USER EXPERIENCE – FROM THEORY TO PRACTICAL APPLICATION

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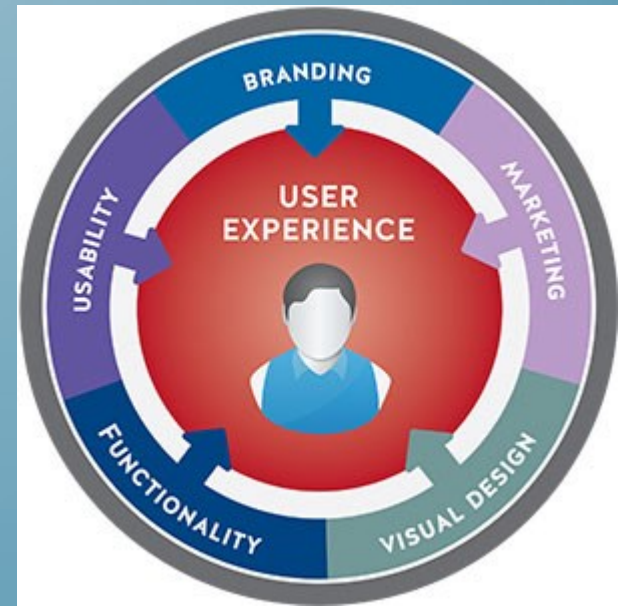
CONTENTS

UX design in theory

UX design in pracitce

- The TV-WEB project
- The RTV 4D TV project
- The TS Telemedicine project
- UCD in Multimedia course design
- World Usability Day

Conclusions

WHAT IS „UX"

„User experience (UX) is an approach to product development that incorporates direct user feedback throughout the development cycle (human-centered design) in order to reduce costs and create products and tools that meet user needs and have a high level of usability (are easy to use)."

https://uxpa.org/resources/about-ux

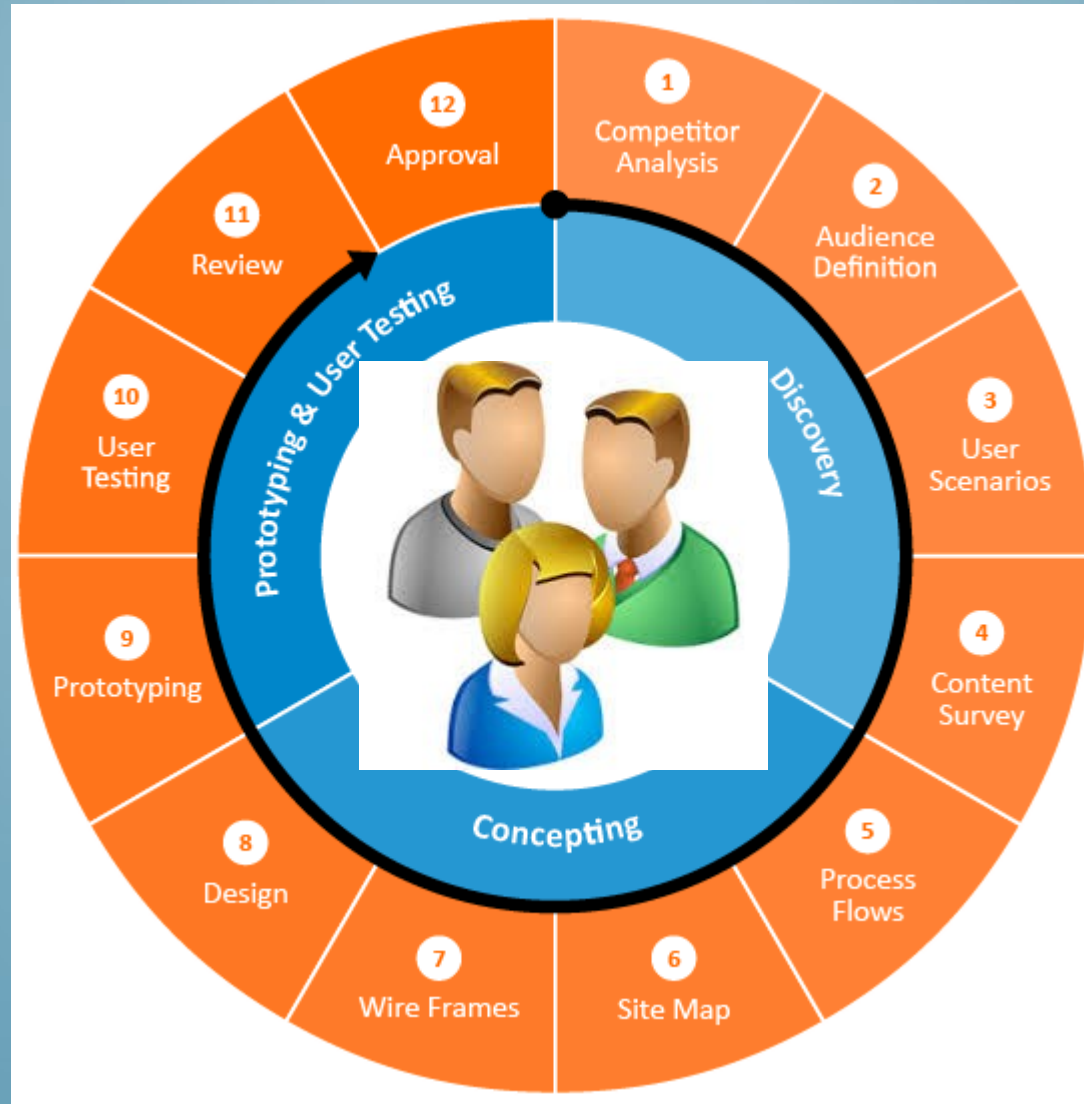http://www.allaboutux.org/ux-definitions

UX vs. USABILITY

ISO/TR 16982:2002 ("Ergonomics of human-system interaction—Usability methods supporting human-centered design")

USER CENTERED DESIGN

WHY IS UX IMPORTANT

To bridge the knowledge gap

THE „FLOW"

… flow – the state (optimal experience) in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it." (M. Csikzentmihalyi)
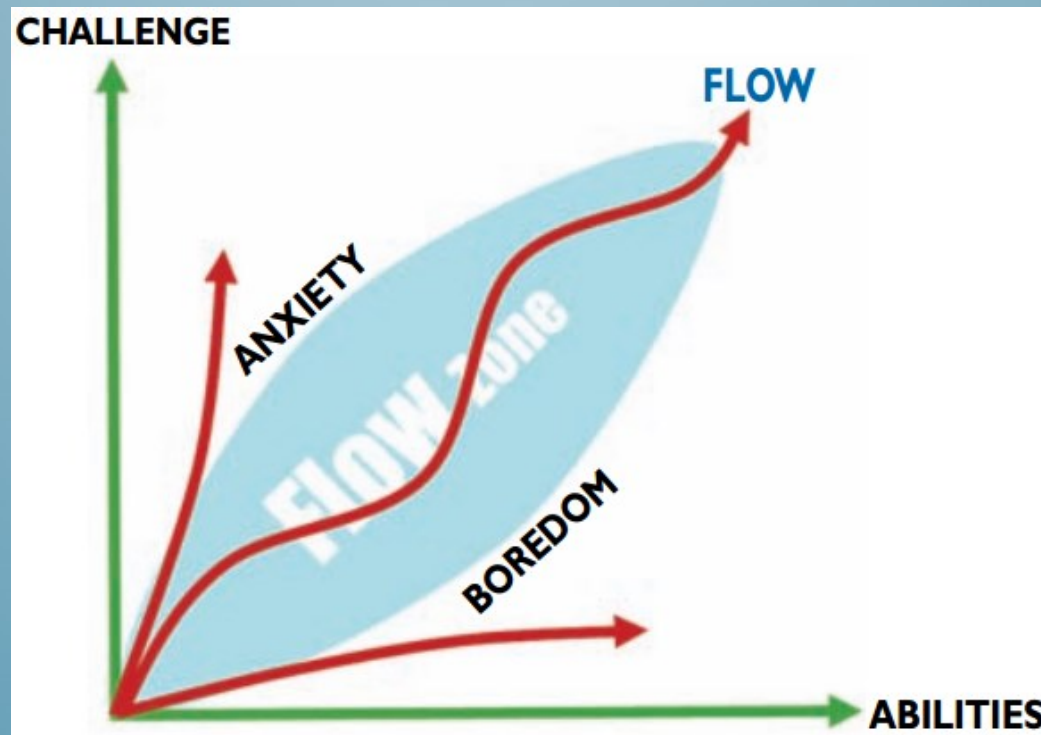
THE USERS

➤ *Who are your users?*

➤ *What are their needs and expectations?*

➤ *User target group -> user persona*

From Latin *persōna* ("mask; character").

NOT CREATED EQUAL – ACCESSIBILITY!

➤ *„Accessibility supports social inclusion for people with disabilities as well as others, such as older people, people in rural areas, and people in developing countries."*

http://www.w3.org/standards/webdesign/accessibility

DESIGN VS. FUNCTIONALITY

Average Rainfall (inches/month)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
San Francisco	4.35	3.17	3.06	1.37	0.19	0.03	0.06	0.05	0.20	1.22	2.86	3.09
Seattle	5.35	4.03	3.77	2.51	1.84	1.59	0.85	1.22	1.94	3.25	5.65	6.00
Chicago	1.53											
New York	3.17											
Miami	2.01											

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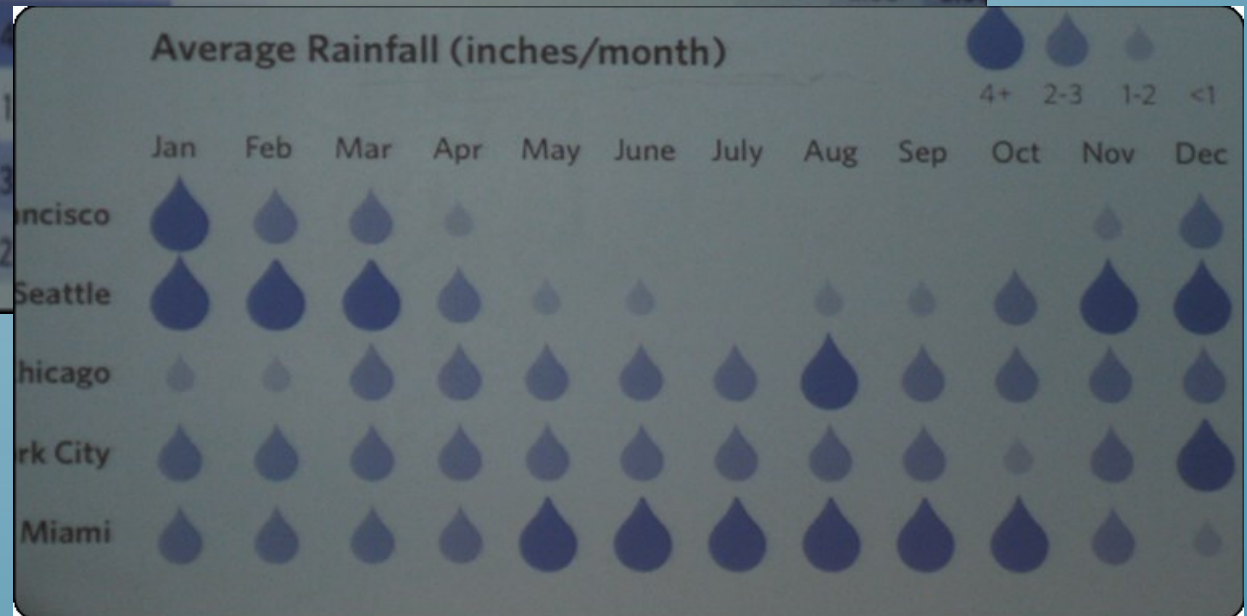
TESTING - THE PRODUCT

Test the product or service NOT the user

Include the user

It is not „black magic", should be as simple as possible, but used as necessary, and often

Jakob Nielsen, http://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/

Zero users = zero insight
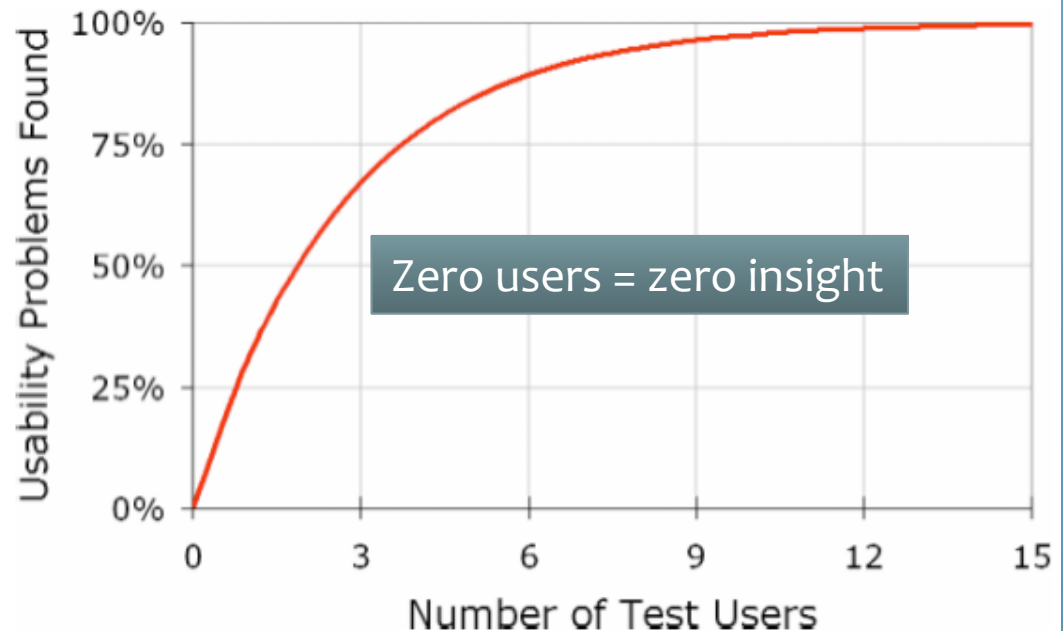
GOLDEN RULES

"Everything should be made as simple as possible, but not simpler."
Albert Einstein

"The golden rule of design: Don't do to others what others have done to you. Remember the things you don't like in software interfaces you use. Then make sure you don't do the same things to users of interfaces you design and develop." Tracy Leonard (1996)

RULES OF DESIGN

User in control

Reduce the cognitive load

Consistency

GOOGLE „GOOGLINESS"

Focus on people—their lives, their work, their dreams.

Every millisecond counts.

Simplicity is powerful.

Engage beginners and attract experts.

Dare to innovate.

Design for the world.

Plan for today's and tomorrow's business.

Delight the eye without distracting the mind.

Be worthy of people's trust.

Add a human touch.

„Don't be evil."

http://googleblog.blogspot.com/2008/04/what-makes-design-googley.html

WHAT MAKES A GOOD INTERFACE/PRODUCT/SERVICE

Usefulness and functionality (fulfills the goals)

Easy and intuitive to use (the flow)

Personal (adapts to the user and not the other way around)

UX DONE RIGHT

REAL-LIFE EXAMPLES

Real-life examples from the industry and academics

❶ TV-WEB PROJECT

EU SEE project: 7 partner states (Slovenia, Hungary, Austria, Croatia, Bosnia and Herzegovina, Montenegro, Serbia) and 16 partners

Use the DTT capacity to deliver selected Internet content

No broadband connection needed -> local interactivity

Tackle the digital divide

„The aim of the TV-WEB project is to **deliver Internet content** to those who do not usually use Internet services and **who have no broadband connection.**
The idea is to use the free digital terrestrial television (DTT) broadcasting frequency spectrum capacities for transmitting selected Internet content (such as news, e-services etc.) and **ensure a sort of Internet experience via TV devices** to certain less advantaged segments of the population, or those in rural areas without broadband access.
The concept of the project differs from the services provided by technologies such as connected and Smart TV where the Internet experience is ensured by connecting the TV to the Internet.. Instead, the SEE TV-WEB project foresees **delivery of Internet content to the homes solely using the DTT spectrum.**"

http://www.see-tvweb.eu

TV-WEB - ARCHITECTURE
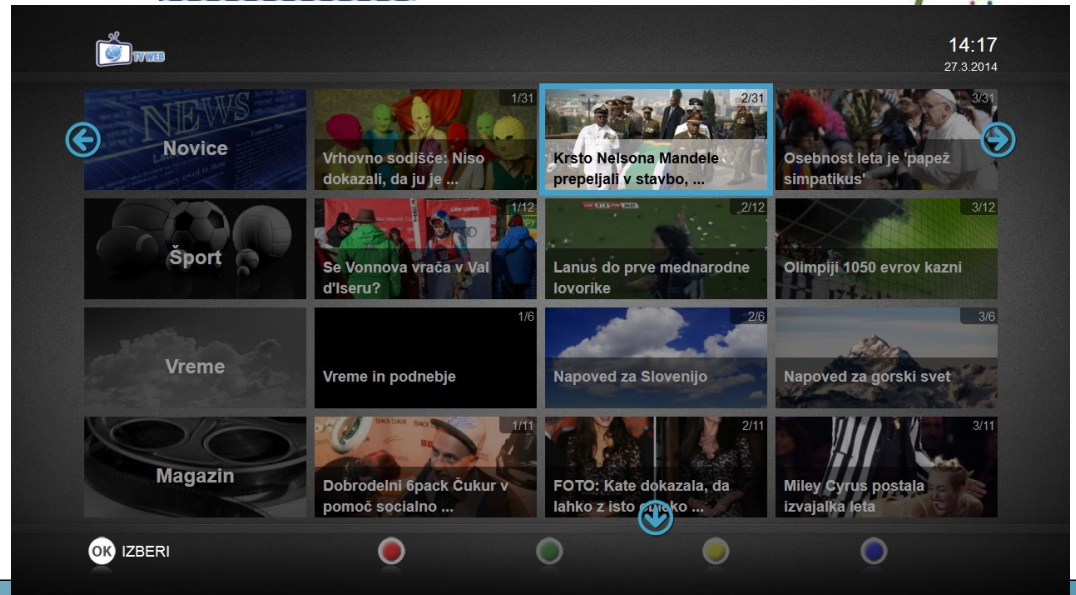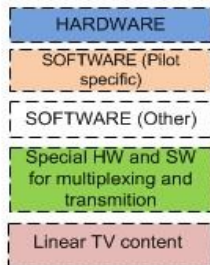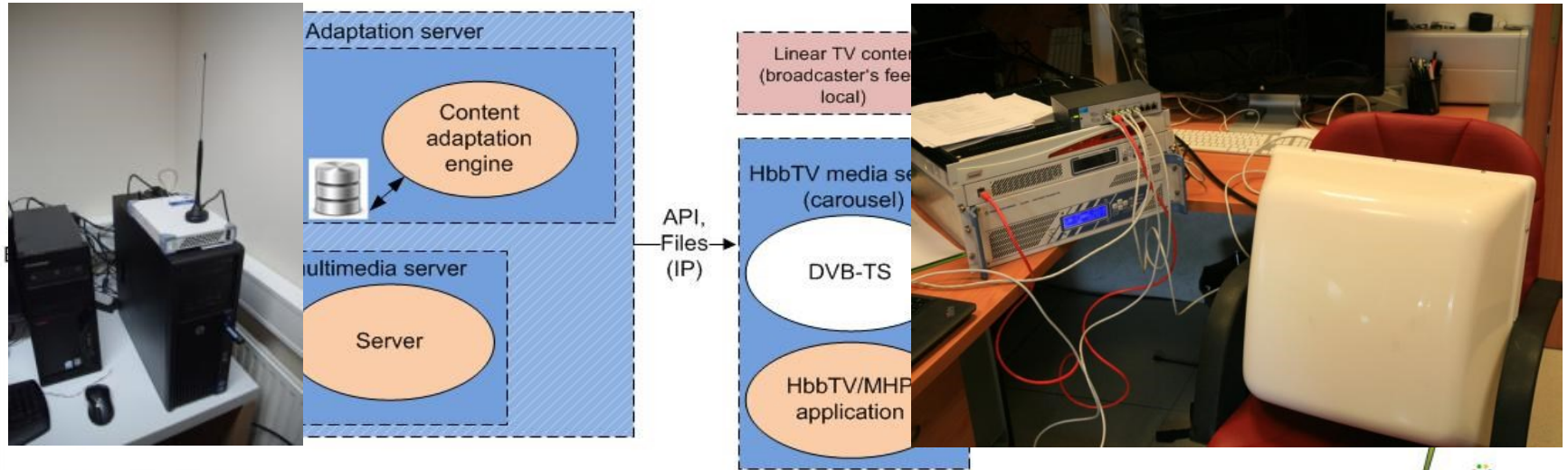
TVWEB USER INTERFACE

UX AND USABILITY

More than 15 live pilot tests in 7 partner states

Laboratory and field tests

Public events and fairs (uncontrolled environment)

Ux methodology used

- Guided interview (talk aloud protocol, observation)
- Questionnares (the TV-WEB service and methodology evaluation)
- Extremely rapid usability testing approach
- Card sorting
- Personas
- Focus groups

TV-WEB UX PROCEDURE

Guided interview

- Interviewer
- Observer

UX questionnare

Environment setup

UX methodology questionnare

TV-WEB Ux questionnaire				
Location			**Date**	

1. Personal information

Gender [F, M, group]	
Age	
Use of technology [Yes, No]	

Technology experience (1=no experience; 5=regular user)
TV: 1   2   3   4   5
Computer: 1   2   3   4   5
Internet&applications: 1   2   3   4   5

Internet access [Yes, No]	
Additional notes	

2. Tasks

Task 1	What is the number of news stories in the category »X«?

Task completed:	Successfully	Unsuccessfully
Problems:	Yes	No
Notes:		

Task 2	Search for the news titled »X« and find out who/what is »Y«.
Task 3	Set your optimal font size.

3. User interface interaction, navigation and design

Do you have any problems using the remote control?

Is the navigation clear and easy to use?

Are the "breadcrumbs" clear enough?

Do you find the functionality of the coloured buttons useful?

Would you like to have a special key on the remote control to exit the application?

Would you like to have a special key on the remote control that will navigate you directly to the home screen?

Is the font size large enough?

Is the font easy to read?

Do you like the design? Is the contrast ratio good enough?

4. Content

Is the selected content appropriate? Would you like to add/change something?

5. Overall impression and satisfaction

Do you find the service simple to use?

Would you like to use the service daily?

If yes, how much would you be willing to pay for the purchase of the service (both hardware and software)?

Overall impression and satisfaction with the service. Comments, wishes.

ENVIRONMENT SETUP
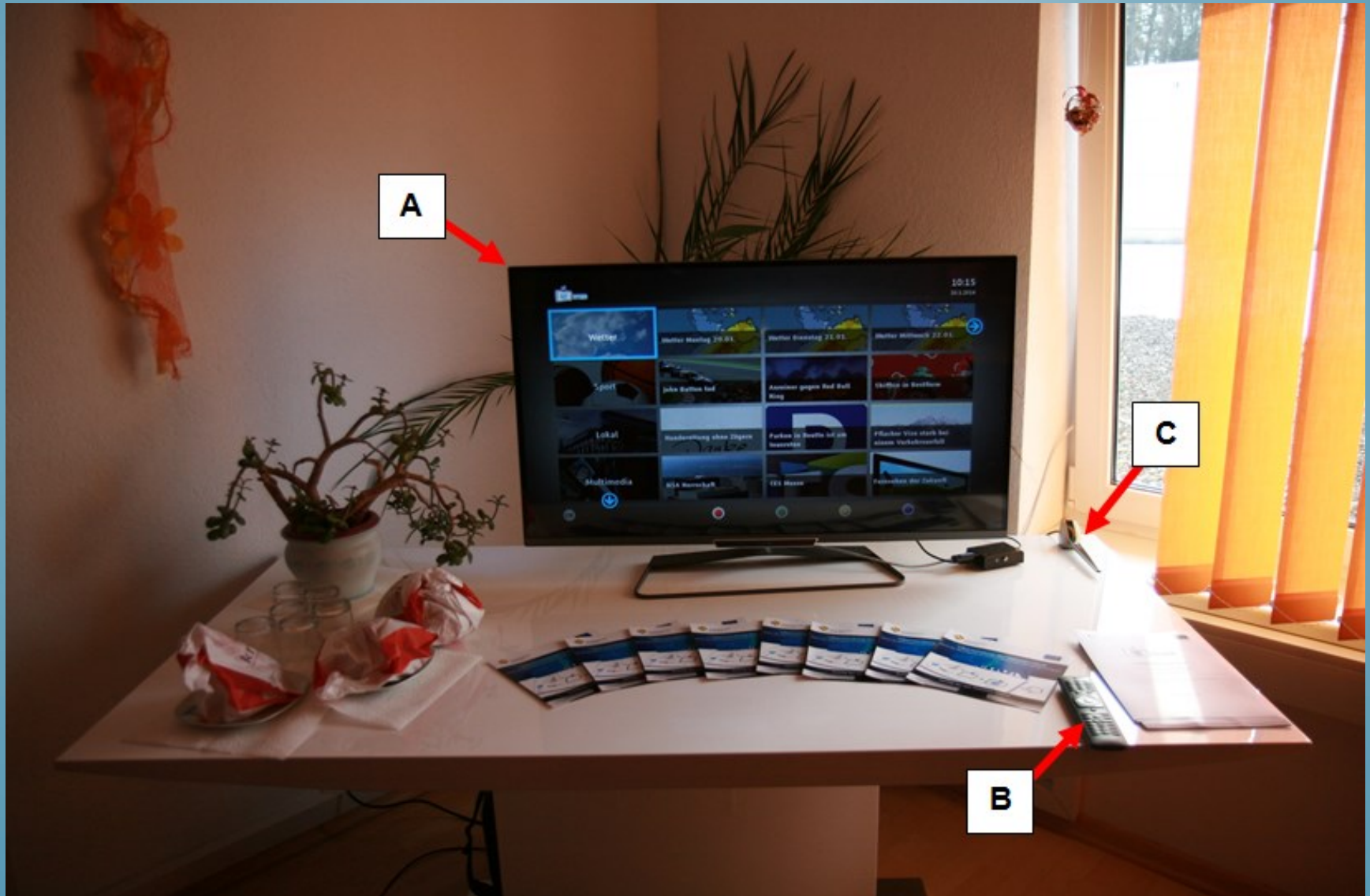
PERSONAS

Primary Group 2
Rural Area

Gender	Female
Marital Status	Married
Children	2 (Anna, ...
Location	Austria, ...
Mobility	VW Passa...
Education	Commerc...
Job	Governm...
Income	800 EUR ...
Work Environment	Old office...
Hobbies	Reading, ... hiking
Music	Classical ...
Interests, Likes	Health, fa...
Dislikes	Big indus... the shou... environm...
Style	Casual an... Jeans, ski...
Character	Commun... family typ...
Goals	Wants to ... environm... internet a... private an...
Politics	Left orien...
Technology Skills	Beginner,...
Goals TV Web	Getting i... local info... ronment....

Source
http://en.wikipedia.org/wiki/List_of_countries_...
http://en.wikipedia.org/wiki/European_Parliam...

Primary Group 1
Economically Weak

Gender	Male
Marital Status	Single
Children	No
Location	Montene...
Mobility	Bike
Education	Compuls...
Job	Motorca...
Income	490 EUR ...
Work Environment	Car servi...
Hobbies	Bicyclin... ing the g...
Music	Rock, alt...
Interests, Likes	Music, sp... local new...
Dislikes	Pretentio... overtime...
Style	Cool, cas... sweaters...
Character	A little b... uncomm...
Goals	Wants to ... therefore... access to... have a n...
Politics	Center-r...
Technology Skills	Beginner... with a co...
Goals TV Web	Getting ... local info... concerts... music kn...

Source
http://en.wikipedia.org/wiki/List_of_countries...
http://en.wikipedia.org/wiki/Politics_of_Mont...

Primary Group 3
Old & Disabilities

Gender	Male
Marital Status	Married
Children	1 (Matic, 45 Years old)
Grandchildren	2 (Katja, 10 years old & Darja 15 years old)
Location	Slovenia, Ljubljana
Mobility	Opel Senator B
Education	Secudary education (college)
Job	Pensioner (former geometry teacher)
Income	950 EUR net pension
Work Environment	-
Hobbies	Classical concerts, opera, tennis, going for a walk, wine
Music	Classical music
Interests, Likes	Education, family, politics, health
Dislikes	Unpunctuality, chaos
Style	Casual (jeans, polo shirts)
Character	friendly, calm, wise, family type, inquisitive
Goals	To live a happy life with his wife and his family, to travel as far as possible, to have internet access to plan his travels and to improve his knowledge about other countries
Politics	Center-left (Pozitivna Slovenija)
Technology Skills	Absolute beginner, has never worked with a computer
Goals TV Web	Getting internet access for planning his travels and learning more about other countries like general and current infor- mation, history or culture (like the things standing on wikipedia).

Source
http://www.stat.si/eng/novica_prikazi.aspx?id=3461
http://de.wikipedia.org/wiki/Wahlen_in_Slowenien#Parlamentswahl_2011
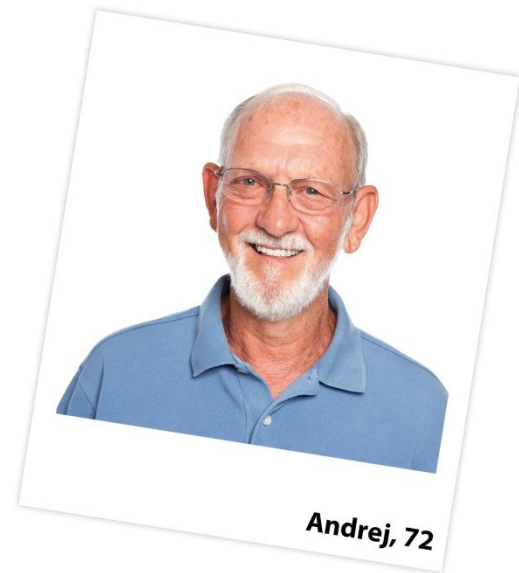
Andrej, 72

UX TEST IMPRESSIONS

LESSONS LEARNT

Users are people; each with his/her own background, moods, and technology experience and proficiency -> these factors influence the users' perception.

The test environment setup and the procedure should help the users' to relax as much as possible. The user interface, content and conversation should be performed in the local language and dialect. Goals and terminology used should be simple to understand. The whole procedure should not be exhausting and never frustrating.

TV-WEB specific:

- the simple nature of a matrix information representation in combination with the navigation concept was well accepted by a great majority of users, even the elderly and technology less proficient users;
- the service itself was found interesting even for young users, who are proficient with more complicated devices and use the Internet regularly;
- the importance of local content and local events was especially emphasized;

❷ RTV SLOVENIA - RTV 4D

ARRS (national science agency) project for the national RTV

Multimedia app for iOS and Android, mobile phone and tablet PC, and PC portal

Complete UX design and programming

UX design, methodology

- *Target group audience identification*
- *Wireframe design*
- *Graphical design*
- *Heuristic evaluation*

CONCEPT WIREFRAMES
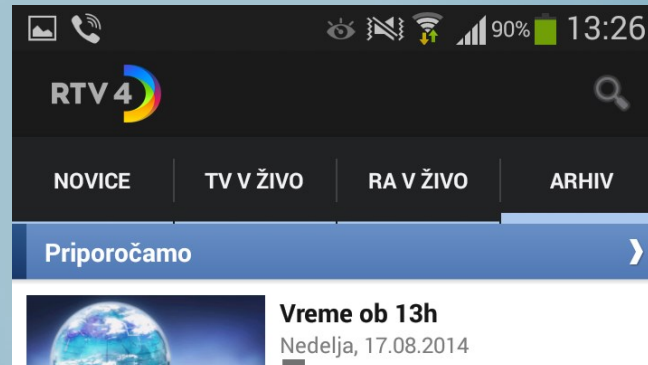
IOS
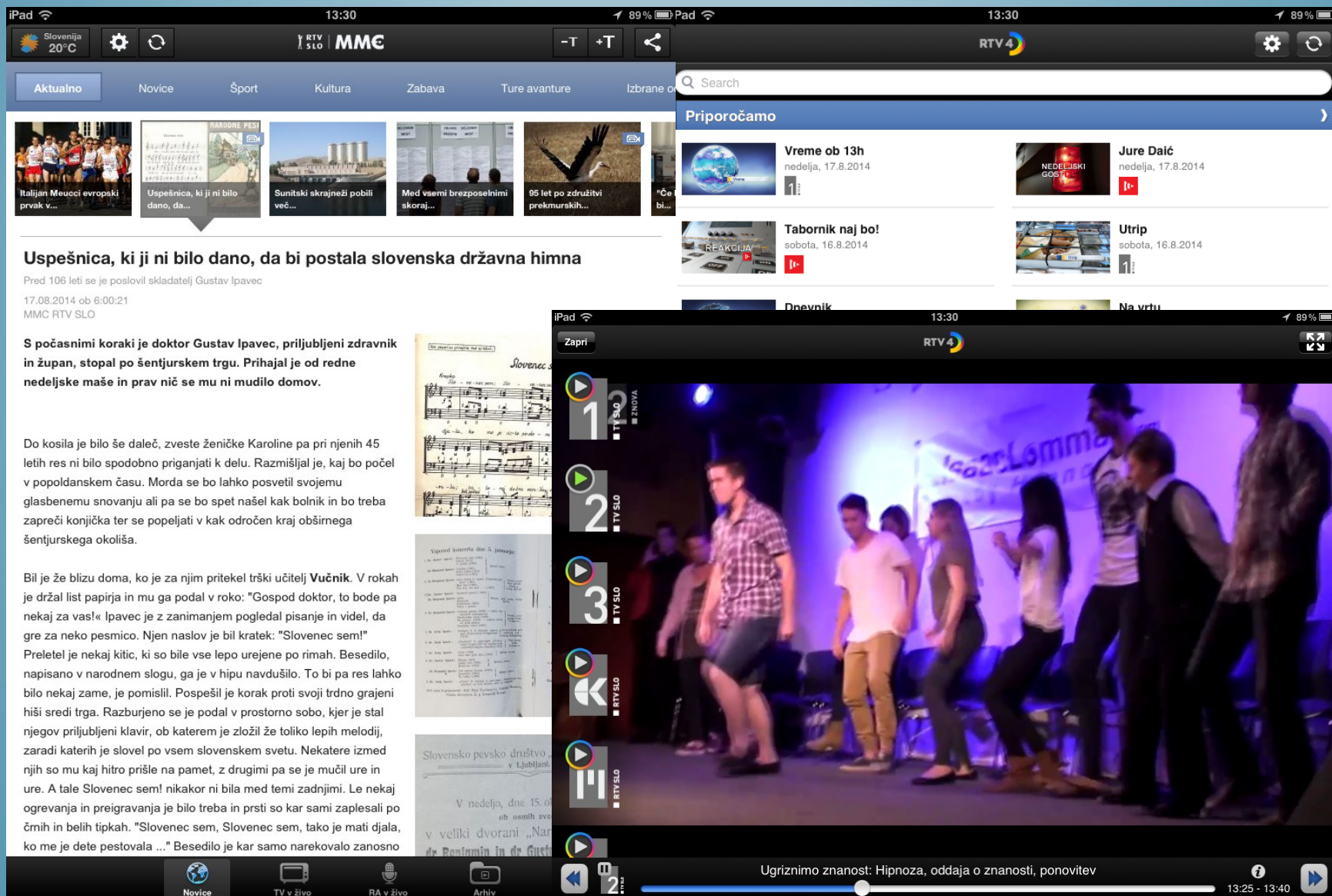
LESSONS LEARNT

A really broad range of target audience and terminal devices -> testing is really important

Less is more, application stability is crucial

UX: iOS ≠ Android ≠ PC

More than 100.000 downloads

❸ TS TELEMEDICINE

Telemedicine UX project for the national telco operator Telekom Slovenije

Propose, design and test the user interface

- Mobile phone
- Tablet PC
- TV (iptv set-top-box)
- PC web portal

Functionality

- Patient specific data, personal doctor information
- Sensory data input and review (e.g. body weigt, blood pressure...)
- E-healt oriented portal

UX design

- Focus groups
- Personas
- Field tests (homes for the elderly)

CONCEPT WIREFRAMES
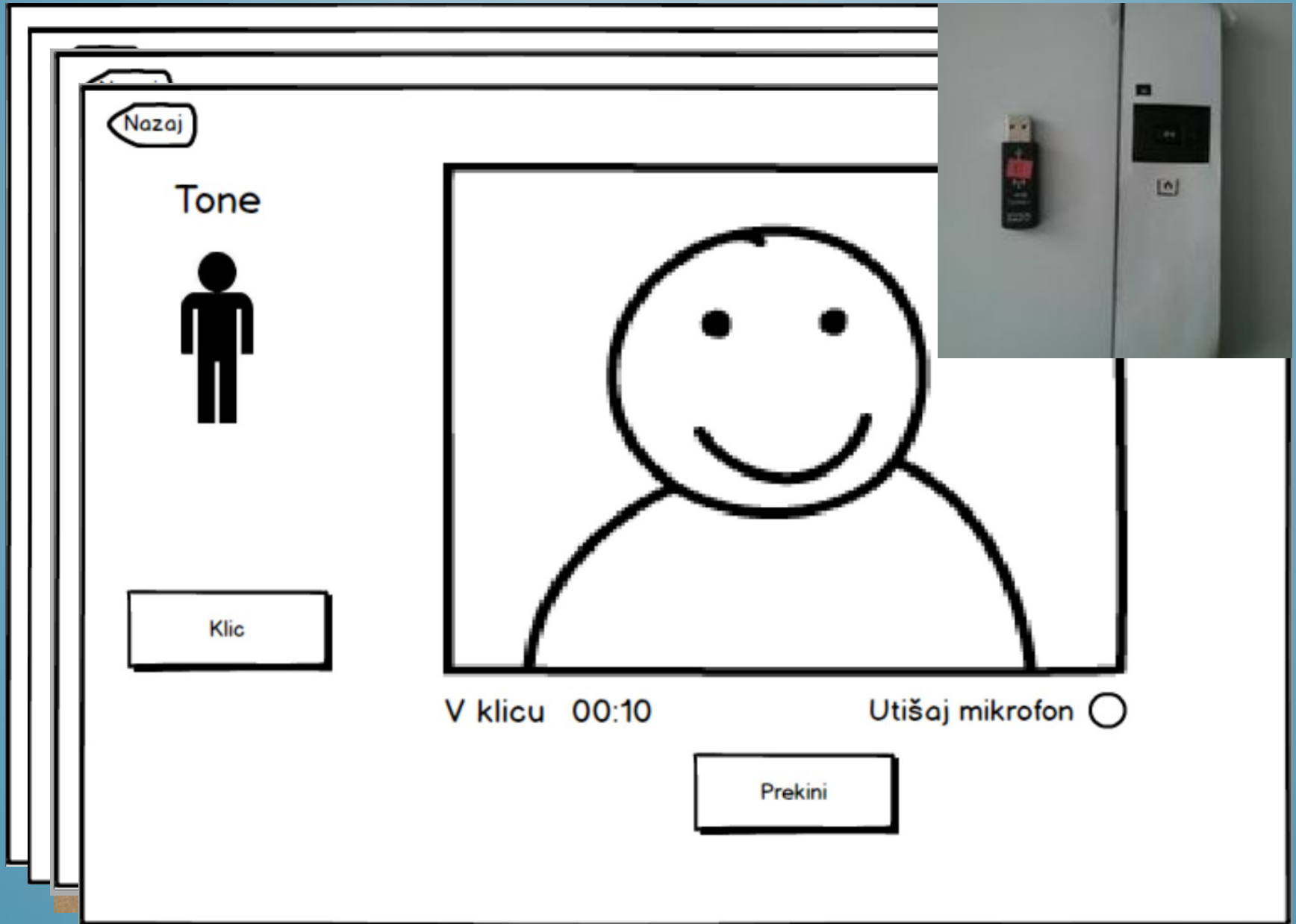
UX TESTING IMPRESSIONS

LESSONS LEARNT

Target group specifics

- *A wide range of users*
- *Body/cognitive impairments*
- *Varios technology background and attitude*

Abstract concepts do not work – live product demonstration is necessary

If the service is considered to have the benefits for the user -> the user is willing to learn how to use it

❹ UCD approach for designing the new Multimedia course

Partnership between

- *Students*
- *Parents*
- *Professors*
- *Industry*

PERSONAS

	Miha Zajc
Age:	
Background (context environment):	
Goals and objectives	

	Mojca Golob
Age:	
Background (context environment):	
Goals and object	

	Janez Novak
Age:	
Background (context environment):	
Goals and objectiv	

	Rok Barton
Age:	42 years old
Background (context and environment):	Rok is married and has one younger child. He lives in a smaller village near the second largest city in the country. He is teaching mathematics at one of the most prominent gymnasiums in the country.
Goals and objectives:	Rok puts a lot of effort into his work. He always tries to make the lessons understandable and interesting and show the importance of mathematics in real life situations. Rok understands how difficult is for young people to find a good job, therefore he helps his pupils to make smart decisions about their future career. He is paying special attention to female students and tries to show them, they can be at least

LESSONS LEARNT

UCD approaches can be successfuly applied even to the study programme design

Common strategy and goals between all stakeholders are important

Appropriate promotion and marketing

What is "multimedia"?
Why does the market need multimedia engineers?
What do the multimedia engineers do?
Where they can get a job and how much they could earn?
Is the degree program difficult and whether help will be provided when needed?

Multimedia degree program as an environment for personal and career development.
Studying Multimedia is "cool and fun".
Multimedia is student-friendly degree program, which leads t. successful career and good life,
Students gain various inter- and multi-disciplinary skills and competences, which open the doors to the most successful companies in the country, Europe and the whole world.

❺ WUD SLOVENIA

World Usability Day
Making life easy!

http://worldusabilityday.org
http://www.ltfe.org/aktualno/world-usability-day-slovenia-2013/

designing the user experience

START

ANALYSIS Phase

The Usability Life Cycle

The project, even a small project, benefits from incorporating usability work on. During the Analysis phase, set goals and determine who will use the product for what purpose. The Design phase is iterative. That is, the design studies that continuously evaluate new design solutions. Then, during the Implementation phase, the product takes shape. As the design progresses, all design iterations, even sketches, can be tested quickly with users. A great user experience and high user satisfaction are not built in from the beginning by only an ongoing attention to users!

meet with key stakeholders to set vision

Multidisciplinary team

The design team should include expertise in usability, human factors, marketing, graphic design, technology engineering, quality assurance, and performance support. Collaborating with each discipline during the analysis, design and implementation phases will ensure the design meets usability needs; accommodates the technology being used; portrays the interface in a way that will not be jeopardized branding; and reflects the intended functionality.

include usability tasks in the project plan

assemble a multidisciplinary team to ensure complete expertise!

develop usability goals and objectives

conduct field studies

Field studies

are an excellent way to obtain information about the users' environments and how they do real work in these environments. Field studies can include tas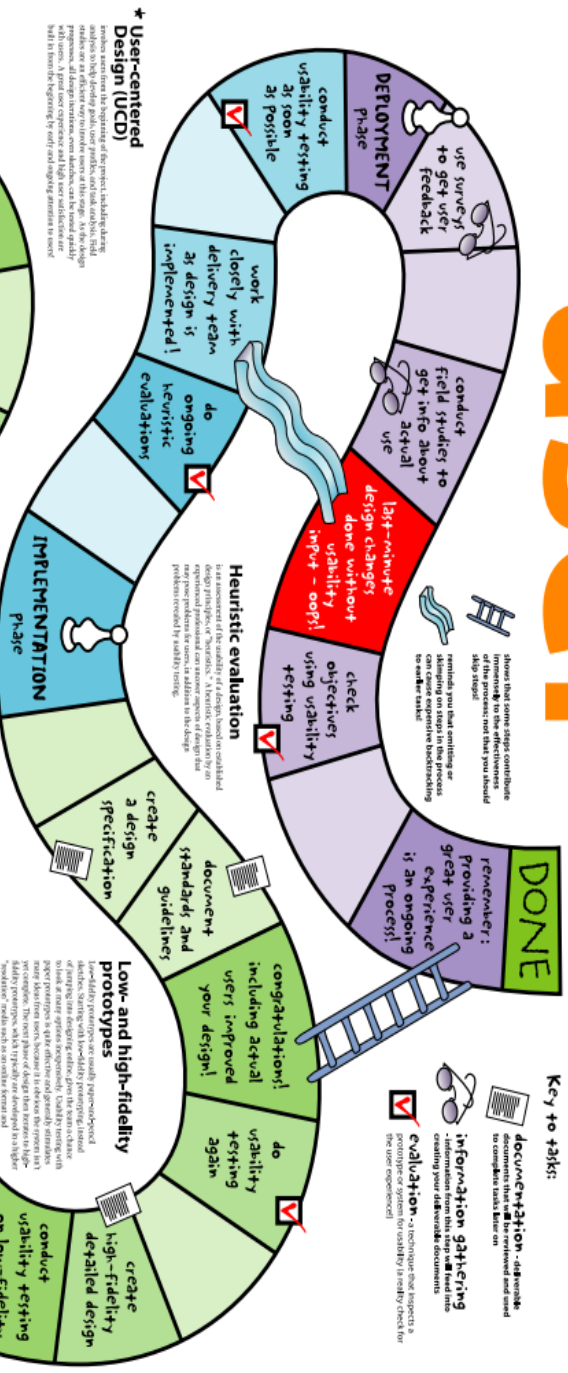k frequency, importance, and which user groups will do the task. These studies are often conducted in the users' workplaces. Data from field studies drives development of user profiles, task analysis, scenarios, and usability testing protocol.

look at competitive products

congratulations! thorough groundwork increases your chance of success!

"content experts" not really end users – oops!

create user profiles

develop a task analysis

Task analysis

helps the team understand what can be done with the system. It can include task frequency, importance, and which user groups will do the task. Task analysis can also incorporate a workflow diagram, which is a good way to show the process behind how users does their work.

User profiles

document the various categories of users and their characteristics. They help a team get a hands-on idea of who will be using the system, in what ways. User profiles can include information such as demographics, technology experience, motivations, and frequency of use. Creating posters for different user profiles is a fun and compelling way to make users real for the design team.

remember: validate early and often with users!

document user scenarios

User Scenarios

are stories about how real people do their work. They often contain specific people, courses and data about how a task is done. Scenarios aid the design team in focusing on real design people and tasks and can be used throughout to evaluate design options.

begin to brainstorm design concepts and metaphors

document user performance requirements

congratulations! you now have the info needed to make informed design decisions

Walkthrough

In a walkthrough, the design team and users meet to step through a design concept and walk through this work. The concept (model) is in low-fidelity form. Scenarios and metaphors, and the navigation model all contribute to high-level design that demonstrates the conceptual model.

detailed design implemented too soon – oops!

begin design with paper and pencil

Conceptual model

Users form "mental models" about how a system works. A walkthrough shares partners a strong conceptual model that helps users form an accurate mental model and identifies the way users think about their work. The conceptual model is the overarching "bone" of the design. Scenarios, metaphors, and the navigation model all contribute to high-level design that demonstrates the conceptual model.

create low-fidelity prototypes

DESIGN Phase

★ **User-centered Design (UCD)**
involves users from the beginning of the project, including during analysis to help develop goals, user profiles, and task analysis, field studies, an efficient way to gather data that feeds into the design programs, and all design iterations, even sketches, can be tested quickly with users. A great user experience and high user satisfaction are not built in from the beginning by only an ongoing attention to users!

develop screen flow and navigation model

Navigation model

The navigation model is the big picture, or "bird's eye view" of the system. It considers how users start, how they get from here to there, and what all of the major elements will be (such as screens). A flow diagram of the system elements can represent a navigation model.

do walkthroughs of design concepts

remember: every step in the process contributes to UCD! ★

create high-fidelity detailed design

congratulations! including actual users improved your design!

do usability testing again

conduct usability testing on low-fidelity prototypes

Low- and high-fidelity prototypes

document prototypes are usually paper-based or computer sketches. Starting with low-fidelity prototyping and then getting user reactions lets a team get a hands-on idea early of using the core design effort, gives the team a chance to look at many options incorporating. Usability testing with paper prototypes is quite effective and generally stimulates more ideas from users, because it is obvious the system isn't done yet. There is a point when the paper prototyping stops, typically when the design is more stable, and a high-fidelity prototypes, which is typically on a higher fidelity level as on the other format and functional detail.

IMPLEMENTATION Phase

create a design specification

document standards and guidelines

check objectives using usability testing

Heuristic evaluation

is an assessment of the usability of a design, based on established principles. A heuristic evaluation, or "expert review," has one or more experienced professional can uncover aspects of a design that may pose problems for users, in addition to the design problems revealed by usability testing.

do ongoing heuristic evaluations

last-minute design changes done without usability input – oops!

work closely with delivery team as design is implemented!

DEPLOYMENT Phase

conduct usability testing as soon as possible

use surveys to get user feedback

conduct field studies to get info about actual use

remember: providing a great user experience is an ongoing process!

DONE

congratulations! providing a great user experience!

Key to tasks:
documentation – deliverable documents that will be reviewed and used to complete tasks later on

information gathering – information from this step will feed into creating your deliverable documents

evaluation – a technique that inspects a prototype or system for usability checks for the user experience

BUT...

CONCLUSIONS

GOOD UX REFERENCES

https://uxpa.org/

htt...

ww...

htt...

htt... hciud...

htt... /

htt...

Boo...
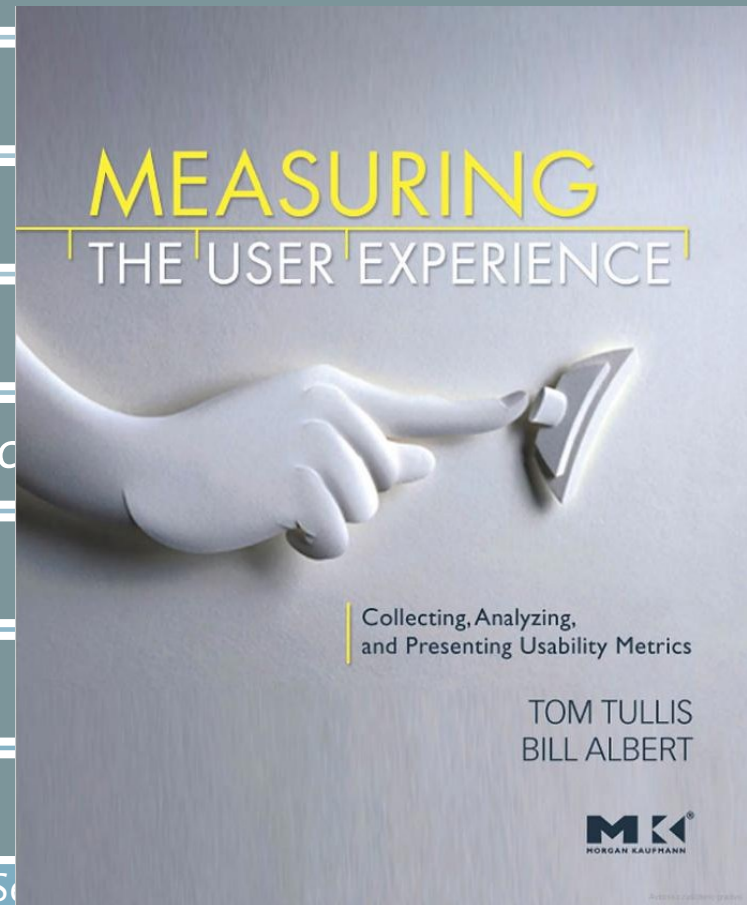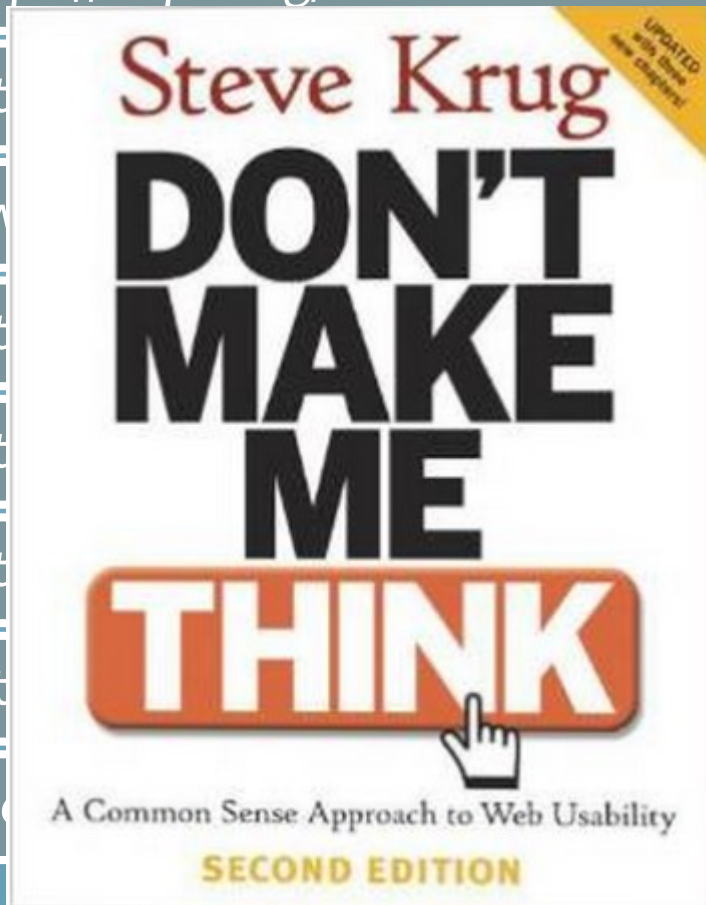
- ... mon S...
- *Thomas Tullis, William Albert: Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics*

Thank You!

DISCUSSION