according to Hofstede's values, under 65) use the slogan "MAKING TECHNOLOGY MATTER", which is not very specific. Italy and Japan score high on the uncertainty avoidence scale and use the more precise text "DESIGNING TECHNOLOGY HUMANS CAN USE".

The same pattern holds not only for textual elements but for imagery: When comparing the British (low uncertainty avoidance) and the Belgian (high uncertainty avoidance) Websites, we find pictures that act as metaphors. The UK Website shows a very dynamic photo of unidentifiable technical objects and the slogan "Welcome to SIEMENS in the UK," *i.e.*, an abstract representation of the company. The Belgian Website shows varied pictures of daily life, which act as representations.

Table 4. Siemens Website: abstraction vs. representation

United Kingdom (low unc. Avoid.)	Belgium (high uncertainy avoidance)
	
Novel, unusual references, **abstractions**	Familiar, clear references to daily life, **representations**

3.4.2 Mental Model and Navigation: Considering the mental model, we expect tolerance for ambiguousness, implicit structures or relations, complexity, and fuzzy logic in countries with low UA. Conversely, we expect simple, explicit, clear articulation; limited choices; and binary logic in countries with high UA. Because the components of mental model and navigation are closely related (structure and process), they are considered together and are impacted similarly as in the previous description. Both Switzerland and Belgium are multilingual countries. When a user enters the Siemens Website of Switzerland (low UA), it is

possible for her/him to choose among the languages, but it is also possible to access directly several links. The Belgian Website offers a more binary logic: a user always must decide at the beginning in which language s/he wants to explore the Website. Not until this is done can s/he navigate deeper into the mental model of the Website.

Table 5. Siemens Website: variety vs. consistency.

United Kingdom (low unc.avoid.)	Belgium (high uncertainty avoidance)
	
Ambiguous, varied imagery	Simple, clear, consistent imagery

3.4.4 Appearance: Considering the UI component of appearance, we assume low uncertainty avoidance countries may expect tolerance for more perceptual characteristics involved in purely ornamental or aesthetic use and less redundant coding of perceptual cues. Countries with a high uncertainty avoidance may prefer simple, clear, and consistent imagery, terminology, and sounds. The users may expect highly redundant coding of perceptual cues. Again, we can find an example corroborating these assertions by comparing the Belgium (high uncertainty avoidance) with the UK (low uncertainty avoidance). At the Siemens Website, the imagery is much more consistent and redundant on the Belgian Website than on the British Website.

3.5 Long-Term Time Orientation

3.5.1 Mental Model: Hofstede's theory seems to imply that long-term time-oriented countries would more actively pursue the long-term perspective. The following example shows the difference in mental model concerning long-term time orientation: Pakistan (short time orientation) mentions in a text on the Siemens Website the size and locations of the company. China (long time orientation) focuses on the long-lasting history of the company.

3.5.2 Interaction: Regarding interaction in short-term time oriented countries we assume that distance communication is accepted as more efficient; and, therefore, anonymous messages are tolerated more. Inhabitants of long-term time oriented countries may prefer face-to-face communication, harmony, and, to achieve that harmony, personalized messages. We can find an example of this pattern at the Hitachi

Website. The US (short-term time orientation) Website offers a contact page on which the user can find only a Web form to place a message. At the Singaporean (long-term time orientation) Website, we find a Web form as well as personal contact information. The personal information is at the top of the page, so it seems more likely that the user selects this personal form of communication.

3.5.3 Appearance: Short-term time-oriented countries seem more likely to focus on achieving goals quickly; hence, they might tend to show fewer things, avoid overly ornamented imagery, and focus on achieving practical goals. Long-term time oriented countries might do just the opposite. Siemens shows the use of imagery in both long- and short-term time-oriented countries. China (long-term time orientation) uses warm, fuzzy images and pictures of groups, whereas Pakistan (short-term time orientation) concentrates on showing tasks or products.

Table 6. Siemens Website: task-oriented vs. group-oriented.

Pakistan (shortest-term time orient.)	China (longest-term time orientation)
 Concentration on showing **tasks** or products	 Warm, fuzzy images, pictures of **groups**

4.0 Visual syntax patterns

The previous analysis concentrated on specific cultural dimensions and, within each, the likely characteristics of UI components. It is also possible to examine broader patterns of visual syntax, for example, layout. We compared images found on home pages of Websites of Siemens and PeopleSoft, and we present observations for the dimension of power distance.

Considering power distance, the following patterns are noticeable:

1.Websites that do not put a picture on the front page come from low power-distance value countries.

2.The eight countries with the highest power distance value show a picture of a man on their Websites.

Table 7. PeopleSoft Website: Front page imagery in order of power distance.

5.0 Conclusion

In this exploration of Websites, we discovered that our matrix-oriented method helps to organize and analyze data collection. Initial observations suggest that cultural habits run deeply and operate even under constraints of global design specifications. In high individualistic and low power-distance countries, variations from standard practice seem likely to be most frequently observed.

We point out that presenting the examples cited, while useful to illustrate patterns, does not necessarily mean that, *ipso facto*, any particular pattern is the *right* way to design or revise a UI for a particular application or culture. The designer must take both context and culture into account. In addition, the UI designer also might consider how these patterns may influence cultures and design conventions, which undergo a continuous process of change.

One likely result of such research is a “culturebase” with specific conditions and predictable results that would inform a content management system (CMS). However, to draw specific conclusions and to use them in a CMS, more data are needed. This research method seems useful and productive. Further research could produce quantitative and qualitative results that may feed culture-localization templates and tools.

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AM+A White Paper

Return on Investment for Usable User-Interface Design: Examples and Statistics

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Introduction: What *is* the ROI of Usability?

Making computer-based products (and services) more usable is smart business. Usability increases customer satisfaction and productivity, leads to customer trust and loyalty, and inevitably results in tangible cost savings and profitability. Because user-interface (UI) development is part of a product's development cost anyway, it pays to do it right.

Most software and Website development managers view usability costs as added effort and expense, but the reverse is more commonly true. Because the first 10% of the design process, when key system-design decisions are made, can determine 90% of a product's cost and performance, usability techniques help keep the product aligned with company goals (Smith & Reinersten). Usability returns many benefits (return on investment, or ROI) to products developed for either internal use or sale (Bias & Mayhew, 1994):

Internal ROI

- Increased user productivity
- Decreased user errors
- Decreased training costs
- Savings gained from making changes earlier in design life cycle
- Decreased user support

External ROI

- Increased sales
- Decreased customer support costs
- Savings gained from making changes earlier in the design life cycle
- Reduced cost of providing training (if training is offered through the vendor company (Bias & Mayhew, 1994)

Usability also plays a role in the public's perception of a company, affecting brand value and market share. About 15% (Nielsen, 1993) of the space in reviews published in trade magazines, journals, and national newspapers is devoted to user friendliness or usability. Media giants such as *The New York Times*, the *Financial Times*, and the *Wall Street Journal* publish weekly columns that evaluate software (Bias & Mayhew, 1994). *Info World* devotes between 18% and 30% of its software review articles to ease of learning, ease of use, and quality of documentation (Nielsen, 1993).

Usability can also effect the financial health and public perception of a company in less obvious ways. Many companies do not understand the issues users have with their products. Problems caused by these oversights have led to manufacturers being found liable for defective

designs. To their regret, the courtroom evaluation of a product's usability was often the first time that manufacturers were exposed to human factors engineering (Bias & Mayhew, 1994).

Now that we have introduced some terms and concepts, let's look at the evidence of ROI for usability in user-interface design.

How can We "Prove" the ROI? Some Examples and Statistics

Having stated the basic benefits of usability, let's examine the evidence for a positive ROI. We list below key usability benefits, then define appropriate value propositions. For each of these value propositions, we present examples from the literature that help to interpret the cost of usability challenges and/or we cite statistics. While a cost-benefit analysis for every circumstance does not exist, these "proofs" of applying usability in user interfaces predict likely quantifiable benefits or ROI.

Overall Value of Implementing UI Practices

Because there have been many well-documented examples of cost savings with usability engineering, sound statistics can be applied generally to user-interface development. These statistics serve as benchmarks.

Value proposition: High return on savings and product usability

Some statistics

"The rule of thumb in many usability-aware organizations is that the cost-benefit ratio for usability is $1:$10-$100. Once a system is in development, correcting a problem costs 10 times as much as fixing the same problem in design. If the system has been released, it costs 100 times as much relative to fixing in design." (Gilb, 1988)

"The average user interface has some 40 flaws. Correcting the easiest 20 of these yields an average improvement in usability of 50%. The big win, however, occurs when usability is factored in from the beginning. This can yield efficiency improvements of over 700%." (Landauer, 1995)

Development: Reduce Costs

Usability engineering is most effective at the beginning of the product development cycle, especially if it is part of quality functional deployment (QFD), a process used for structuring the development process through a primary focus on customer requirements. Through QFD, reducing development time by one-third to one-half is possible (Scerbo, Bosert, 1991). For example, for new products there is no investment in any particular design, and numerous possibilities can be explored at relatively little cost (Bias & Mayhew, 1994) (see Figure 1). Applying human factors in the initial design can greatly reduce extensive redesign, maintenance, and customer support, which can substantially eat away profits.

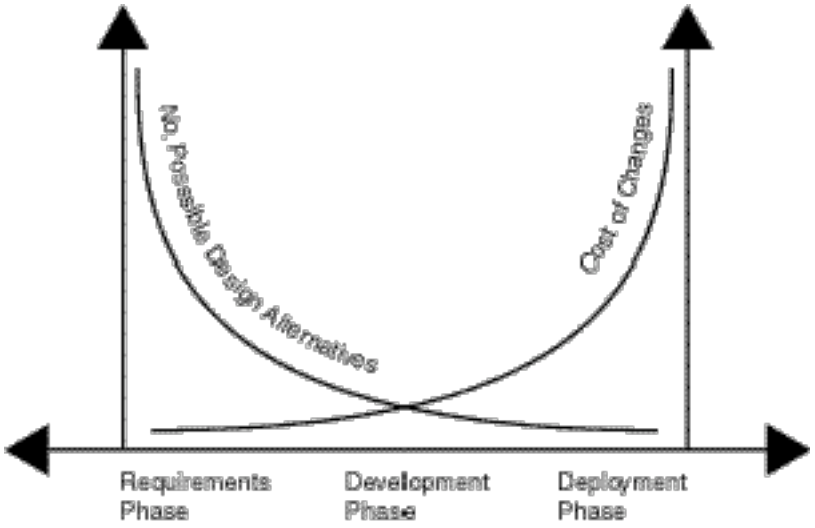

Figure 1. The number of possible designs decreases as the cost to make changes increases. (Bias & Mayhew, 1994, p. 80)

Short-term benefits can accumulate during product development and long-term benefits during product release. Customers directly benefit by usability improvements by increases in ease of use, ease of learning, user satisfaction, and user productivity. At the same time, decreases occur in the number of "user" errors, costs for training and support, and maintenance. Taking proactive measures in usability and quality during the initial production stages can produce a cost saving rippling effect.

Value proposition: Save development costs

Some Examples

"Savings from earlier vs. later changes: Changes cost less when made earlier in the development life cycle. Twenty changes in a project, at 32 hours per change and [a minimal] hourly rate of $35, would cost $22,400. Reducing this to 8 hours per change would reduce the cost to $5,600. Savings = $16,800." (Human Factors International, 2001)

"A financial services company had to scrap an application it had developed, when, shortly before implementation, developers doing a User Acceptance test found a fatal flaw in their assumptions about how data would be entered. By this time, it was too late to change the underlying structure, and the application never implemented." (Dray, 1995)

Some Statistics

"When managers were polled regarding the reasons for the inaccurate cost estimates, the top four reasons were issues that could have been addressed by following best practices in usability engineering. These include frequent requests for changes by users, overlooked tasks, users' lack of understanding of their own requirements, and insufficient

communication and understanding between users and analysts." (Barker, 2000)

"A study of software engineering cost estimates showed that 63% of large software projects significantly overran their estimates (Nielsen, 1993). When asked to explain their inaccurate cost estimates, software managers cited 24 different reasons and, interestingly, the four reasons rated as having the highest responsibility were related to usability engineering. Proper usability engineering methodology will prevent most such problems and thus substantially reduce cost overruns in software projects." (Nielsen, 1993)

Value proposition: Save development time

Some Examples

"Usability techniques allowed a high-tech company to reduce the time spent on one tedious development task by 40% (Bias & Mayhew, 1994). At another company, usability techniques helped cut development time by 33-50%." (Bosert, 1991)

Some Statistics

"Conklin (1991) states that speeding up development is a key goal for integrating usability effectively into product development and that a one-quarter delay in bringing a product to market may result in the loss of 50% of the product's profit." (Bias & Mayhew, 1994)

"Increased revenues accrue due to the increased marketability of a product with demonstrated usability, increased end-user productivity, and lower training costs. Conklin (1991) states that another usability goal is speeding up market introduction and acceptance by using usability data to improve marketing literature, reach market influencers and early adopters, and demonstrate the product's usability and reduced training cost." (Bias & Mayhew, 1994)

Value proposition: Reduce maintenance costs

An Example

"[Usability engineering techniques] are quite effective at detecting usability problems early in the development cycle, when they are easiest and least costly to fix. By correcting usability problems in the design phase, American Airlines reduced the cost of those fixes by 60-90%." (Bias & Mayhew, 1994)

Some Statistics

"One [well-known] study found that 80 percent of software life-cycle costs occur during the maintenance phase. Most maintenance costs are associated with "unmet or unforeseen" user requirements and other usability problems." (Pressman, 1992)

"Martin and McClure found that $20-30 billion was spent worldwide on maintenance. Studying backlogs of maintenance work shows that an "invisible" backlog is 167% the size of the declared backlog. Anonymous case study data show that internal development organizations are spending the majority of their resources on maintenance activities and thus cannot initiate development of strategic new systems." (Martin & McClure, 1983)

Value proposition: Save redesign costs

An Example

"Sun Microsystems has shown how spending about $20,000 could yield a savings of $152 million dollars. Each and every dollar invested could return $7,500 in savings." (Rhodes, 2000)

Sales: Increase Revenue

Usable products lead to substantial cost savings and sales. Unusable products most often prevent a customer from accomplishing a productivity task or retrieving information necessary to make an e-commerce purchase. Online shoppers spend most of their time and money at Websites with the best usability (Nielsen, 1998). Good navigation and Website design make it easier for users to find what they're looking for and to buy it once they've found it (Donahue, 2001). Because there are so many poorly designed Websites, when customers find one that "works", they tend to do repeat business and gain trust in the organization.

Usable products also lead to good product reviews. Publications devote space just to this one factor, and good reviews lead to increased sales.

Value proposition: Increase transactions/purchases

Some Statistics

"You can increase sales on your site as much as 225% by providing sufficient product information to your customers at the right time. In our recent research, we found that the design of product lists directly affected sales. On sites that did not require shoppers to bounce back-and-forth between the list and individual product pages, visitors added more products to their shopping cart and had a more positive opinion of the site. By understanding your customer expectations and needs, and designing your product lists accordingly, you can significantly increase your sales." (User Interface Engineering, 2001)

"One study estimated that improving the customer experience increases the number of buyers by 40% and increase order size by 10%." (Creative Good, 2000)

Value proposition: Increase product sales

Some Examples

"Wixon & Jones did a case study of a usability-engineered software product that increased revenue by more than 80% over the first release of the product (built without usability work) (Wixon). The revenues of the usability-enhanced system were 60% higher than projected. Many customers cited usability as a key factor in buying the new system." (Bias & Mayhew, 1994)

"After move.com completed the redesign of the home "search" and "contact an agent" features based on a UI consulting firm's recommendations, users ability to find a home increased from 62% to 98%, sales lead generation to real estate agents increased over 150%, and [move.com's] ability to sell advertising space on move.com improved significantly." (Vividence, 2001)

Some Statistics

"The magnitude of usability improvements is usually large. This is not a matter of increasing use by a few percent. It is common for usability efforts to result in a hundred percent or more increase in traffic or sales." (Nielsen, July 1999)

"Convoluted e-commerce sites can lose up to half of their potential sales if customers can't find merchandise, according to Forrester Research, Inc." (Kalin, 1999)

Value proposition: Increase traffic (size of audience)

Some Examples

"IBM's Web presence has traditionally been made up of a difficult-to-navigate labyrinth of disparate subsites, but a redesign made it more cohesive and user-friendly. According to IBM, the massive redesign effort quickly paid dividends. The company said in the month after the February 1999 re-launch that traffic to the Shop IBM online store increased 120 percent, and sales went up 400 percent." (Battey, 1999)

"At HomePortfolio.com we monitored site traffic, observed consumers in usability studies and worked with internal business groups. This helped us make changes that made the site's purpose clearer and increased transaction rates measurably. The change increased the traffic up 129% the week we put it up." (Interaction Design, Inc., 2001)

Value proposition: Retain customers (frequency of use)

Some Statistics

"More than 83 percent of Internet users are likely to leave a Web site if they feel they have to make too many clicks to find what they're looking for, according to Andersen's latest Internet survey." (Arthur Andersen, 2001)

"A bad design can cost a Web site 40 percent of repeat traffic. A good design can keep them coming back. A few tests can make the difference." (Kalin, 1999)

Value proposition: Attract more customers (increase appeal)

An Example

"Staples.com determined that the key to online success and increased market share was to make its e-commerce site as usable as possible. Staples.com spent hundreds of hours evaluating users' work environments, decision-support needs, and tendencies when browsing and buying office products and small business services through the Web. Methods included data gathering, heuristic evaluations, and usability testing. [They achieved these results]:

67% more repeat customers

31-45% reduced drop-off rates

10% better shopping experience

80% increased traffic

Increased revenue" (Human Factors International, 2001)

A Statistic

"In a 1999 study of Web users, respondents were asked to list the five most important reasons to shop on the Web. Even though low prices definitely do attract customers, pricing was only the third-most important issue for respondents. Most of the answers were related to making it easy, pleasant, and efficient to buy. The top reason was "Easy to place an order" by 83% of the respondents." (Nielson, February 1999)

Value Proposition: Increase market share (competitive edge)

An Example

"Usability is one of our secret weapons." The secret weapon appears to be working. Schwab's main Website for U.S. investors, www.schwab.com, handles more than $7 billion in securities transactions a week, with more than 2 million active customer accounts holding $174 billion in assets. With those numbers, one might wonder why Schwab would need to make any changes to its Web site at all. But Schwab knows it cannot afford to coast; as more and more newcomers get online, and the competition for their dollars increases, more e-commerce sites are making ease of use a differentiator. "A year ago, it was a rush to put up applications and functionality," Thompson says. "It's now a rush to be useful." (Kalin, 1999)

Some Statistics

"The importance of having a competitive edge in usability may be even more pronounced for e-commerce sites. Such sites commonly drive

away nearly half of repeat business by not making it easy for visitors to find the information they need (Manning). The repeat customers are most valuable: new users at one e-commerce site studied spent an average of $127 per purchase, while repeat users spent almost twice as much, with an average of $251." (Nielsen, August 1, 1997).

Use: Improve effectiveness

User-centered design benefits users, the users' company, and the vendor company. Increased usability increases productivity and job satisfaction while decreasing customer support needs and documentation requirements. When users feel more effective with their work, rates of absenteeism and employee turnover are lowered. All of these benefits are in alignment with fulfilling successful business goals.

Value proposition: Increase success rate, reduce user error

Some Examples

"One study at NCR showed a 25% increase in throughput with an additional 25% decrease in errors resulting from redesign of screens to follow basic principles of good design." (Gallaway, 1981)

"On Disney.com, for example, when UIE asked users to find the hotel closest to the monorail at Disney World, about 20 percent became lost in Disneyland and didn't even know it. 'If one in five people who came to the theme parks got lost,' Spool says, 'Disney would fix it.' Disney Online's Senior Vice President and General Manager Ken Goldstein notes that Disney Online is already committed to developing an easy-to-use Internet design. While Disney Online did not have anything to do with Spool's tests, Goldstein is interested in his findings. 'As the next generation of Disney.com evolves,' Goldstein says, 'we will continue to respond to customer input through our own usability testing.'" (Kalin, 1999)

Some Statistics

"A study from Zona Research found that 62% of Web shoppers have given up looking for the item they wanted to buy online (and 20% had given up more than three times during a two-month period)." (Nielsen, October 1998)

"In Jared Spool's study of 15 large commercial sites, users could only find information 42% of the time even though they were taken to the correct home page before they were given the test tasks." (Nielsen, October 1998)

Value Proposition: Increase efficiency/productivity (reduce time to complete task)

Some Examples

"With its origins in human factors, usability engineering has had considerable success improving productivity in IT organizations. For instance, a major computer company spent $20,700 on usability work to improve the sign-on procedure in a system used by several thousand people. The resulting productivity improvement saved the company $41,700 the first day the system was used. On a system used by over 100,000 people, for a usability outlay of $68,000, the same company recognized a benefit of $6,800,000 within the first year of the system's implementation. This is a cost-benefit ratio of $1:$100." (Bias & Mayhew, 1994)

"To build a model intranet, Bay Networks spent $3 million and two years studying the different ways people think about the same thing. The result: all think alike about the $10 million saved each year." (Fabris, 1999)

Some Statistics

"Inadequate use of usability engineering methods in software development projects have been estimated to cost the US economy about $30 billion per year in lost productivity (see Tom Landauers' excellent book *The Trouble with Computers*). By my estimates, bad intranet Web design will cost $50-100 billion per year in lost employee productivity in 2001 ($50B is the conservative estimate; $100B is the median estimate; you don't want to hear the worst-case estimate!). Bad design on the open Internet will cost a few billion more, though much of this loss may not show up in gross national products, since it will happen during users' time away from the office." (Nielsen, August 28, 1997)

"On a corporate intranet, poor usability means poor employee productivity; usability guru Jakob Nielsen estimates that any investment in making an intranet easier to use can pay off by a factor of 10 or more, especially at large companies." (Kalin, 1999)

Value Proposition: Increase user satisfaction

An Example

"One airline's IFE (In-flight Entertainment System) was so frustrating for the flight attendants to use that many of them were bidding to fly shorter, local routes to avoid having to learn and use the difficult systems. The time-honored airline route-bidding process is based on seniority. Those same long-distance routes have always been considered the most desirable. For flight attendants to bid for flights from Denver to Dallas just to avoid the IFE indicated a serious morale problem." (Cooper, 1999)

A Statistic

"When systems match user needs, satisfaction often improves dramatically. In a 1992 Gartner Group study, usability methods raised user satisfaction ratings for a system by 40%." (Bias & Mayhew, 1994)

Value Proposition: Increase job satisfaction/decrease job turnover

An Example

"Humantech, Inc., studied ergonomic office environments and productivity for 4000 managerial, technical, and clerical workers in a broad cross-section of North American industries. Surveys showed that video display terminal workers had twice as many complaints of neck and shoulder discomfort, eye strain was reported three times as often, and there were higher rates of absenteeism less job satisfaction, and increased (30%) turnover." (Schneider, 1985)

Value Proposition: Increase ease of use

A Statistic

"Incorporating ease of use into your products actually saves money. Reports have show it is far more economical to consider user needs in the early stages of design, than it is to solve them later. For example, in *Software Engineering: A Practitioner's Approach*, author Robert Pressman shows that for every dollar spent to resolve a problem during product design, $10 would be spent on the same problem during development, and multiply to $100 or more if the problem had to be solved after the product's release." (IBM, 2001)

Value Proposition: Increase ease of learning

A Statistic

"A study by *Computer + Software News* (1986) found that users rated ease of use second at 6.8 out of 10, while ease of learning was rated fourth at 6.4 on a scale of important purchase factors." (Bias & Mayhew, 1994)

Value Proposition: Increase trust in systems

An Example

"User trials were used to redesign the EuroClix Website before its launch. In its first six months, it convinced more than 30,000 users to sign up. This study clearly shows that consumers' trust concerns can significantly be alleviated by providing relevant information when and where users need it." (Egger & de Groot, 2000)

Value Proposition: Decrease support costs

Some Examples

"At Microsoft several years ago, Word for Windows's print merge feature was generating a lot of lengthy (average = 45 minutes) support calls. As a result of usability testing and other techniques, the user interface for the feature was adjusted. In the next release, support calls 'dropped dramatically'; Microsoft recognized 'significant cost savings." (Bias & Mayhew, 1994)

"A certain printer manufacturer released a printer driver that many users had difficulty installing. Over 50,000 users called support for assistance, at a cost to the company of nearly $500,000 a month. To correct the situation, the manufacturer sent out letters of apology and patch diskettes (at a cost of $3 each) to users; they ended up spending $900,000 on the problem. No user testing of the driver was conducted before its release. The problem could have been identified and corrected at a fraction of the cost if the product had been subjected to even the simplest of usability testing." wrote the researcher." (Bias & Mayhew, 1994)

Value Proposition: Reduce training/documentation cost

Some Examples

"In another company, business representatives did a cost-benefit analysis for a new system and estimated that a well-designed GUI front end had an Internal Rate of Return of 32%. This was realized through a 35% reduction in training, a 30% reduction in supervisory time, and improved productivity, among other things." (Dray & Karat, 1994)

"At one company, end-user training for a usability-engineered internal system was one hour compared to a full week of training for a similar system that had no usability work. Usability engineering allowed another company to eliminate training and save $140,000. As a result of usability improvements at AT&T, the company saved $2,500,000 in training expenses." (Bias & Mayhew, 1994)

A Statistic

"A study by *Computer + Software News* (1986) found that information systems managers rated ease of training seventh (out of 10) on a scale of important purchase factors." (Bias & Mayhew, 1994)

Other ROI Factors

Since the early 1960s, issues related to product safety have led to pro-plaintiff legal precedents in US courts. If a manufacturer has not included usability factors into their product, then it is usually found liable. If a manufacturer has assimilated human factors engineering into its development process, claims on the grounds of usability may be greatly reduced.

Value proposition: Litigation deterrence and safety

Some Examples

"Although software makers don't seem liable to the same sorts of litigation as, for example, a manufacturer of medical equipment, poor usability may be an element in lawsuits. For example, the Standish Group reported that American Airlines sued Budget Rent-A-Car, Marriott

Corporation, and Hilton Hotels after the failure of a $165 million car rental and hotel reservation system project. Among the major causes of the project's disintegration were "an incomplete statement of requirements, lack of user involvement, and constant changing of requirements and specifications," all issues directly within usability's purview." (Standish, 1995)

"Poor usability is a potential element in lawsuits and other litigation. The US government's recent case against Microsoft hinged on a usability question: Are users well-served when the browser and operating system are closely integrated?" (Donahue, 2001)

A Statistic

"Chapanis cites two independent studies that showed a 54% reduction in rear-end accidents with the use of human factors improvement: the centered high-mount brake light on autos." (Chapanis, 1991)

Conclusion

The benefits of usability engineering can be achieved throughout the life of a product. By applying usability techniques to the production process, developers can make them more efficient, which, in turn, can uniquely benefit the product's life cycle. Efficient development methods can result in a faster release date allowing manufacturers to unveil their products to the market prior to a competitor's. A user-centered product can garner positive media reviews leading to increased sales. An effective, user-friendly user interface can increase customer ease of learning, ease of use, job satisfaction, and trust in the product.

Each product will require individual usability tasks. Developers should determine appropriate techniques for user-interface development prior to a project to obtain the optimum results to facilitate cost-analysis projections. Because competing groups are constantly seeking budget resources, it is crucial to identify the cost justifications of usability engineering. Usability advocates must present a solid business case to business managers who will be looking at the company's bottom line.

Customers are constantly becoming more reliant on technical tools. As these tools are upgraded, there is usually an increase in information, functionality, and complexity that they must learn. Usability becomes ever more critical. Because most users of software and the Web are non-technical, making it easier and simpler to accomplish goals is imperative. Regardless of the activity, whether performance tasks or vendor purchases, the user must be the center of the design process.

Cost-benefit analyses consistently show healthy returns on the dollars invested in usability. As more companies understand the significant benefits of usability and do careful cost-justification, usability techniques will become standard.

There are many challenges ahead for planners, analysts, marketers, engineers (implementers), designers, and trainers. For example, it is worthwhile to know the best techniques for communicating ROI benefits in differing contexts and marketing/sales situations. Also, knowing the best techniques to achieve specific kinds of benefits is important. Some of this information is discussed in the literature, but not easily available to those who need to know.

The goal of this article has been to make available an initial useful compendium of information about the ROI of usability. Let us know what you need next.

Side Bar: Fast Stats

The following table provides a quick reference to the usability statistics for the value propositions cited in this article. Some entries have only examples and not statistics.

Overall Value of Implementing UI Practices	
High return on savings and product usability	"Once a system is in development, correcting a problem costs 10 times as much as fixing the same problem in design. If the system has been released, it costs 100 times as much relative to fixing in design." (Gilb, 1998)
Development: Reduce Costs	
Save development costs	"Approximately 63% of large software projects are over budget and the top four reasons rated as having the highest responsibility were related to usability engineering." (Nielsen, 1993)
Save development time	"Speeding up development is a key goal for integrating usability effectively into product development; one-quarter delay in bringing a product to market may result in the loss of 50% of the product's profit." (Conklin, 1991)
Reduce maintenance costs	"It has been found that 80% of software life cycle costs occur during the maintenance phase and were associated with "unmet or unforseen" user requirements and other usability problems." (Nielsen, 1993)
Save redesign costs	(See example, p.7)
Sales: Increase Revenue	
Increase transactions/purchases	"You can increase sales on your site as much as 225% by providing sufficient product information to your customers at the right time." (User Interface Engineering, 2001)
Increase product sales	"It is common for usability efforts to result in a hundred percent or more increase in traffic or sales." (Nielsen, July 1999)
Increase traffic, size of audience	(See examples, p.8)
Retain customers	"More than 83% of Internet users are likely to leave a Web site if they feel they have to make too many clicks to find what they're looking for." (Arthur Andersen, 2001)
Attract more customers (appeal)	"When respondents were asked to list the five most important reasons to shop on the Web, 83% stated "Easy to place an order" as the top reason." (Nielson, February 1999)
Increase market share (competitive edge)	"The importance of having a competitive edge in usability may be even more pronounced for e-commerce sites, which commonly drive away nearly half or repeat business by making it difficult for visitors to find the information they need." (Manning, 1999)
Use: Improve effectiveness	
Increase success rate, reduce user error	"In Jared Spool's study of 15 large commercial sites users could only find information 42% of the time even though were taken to the correct home page before they were given the test tasks." (Nielsen, October 1998)
Increase efficiency/productivity (reduce time to complete task)	"Inadequate use of usability engineering methods in software development projects have been estimated to cost the US economy about $30 billion per year in lost productivity." (Landauer, 1995)
Increase user satisfaction	"In a Gartner Group study, usability methods raised user satisfaction ratings for a system by 40%; when systems match user needs, satisfaction often improves dramatically." (Bias & Mayhew, 1994)
Increase job satisfaction/decrease job turnover	(See example, p.12)

Increase ease of use	"Incorporating ease of use into your products actually saves money. Reports have show it is far more economical to consider user needs in the early stages of design, than it is to solve them later." (IBM, 2001)
Increase ease of learning	"A study by *Computer + Software News* (1986) found that users rated ease of use second at 6.8 out of 10, while ease of learning was rated fourth at 6.4 on a scale of important purchase factors." (Bias & Mayhew, 1994)
Increase trust in systems	(See example, p.12)
Decrease support costs	(See examples, p.12)
Reduce training/documentation cost	"A study by *Computer + Software News* (1986) found that information systems managers rated ease of training seventh (out of 10) on a scale of important purchase factors." (Bias & Mayhew, 1994)
Other	
Litigation deterrence and safety	"Usability is a principal factor for determining manufacturers' liability based on expert hard evidence on how a design should have used usability." (Bias & Mayhew, 1994)

Side Bar: References

Want to learn more? First consider these publications and Website papers cited in this article. Additional references follow.

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Author's Biography

Aaron Marcus is the founder and President of Aaron Marcus and Associates, Inc. (AM+A, Emeryville, California, and New York City, New York, www.AmandA.com). A graduate in physics from Princeton University and in graphic design from Yale University, in 1967 he became the world's first graphic designer to be involved fulltime in computer graphics. In the 1970s he programmed a prototype desktop publishing page layout application for the Picturephone (tm) at AT&T Bell Labs, programmed virtual reality spaces while a faculty member at Princeton University, and directed an international team of visual communicators as a Research Fellow at the East-West Center in Honolulu. In the early 1980s he was a Staff Scientist at Lawrence Berkeley Laboratory in Berkeley, founded AM+A, and began research as a Co-Principal Investigator of a project funded by the US Department of Defense's Advanced Research Projects Agency (DARPA). In 1992, he received the National Computer Graphics Association's annual award for contributions to industry. Mr. Marcus has written over 100 articles and written/co-written five books, including (with Ron Baecker) *Human Factors and Typography for More Readable Programs* (1990), *Graphic Design for Electronic Documents and User Interfaces* (1992), and *The Cross-GUI Handbook for Multiplatform User Interface Design* (1994) all published by Addison-Wesley. Mr. Marcus has published, lectured, tutored, and consulted internationally for almost 35 years.

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AM+A White Paper:

A Practical Set of Culture Dimensions for Global User-Interface Development

1 January 2004

Contents

Abstract

User-interface design is influenced by cultural differences. Cultures around the world have different patterns of social behavior and interaction that have led anthropologists and scientists of communication to develop culture models whose dimensions describe these differences. This paper describes an effort to collect expert opinion about these cultural dimensions and how they influence user-interface design. The goal was to determine the most important dimensions. Data collected from over 50 experts in the field of user-interface design are presented in this survey. This paper is an edited extract of a much longer thesis by one of the authors [Baumgartner].

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Introduction

People from different countries/cultures use user-interfaces (UIs) in different ways, prefer different graphical layouts, and have different expectations and patterns in behavior. Therefore user-interfaces must be adapted to the needs of different locales to provide an optimum user experience.

Localization, for example of Web sites or software applications, includes changing metaphors, mental models, navigation, interaction, and appearance [Marcus, 22ff). Much research is done on the topic of localization regarding technical approaches (*e.g.* display different character sets, multi-language handling, and memory-based translation software). To facilitate the work of translators and multi-language site providers, content management systems (CMS) were invented that support different cultures, but only regarding text and translation. In fact, current CMS are not really able to handle most other aspects of content and therefore cultural differences automatically, especially regarding graphical appearance. Today, if a company or organization decides to adapt a UI to a certain culture, much time and money must be spent to accomplish this task well: besides all the terminology/measurement changes and translation, one must hire cultural experts for all the targeted countries to account for all UI-component changes. Nielsen [Nielsen, 1996] admits that international usability engineering is a challenging and often avoided area because of the many issues that have to be covered when one wants to serve an international audience. [Nielsen, Engineering, 1)

To facilitate and lower the costs of localizing, the development of a CMS that could handle the expanded requirements of localization would be helpful. To support an eventual development of such a CMS, it is desirable to identify the most important dimensions of culture regarding UI development. This idea is based on the work Marcus has done using Geert Hofstede's cultural dimensions and applying them to the field of UI design [Marcus and Gould]. This current research goes further and seeks to find out if Hofstede's dimensions, or others, are appropriate to use for culture-oriented evaluation of UIs.

Many researchers in the field of anthropology have studied patterns of behavior and thinking that differentiate one culture from another. Some of them have compiled these patterns into culture models. To gather expert opinions about which of the dimensions of these models are important when localizing UIs, a set of dimensions extracted from primary references were presented to experts in the form of a questionnaire. The experts were asked to rank the dimensions according to their perceptions of importance. The outcome of the ranking is the basis of an analysis about which dimensions are important for the field of UI design

and why they are important. Clearly, which dimensions are the most important can be controversial. Nearly every participant made statements pointing to this controversy: everything depends on the purpose of the UI and the locale itself. Nevertheless, the goal was to derive a concrete result that provides a basis for further discussion.

Culture Dimensions and User-Interface Design

The meaning of the term *culture* is complex and used in different ways among many professions. One of the many definitions found in the *Merriam-Webster OnLine Dictionary* is the following: Culture is "the set of shared attitudes, values, goals, and practices …" (Webster, online). Del Galdo adds: "In addition, culture can also be affected by nationality, language, history, and level of technical development." [del Galdo, 78]. We can use categories to differentiate one culture or country from others. *Dimensions of culture* are "…categories that organize cultural data." (Hoft, Developing, 41) "The notion of cultural dimensions originated in cross-cultural communication research done by Edward Hall and Florence Kluckhohn and Fred L. Strodtbeck in the 1950s." [Gould *et al*, 3]. Many anthropologists have done research in the field of cultural dimensions. One of the most cited studies is that by Geert Hofstede. In the 1970s and 80s he did a survey at IBM that "dealt mainly with the employees' personal *values* related to work situation…" Within this study he covered 72 national subsidiaries, 38 occupations, 20 languages, all in all about 116,000 people. [Hofstede, Cultures, 251]. Based on this survey he came up with five dimensions of culture. Other anthropologists and communication scientists also did studies or academic research to determine different cultural dimensions.

This present study derives from the work of one co-author (Marcus). Marcus combined the scheme of Hofstede's five cultural dimensions and the scheme of five UI design components to create a five-by-five matrix that allows for 25 fields of interest. An article by Marcus and Gould [Marcus and Gould] points out possible implications of Hofstede's dimensions for UI components. During an internship at Marcus' firm, Baumgartner was involved in a study that attempted to find out if these assumptions match with "real life": *i.e.*, can examples be found in localized Web sites? For this analysis, we attempted to be generally inclusive under constraints of time and chose reasonably complex, different "B2B" and "B2C" Websites from three different continents (North America, Europe, and Asia). The exact circumstances of each Web site design could not be determined; however, we examined evidence from the sites themselves. The results of this study, presented at IWIPS03 [Marcus and Baumgartner] are the following: (1) The matrix-oriented method helps to organize and analyze data collection and (2) initial observations suggest that cultural habits run deeply and operate even under constraints of global design specifications. In high individualistic and low power-distance countries, variations from standard practice seem likely to be most frequently observed.

This study sought to determine which dimensions might be most useful in mapping culture dimensions to UI components. The following authors were selected by informal polling of a limited number of initial experts regarding primary resources. Their works are cited in the References and are commented upon more completely in Baumgartner's thesis [Baumgartner].

Adler, Nancy J.	Kluckhohn, F. R.	Victor, David A.
Condon, John C.	Parsons, Talcott	Wright, Quincy
Hall, Edward T.	Strodtbeck, Fred	Yousef, Fathi S.
Hofstede, Geert	Trompenaars, Fons	

As Hoft describes cultural dimensions, they can be divided into two categories: objective and subjective. Objective categories are "easy-to-research cultural differences like political and economic contexts, text directions in writing systems, and differences in the way that you format the time of day, dates, and numbers." Subjective categories cover information "…like value systems, behavioral systems, and intellectual systems…" [Hoft, 41- 42].

This study focuses on subjective categories, because objective categories are easy to extract from a culture, and localization approaches already cover these dimensions. Nevertheless some dimensions that seem to be objective at first (economical progress, or resources a country owns) also are of interest. These dimensions are included for two reasons: (1) the objective categories included in this survey are not yet covered by "normal" localization methods and (2) it was of interested to see if there would be a significant difference in the rating of objective and subjective categories (which turned out to be true). The following are the dimensions used in the survey derived from these sources. A complete description of each, including background, examples, the relation to UI components, and comments from evaluators that were collected appear in the thesis [Baumgartner]. Space does not allow for further elaboration.

Achievement vs. ascription	Human nature orientation	Property
Activity orientation	Individualismvs.collectivism	Resources
Affective vs. neutral	Instrumental vs. expressive	Space
Authority conception	Internal vs.external control	Specific vs. diffuse
Context	Internationaltrade,commun	Technological dev.
Degree of power	Long-vs.short-time orient.	Time orientation

Economic progress	Meaning of life	Time perception
Experience of technology	Nonverbal communication	Uncertainty avoidance
Face-saving	Political decentralization	Universal vs.particularism
Gender roles	Power distance	

The experts used in the survey included, among others, the following:

Adelman, Denny	Hugo, Jacques	Robinowitz, Christina J.
Amend, Sabine	Jettmar, Eva	Schlatter, Tania
Begley, Suzanne	Kalbach, James	Scholts, Stijn
Beu, Andreas	Khan, Zayera	Schutz, Bart
Bonnaudet, Jean-Marc	Knapheide, Claus	Scott, Josephine
Campbell, Tanya	Kumar, Ripul	Sheridan, E.F.
Chen, Eugene	Laurel, Brenda	Simlinger, Peter
Cole, Melissa	Lee, Junghwa	Simons, George
Deaton, Mary	Marcus, Aaron	Southerton, Laurie
El Said, Ghada Refaat	Martlage, Aaron	Stamboulie, Mary
Epstein, Andre	Massey, Anne	Sturm, Christian
Gargeshwari, Malinirao	McAllister, Pamela	Vöhringer-Kuhnt, Thomas
Gould, Emilie	Meek, Amanda	Wright, Matthew
Guan, Larry	Mitra, Romit	Yankee, Everyl
Hedges, Andrew	Müller-Prove, Matthias	Yunker, John
Hidasi, Judit	Nowell, Jessica	Zimmermann, Claus
Hoffmann, Anja	Paulsen, Susan	
Hoplaros, Costas	Penn, Dick	

Survey, Results, and Ideas for Practical Use

After studying the described 29 dimensions by nine authors, a questionnaire was compiled that described the dimensions briefly. This questionnaire became a tool to get expert opinion quickly and in a structured form. Although the questionnaire might appear like one produced for a quantitative study (use of a Likert Scale), the real purpose was to get ideas about thinking directions of UI designers and analysts, which were obtained through an online questionnaire. The questionnaire gained background information about the participants, presented brief descriptions of each dimension and the rating system, listed the dimensions to be rated, and provided fields for extra comments by participants. To find out if the structure of the questionnaire was appropriate and the estimated time to fill out the form was correct, a pretest was conducted with a group of UI design students at the Fachhochschule Joanneum, Graz, Austria. In order to get valuable input for the survey, experts were contacted in four ways: research within specialized literature to find expert's names combined with Internet research for email addresses, mailing lists in the field of UI design and cultural matters, relevant companies, and relevant conference. Regarding feedback, personal contact and contact via expert mailing lists were the most efficient and effective.

The objective for the survey was to get 30 expert opinions. By the deadline for the survey 57 experts had completed the questionnaire. The participants are from 21 different countries across the world (Australia, Austria, Belgium, Canada, China, Cyprus, Egypt, France, Germany, Hungary, India, Japan, Mexico, Netherlands, Pakistan, Scotland, South Africa, Switzerland, Sweden, UK, and the United States). 19 respondees work in a different country from which they were born (and raised) in. Approximately 43% of the participants originally came from North America and 39% form Europe. They currently work in North America (47%) and Europe (37%). Regarding the participants experience in the field of UI design, 27 had 3-7 years and 14 had 7-11 years of experience. The participants are from more than 40 different institutions including global companies (e.g. Siemens, Peoplesoft, and Ogilvy), universities (Kanda University of International Studies, Stanford University, The George Washington University) and many smaller, specialized companies.

The expert's comments on the survey were positive. Many mentioned that the set of 29 dimensions itself would form a helpful tool in their

future work to understand cultural differences. The statement “None of them seemed unimportant” by one expert confirms this impression. However, at least three experts stated that these cultural dimensions do not really have influence on their daily work. This attitude seems ascribable to cultural ignorance, but this opinion must be validated through further research. As already stated, nearly everyone mentioned that “everything depends” on the purpose of the UI itself and the domain of the users. To analyze the data from a statistical point of view is risky; as stated earlier, the study is basically a qualitative one, not quantitative. Concepts like deviation and variance in the raw data are not very meaningful. Ordinal values must be considered instead of metrical. Thus we include a factor analysis, as shown in Figure 1.

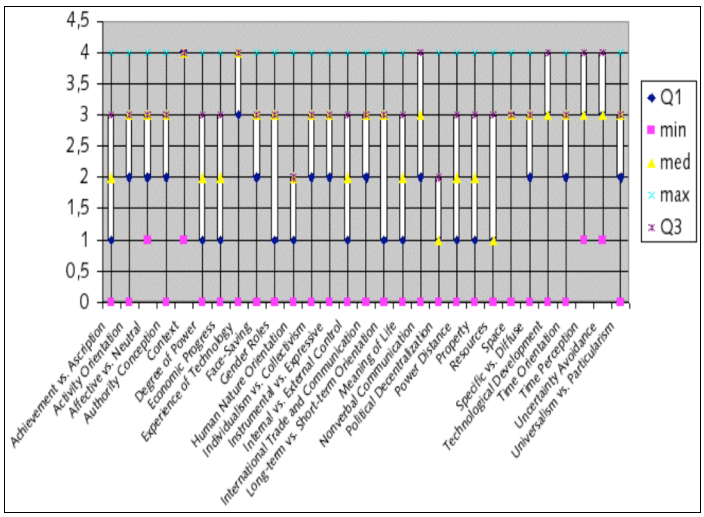


Figure 1. Boxplot or whisker diagram of the data gained through the questionnaire

The boxplot in Figure 1 tries to visualize the distribution of expert ratings. To analyze ordinal values, parameters like first quartile (Q1), third quartile (Q3), minimum (min), median (med), and maximum (max) are used. A boxplot provides a simple graphical summary of a set of data. It shows a measure of central location (the median), two measures of dispersion (the range and inter-quartile range), the skewness (from the orientation of the median relative to the quartiles) and potential outliers (marked individually). Boxplots are especially useful when comparing two or more sets of data. As stated previously, the survey was intended to deliver directions of thinking; it is not mainly a quantitative survey. The comments most of the participants offered were very valuable and gave insight into the expert’s mental models and experience. Nearly all participants pointed out that a general opinion on this topic is very hard to provide: “everything depends” was a very common comment.

Nevertheless, each of the participants provided a ranking of the dimensions.

To filter out the most important dimensions in a general sense, one draws a "line," which seems best after the dimension of *Authority Conception*. The statistical reasoning for this decision is the following: There are just five dimensions that are clearly located in the space between "very important" (4) and "important" (3): context, environment and technology, technological development, time perception, and uncertainty avoidance. As authority conception is, in the average, still very high and in the statistical ranking of the experts with more than five years of experience even at rank 5, it seemed reasonable to include this dimension in the top five dimensions. The following list summarizes the results for the most important culture dimensions [Baumgartner]:

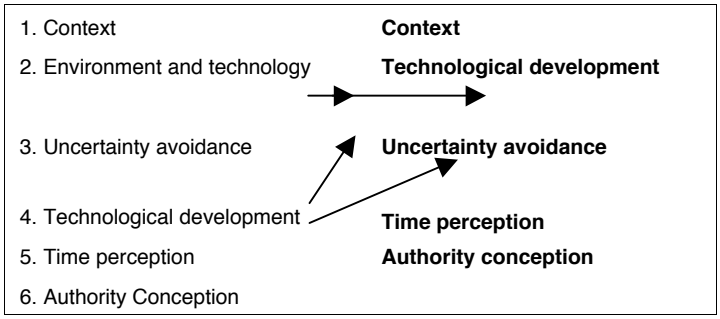


Table 1: Ranking of the most important cultural dimensions

The dimension of *Context* heads the ranking shown in Table 1. Described as "the amount and specificity of information in a given situation," this dimension has an average rating of 3.73 among all participants and an average of 3.79 among the participants that have more than 5 years of experience in UI design. Among the latter group nobody rated this dimension lower than 3 out of 4 possible grades. The second most important dimension is *Experience of technology*. It is proposed to combine this dimension with *Technological development,* which is rated on position four, and name this dimension Technological development. Both dimensions are rated as very important (3.30 and 3.18) for UI design and have to do with the development and attitude of the members of a certain society towards technological development. The dimension *Uncertainty avoidance* is number three on the list of important dimensions, with an average rating of 3.21 out of 4, and no one rated the dimension as unimportant. One can assume that nearly every UI must take into account the behavior of the user regarding uncertain or unknown situations. Time perception is also ranked among the top six, with an average ranking of 3.14. Again, no one considered this dimension as unimportant. *Authority conception* had an average of rating of 2.86. It is interesting that the concept of Power distance, which is very

similar, is statistically ranked only at position number 22. A very simple explanation of this contradiction could be the wording: Authority conception denotes with its name what this dimension is about; Power distance does not fulfill this need. One can also assume that the idea of how people think of authority heavily influences their behavior in handling a UI.

Practical Use of the Set

One purpose of this project was to present ideas for how the findings of this survey might be used for practical work. As already stated, it is a very difficult venture to determine the most important dimensions for UI design in general. More research must be done to filter out which dimensions are the most important for special fields of UI design; for example, the design of medical instruments might demand different cultural emphases than a general telecommunication tool. Although it would be ideal if every localization project would take into account all 29 dimensions, this is not likely. Therefore, we provide a grouped and ranked list of dimensions:

No.	Name
1	D05 Context
2	D25 Technological development, D08 Experience of technology
3	D28 Uncertainty avoidance
4	D27 Time perception
5	D27 Authority conception, D20 Power distance
6	D03 Affective vs. neutral
7	D09 Face-saving, D24 Specific vs. diffuse, D13 Instrumental vs. expressive
8	D02 Activity orientation, D17 Meaning of life
9	D18 Nonverbal communication, D23 Space
10	D12 Individualism vs. collectivism
11	D26 Time orientation, D16 Long-term vs. short-term orientation
12	D29 Universalism vs. particularism
13	D15 International trade and communication
14	D10 Gender roles
15	D01 Achievement vs. ascription
16	D21 Property
17	D07 Economic progress
18	D14 Internal vs. external control
19	D22 Resources
20	D06 Degree of power
21	D11 Human nature orientation
22	D19 Political decentralization

The list above tries to give an overview of how the dimensions are related to each other and how they could be grouped together. Listed in the order of their statistical average (gained through the expert questionnaire) and grouped together (for reasons to be described later), they can form a practical tool to decide which dimension must be focused on in the next step to cover the most important differences.

When one thinks of a localization project, one may need to focus on the top six dimensions of the list. If, suddenly, more money is available for this part of the project and now the project manager must decide which dimension should be focused on next, the list offers a helpful decision support. Tying to group the dimensions above is a very difficult task. One requires more empirical studies about how cultural background influences UI design. Currently, most of the ideas on this issue are based on assumptions. There are still tests and studies to be done to provide valuable material. Nevertheless, we provide groupings and within the following paragraphs describe the reasons for the groupings. The groupings are based on the idea that the problems the UI designer face by paying attention to the dimension might awake similar thoughts and directions of thinking.

Group 1: D08 Experience of technology, D25 Technological development: These are clearly similar in relation to technology.

Group 2: D27 Authority conception, D20 Power distance: As Hoft [Hoft, online] describes these two dimensions as very similar. Although the two dimensions have not been ranked by the experts on similar levels, we can assume that cultural differences in this field have the same impact on UI design as they are so similar.

Group 3: D09 Face-saving, D24 Specific vs. diffuse, D13 Instrumental vs. expressive: all three dimensions cope with the problems of interpersonal relationships. The UI component influenced mainly by these dimensions is interaction and the examples mentioned within the very same chapters point in the direction of community tools. Same impacts on the design of the UIs design are therefore to expect.

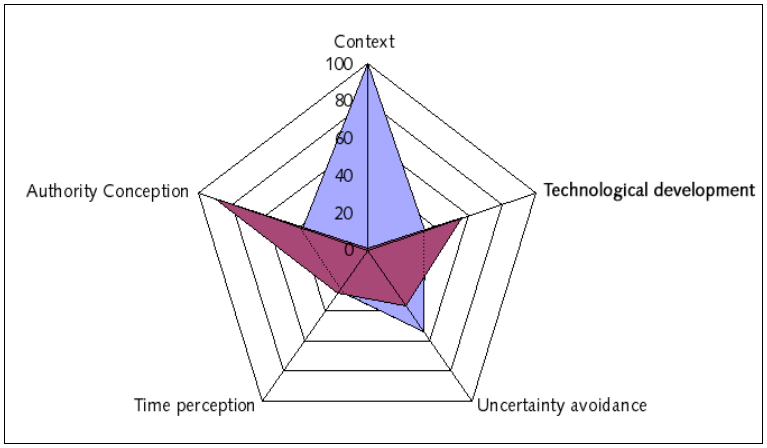
Group 4: D02 Activity orientation, D17 Meaning of life: Regarding metaphor building we can assume that societies that focus on material goals value doing more than being, the opposite might be true for spiritual oriented cultures. As already stated, this is just an assumption and has to be verified through more research and convenient tests.

Group 5: D18 Nonverbal communication, D23 Space: The dimension of space is mentioned within the dimension of nonverbal communication, called proxemics.

Group 6: D26 Time orientation, D16 Long-term vs. Short-term orientation: In a way these two dimensions are complementary: The first mainly affects metaphors and navigation, the latter mental models and interaction. Within the statistical ranking of the average value, the two dimensions are followed by each other. The dimensions seem to cover

different areas of a society, but some implications on UI design might be the same, for example, future-oriented cultures are likely to be willing to learn how to use a UI if they know that it will be necessary to know how to use it in the future. The same can be true for long-term oriented societies.

If we had empirically researched values for all the cultural dimensions mentioned above of a certain country, it would be very easy to generate a tool that could answer the question: “Is it necessary to change the UI for a certain culture/country?” and “Regarding which dimensions must changes be considered?.” The basic idea for this tool is the use of star charts in the form of a pentagon, but expandable to more dimensions if needed, depending on how complex the localization project is. The diagram illustrates the cultural values of a targeted culture. Figure 2 shows a theoretical comparison. These diagrams can what changes are necessary and in what dimension, as Smith has demonstrated [Smith] but with different dimensions.



Conclusions and Recommendations for Further Research

Generating a set of the most important 7±2 cultural dimensions for localizing Uis is a difficult task. The experts commented that everything depends on knowing the domain and purpose of the UI. Nevertheless, this survey sought to rank culture dimensions in relation to UI design components and to filter out the most important ones, the five dimensions of Context, Technological development, Uncertainty avoidance, Time perception, and Authority conception. Moreover, the original thesis work of Baumgartner provides a compilation of 29 culture dimensions annotated with detailed descriptions and concrete examples of what influence they have on certain domains of UI, and showing the UI design components that are especially affected.

The practical result is a grouped and ranked list of cultural dimensions that could form a decision making tool kit in a localization process. A second possible use of the findings is the idea of a diagram tool that could facilitate determining the culture-related changes necessary for localizing to a specific target country. We have also suggested the concept of a culturebase that could automatically or semi-automatically handle cultural changes for content management systems based on these dimensions. In the future, determining the top dimensions for special fields of UI design might be an interesting area of study that could contribute and verify the findings of this work. Developing a database with examples for the implication on each design component by each cultural dimension and gathering cultural values of each country/culture through empirical research could be a supporting work for the culturebase concept. Much remains to be researched. This study is a start.

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Партнер на Украине

Ukrainian HI-TECH INITIATIVE

Украинская Hi-Tech Инициатива — лидирующий альянс в индустрии офшорного программного обеспечения и IT аутсорсинга в Украине.
Основная миссия альянса состоит в продвижении украинских компаний разработчиков программного обеспечения на внешние рынки.

Генеральные информационные спонсоры семинара Аарона Маркуса

Генеральный инфо-спонсор

Карьерист.ру – сайт для тех, кто строит свою карьеру.

Карьерист.ру – Ваш надежный помощник в построении карьеры. Лучшие предложения от работодателей, конфиденциальность, быстрый и удобный поиск, возможность развиваться профессионально и ставить перед собой новые цели - мы делаем все, чтобы Вы могли добиться успеха!

На Карьерист.ру Вы получите всестороннюю помощь в построении карьеры – лучшие предложения от работодателей, информационные и аналитические материалы по развитию карьеры, обучению и трудоустройству.

Генеральный интернет-партнер

Компания Mail.Ru - один из лидеров российского интернет-рынка. Ежемесячная аудитория проектов составляет более 40 млн. пользователей.

Среди проектов холдинга крупнейшая в России веб-почта Mail.Ru, мессенджер Mail.Ru Агент, он-лайн дневники Блоги@Mail.Ru, социальная сеть Мой Мир@Mail.Ru, и многие другие.

Генеральный медиа-партнер

Интернет-издание «Газета.Ru» ¬— один из старейших и самых уважаемых информационных ресурсов.

Профессионализм редакции, круглосуточная ежедневная работа, развитая корреспондентская сеть и широта тематики сделали «Газету.Ru» постоянным источником информации для журналистов, отделов по связям с общественностью российских и иностранных компаний, госучреждений и органов власти.

Генеральный медиа-партнер в Киеве

Еженедельник "Компьютерное Обозрение", издается с 1995 г., рассчитан на опытных пользователей и профессионалов в области информационных технологий, занятых в производстве, обслуживании и продаже IT-продуктов и услуг. Издание содержит новости и статьи о самых последних технологических разработках, описания и тестирования новых продуктов, аналитические материалы, обзоры рыночной ситуации в сегментах IT-индустрии, как в Украине, так и за рубежом.

Генеральный интернет-партнер в Киеве

Украинская поисковая система www.meta.ua начала свою работу 12 ноября 1998 года и стала крупнейшей украинской поисковой системой.

Аудитория портала – более 2 миллионов активных украинских пользователей ежемесячно. META индексирует более 140 000 украинских сайтов, в каталоге содержатся описания более 50 000 украинских сайтов, а посетители портала задают более 7 000 000 запросов в месяц.

Информационные спонсоры семинара Аарона Маркуса

Портал CMSList. ru — крупнейший русскоязычный проект, посвященный системам управления контентом.
Это площадка для общения разработчиков CMS и их пользователей, возможность удобного сравнения, поиска и выбора подходящего продукта для создания сайта.

Украинская Баннерная Сеть — мощная рекламная сеть баннерообмена между сайтами.
Существует с января 1999 г., и обслуживает более 50 000 украинских сайтов. Имеет широкий выбор форматов и показывает 35 000 000 баннеров в сутки. Для владельцев сайтов участие в сети бесплатно. Также сеть проводит платные рекламные кампании.

Хостинг-провайдер PeterHost.Ru занимает лидирующие позиции на рынке интернет-услуг и насчитывает 16000 пользователей.
Среди основных услуг компании – предоставление виртуального хостинга; аренда, размещение и обслуживание серверов; регистрация доменов, создание и продвижение сайтов.

Habrahabr.ru — первый в России Web 2.0-проект, представляющий собой мультимедиа-СМИ и социальную сеть одновременно.
Это сообщество людей, которые хотят знать, каким будет мир завтра, и потому увлеченно следят за развитием высоких технологий. Пользователи приходят на Хабрахабр за свежей информацией и конструктивным общением, сопутствующим коллективному творчеству.

Интернет-издание «SEOnews — поисковый маркетинг» — первое профессиональное издание о продвижение сайтов в интернете с помощью поисковых систем, контекстной рекламы, блогосферы.

Сайт про Юзабилити.

Канал @Astera ежедневно публикует десятки качественных новостных и аналитических материалов по тематике информационных технологий.
Журналисты канала пишут эксклюзивные статьи и отбирают наиболее интересные материалы из иностранных и русских источников.

developers.org.ua — проект, создаваемый разработчиками для разработчиков. Цель авторов проекта состоит в создании онлайн-сообщества для тех, кто занимается разработкой ПО в Украине, вне зависимости от используемых технологий или индустрии, в которой работает компания.

"Компания «Alt-Media Web» - www.altmedia.ru - работает на рынке web-разработки более 9 лет.
В процессе разработки сайтов используется инновационное программное обеспечение «Тропинки» - www.tropinki.com. Анализ «тропинок» дает ответы на вопросы по улучшению удобства пользования интерф ейса Заказчика."

Сайт Москва.ком - это свободное пространство для самовыражения, публикации частных мнений, открытых дискуссий. Основные его авторы - сами москвичи - люди, тусовки, сообщества, формирующие жизнь города. Мы против гламура, цензуры и политкорректности!