

Human Computer Interaction

CS449 – CS549

Week 9-2

Expert and User Based Usability
Evaluation Methods

KÜRSAT ÇAĞILTAY

Today

- Usability Evaluation Methods
- Inspection/Expert Based Evaluation
- User Based Evaluation
- Assignment-4

Turkiye.gov.tr – Usability?

- 60 million users
- 7000 services

The screenshot shows the homepage of the turkiye.gov.tr website. At the top, there is a dark blue header bar with the logo "turkiye.gov.tr" on the left and three buttons on the right: "Hızlı Çözüm" (Fast Solution), a key icon, and "Giriş Yap" (Log In). Below the header is a large blue banner with white clouds. Inside the banner, there is a white speech bubble containing the text "Merhaba, size nasıl yardım edebilirim?" (Hello, how can I help you?) and a magnifying glass icon. Below the banner, there is a row of five circular icons representing different service categories: "e-Hizmetler" (with a circular arrow icon), "Kurumlar" (with a building icon), "Belediyeler" (with a map pin icon), "Firmalar" (with a factory icon), and "Üniversiteler" (with a graduation cap icon). Each category has a brief description below it. At the bottom of the page, there is a large image of a person's hands holding a credit card over a laptop keyboard. To the right of this image, there is a text box with the heading "Hangi Bankada Hesabınız Var?" (Where is your account at the bank?) and a paragraph of text. There are also navigation arrows and a "Hesap Bulunan Banka Sorgulama" (Check if the bank has an account) button.

turkiye.gov.tr

Hızlı Çözüm

Giriş Yap

Merhaba, size nasıl yardım edebilirim?

e-Devlet Kapısı ile bilgi ve belgelerinize tek noktadan ulaşabilir, başvuru işlemlerinizi hızla gerçekleştirebilirsiniz

e-Hizmetler
Sorgulama, Başvuru ve Ödeme hizmetleri.

Kurumlar
Resmi kurumların hizmetleri ve iletişim bilgileri.

Belediyeler
Belediyelerin iletişim bilgileri ve sundukları hizmetler.

Firmalar
Şirketlerdeki fatura ve abonelik bilgilerine erişin.

Üniversiteler
Üniversitelerin sundukları hizmetler.

ATAM

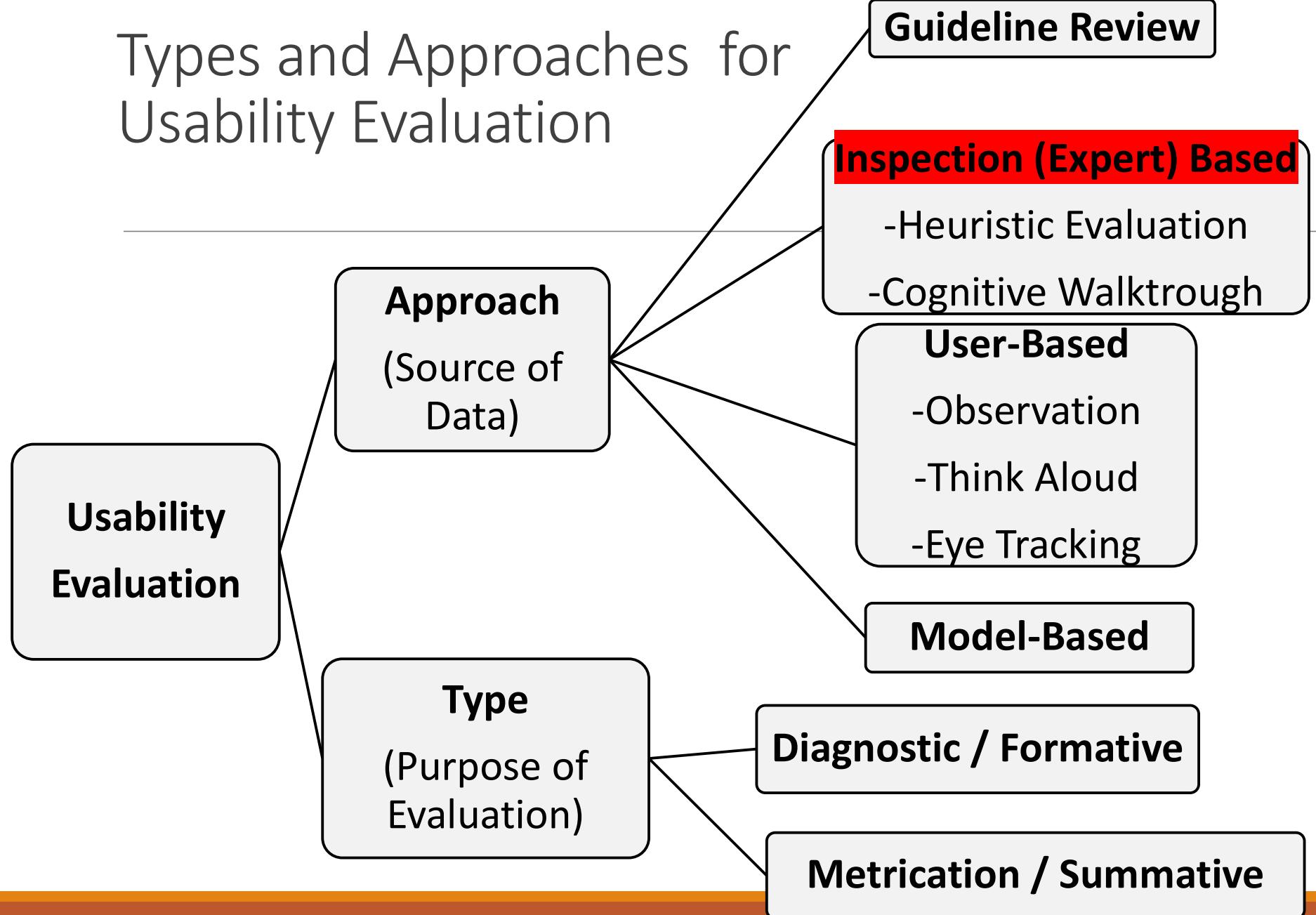
Atatürk Araştırma Merkezi Başkanlığı Internet sitesini ziyaret edin

Hangi Bankada Hesabınız Var?

Mevduat/Katılım fonu hesabı bulunan bankalarınızı görüntüleyebilirsiniz.

Hesap Bulunan Banka Sorgulama

Types and Approaches for Usability Evaluation



Inspection/Expert-based Approaches

- Involves the evaluator (usability expert) using the system
- Use can be structured or casual
- Expert notes potential problems
- May employ pre-determined criteria
- Expert tries to see the interface from the point of view of the user

Types of Inspections/Expert Methods

1. Heuristics ***
2. Cognitive Walkthrough
3. Heuristic Walkthrough
4. Pluralistic Cognitive Walkthrough

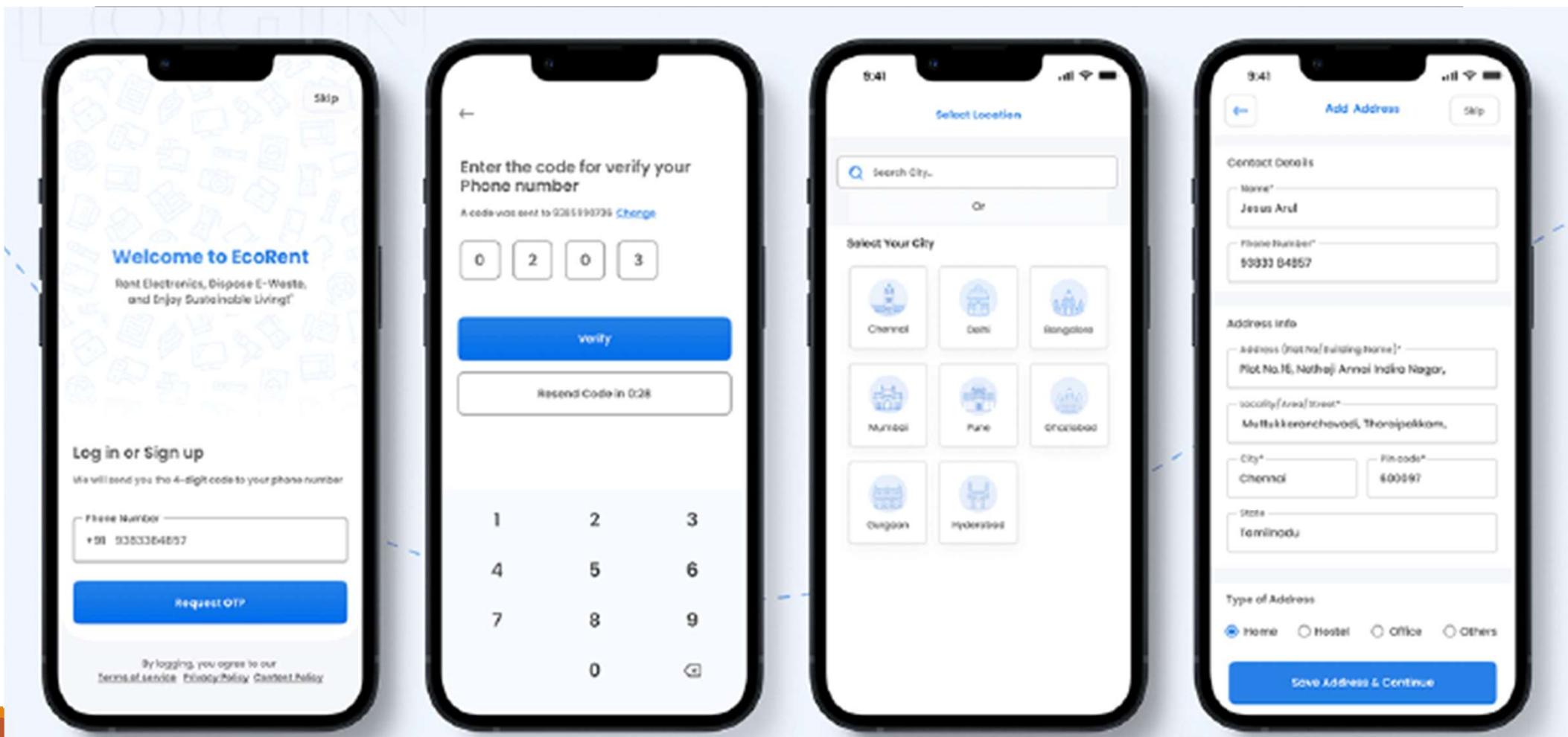
10 Usability Heuristics

-  Visibility of system status
-  Match between system and the real world
-  User control and freedom
-  Consistency and standards
-  Error prevention
-  Recognition rather than recall
-  Flexibility and efficiency of use
-  Aesthetic and minimalist design
-  Helps users recognise, diagnose, and recover from errors
-  Help and documentation

Typical Inspection/Expert -based Scenario

- Take guidelines and check interface against them
- Make min 2 passes through,
 - First for a screen-by-screen check of principles, to get a “feel” for the system, that is, both the general scope of the system and the flow of interaction.
 - Second for inter-screen flow, focus on specific elements of the user interface
- For best results involve multiple evaluators.

e.g. Login Screen and Location



First pass: Screen by screen

The image shows a composite of two screens. On the left is a mobile phone displaying a login or sign-up screen for 'EcoRent'. The screen includes fields for a phone number and a 'Request OTP' button. On the right is a list titled '10 Usability Heuristics' with corresponding icons. A large red arrow originates from the top edge of the phone's screen and points diagonally upwards towards the first item in the list.

10 Usability Heuristics	
Visibility of system status	Recognition rather than recall
Match between system and the real world	Flexibility and efficiency of use
User control and freedom	Aesthetic and minimalist design
Consistency and standards	Helps users recognise, diagnose, and recover from errors
Error prevention	Help and documentation

First pass: Screen by screen

The image displays three mobile phone screens illustrating a user interface audit process. A red arrow originates from a card titled '10 Usability Heuristics' and points to the second screen.

- Top Card: 10 Usability Heuristics**
 - Visibility of system status
 - Match between system and the real world
 - User control and freedom
 - Consistency and standards
 - Error prevention
 - Recognition rather than recall
 - Flexibility and efficiency of use
 - Aesthetic and minimalist design
 - Helps users recognise, diagnose, and recover from errors
 - Help and documentation
- First Screen (Left): Welcome to EcoRent**

Welcome to EcoRent
Rent Electronics, Dispose E-Waste,
and Enjoy Sustainable Living!

Log in or Sign up
We will send you the 4-digit code to your phone number

Phone Number: +91 985334857
Request OTP

By logging, you agree to our
Terms of Service | Privacy Policy | Contact Policy
- Second Screen (Middle): Enter the code for verify your Phone number**

Enter the code for verify your Phone number
A code was sent to 9853348576 Change

0 2 0 3

Verify Resend Code in 0:28

1 2 3
4 5 6
7 8 9
0

First pass: Screen by screen

The image displays three mobile phone screens illustrating user interface design, with a red arrow pointing from the top right towards the third screen.

- Screen 1: Welcome to EcoRent**

Welcome to EcoRent
Rent Electronics, Dispose E-Waste,
and Enjoy Sustainable Living!

Log in or Sign up
We will send you the 4-digit code to your phone number

Phone Number: +91 985334857
Request OTP

By logging, you agree to our
Terms of Service | Privacy Policy | Contact Us
- Screen 2: Enter the code for verify your Phone number**

Enter the code for verify your Phone number
A code was sent to 9265990736 Change

0 2 0 3

Verify Resend Code in 0:28

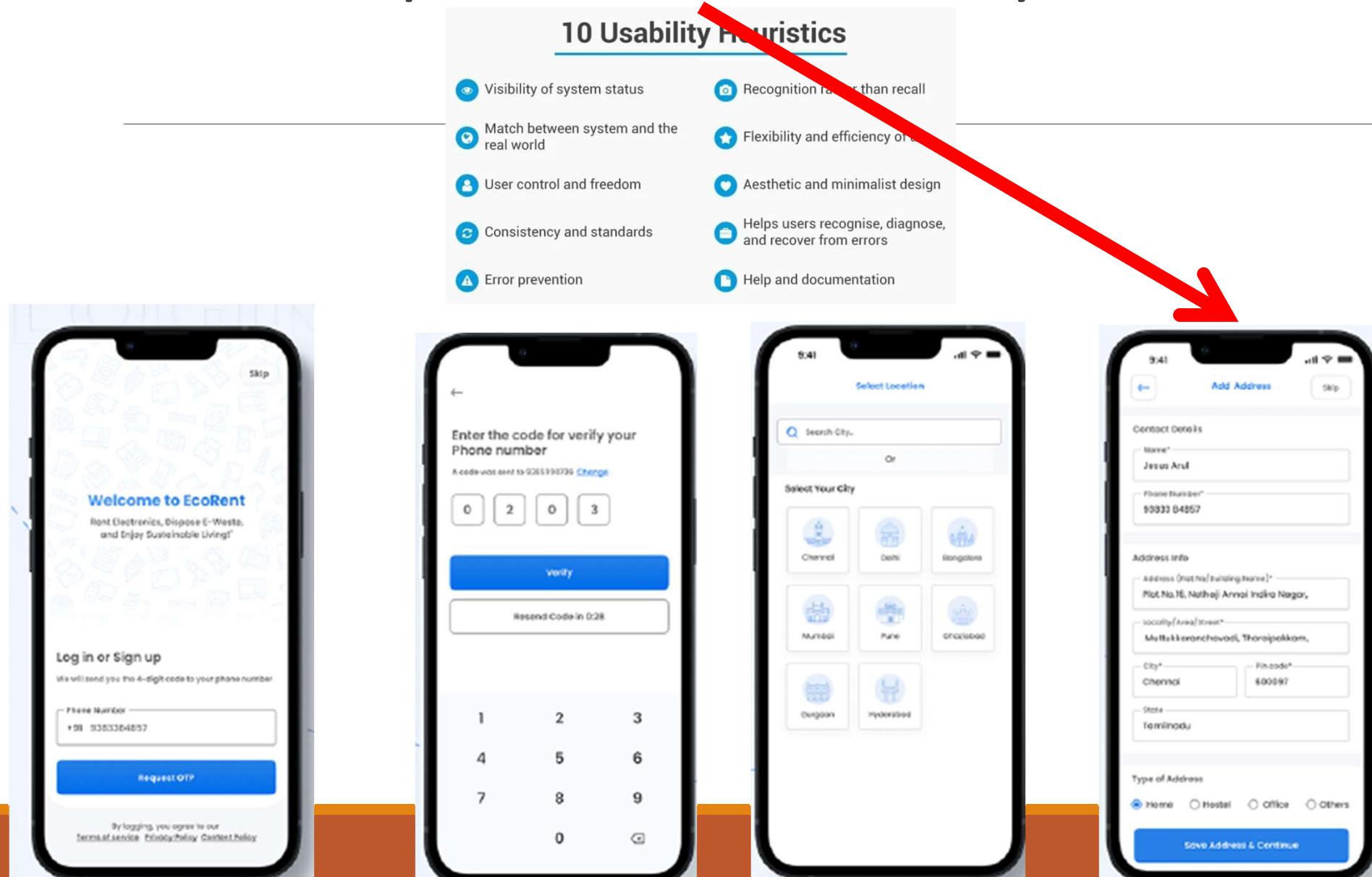
1 2 3
4 5 6
7 8 9
0
- Screen 3: Select Location**

Select Location
Search City...
Or
Select Your City

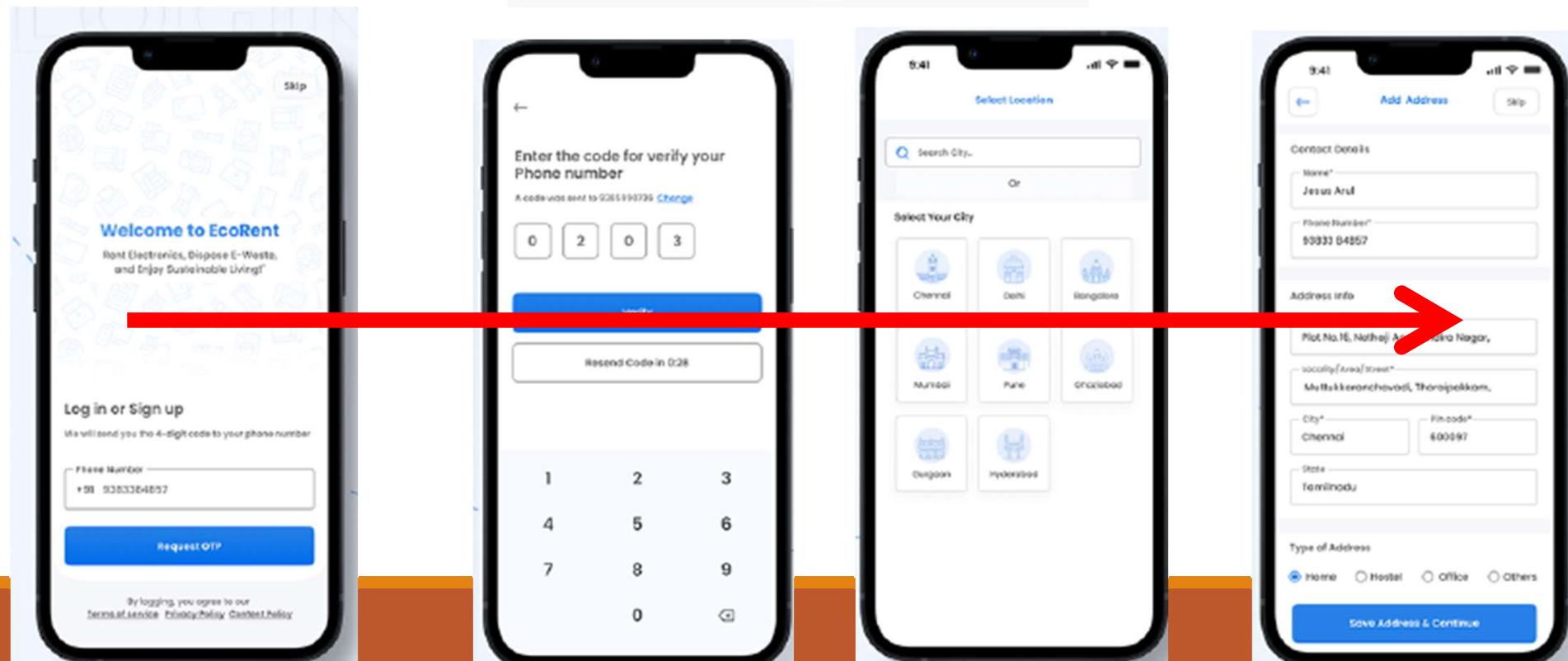
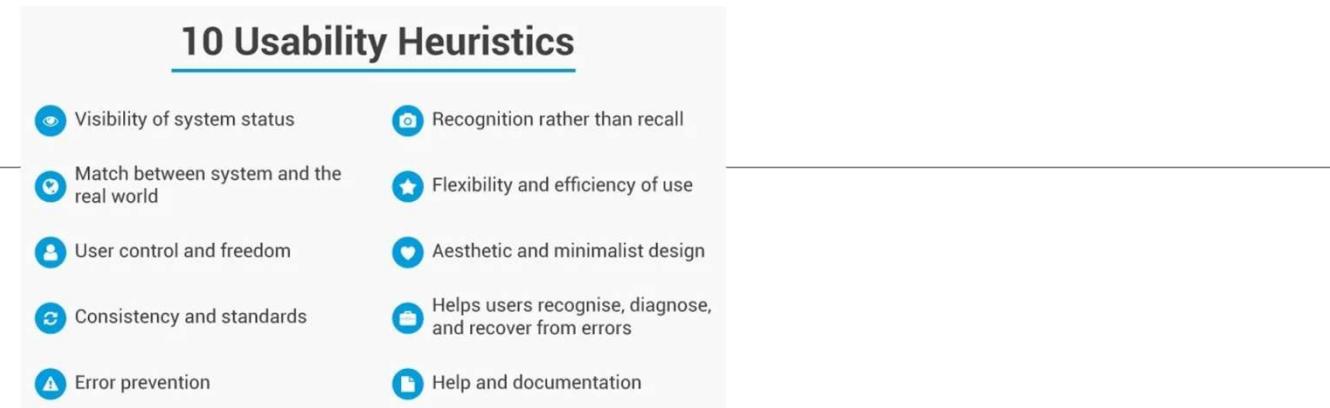
Chennai	Delhi	Bangalore
Mumbai	Pune	Gurgaon
Chennai	Hyderabad	

A large red arrow points from the top right towards the third screen, highlighting the "Select Location" interface.

First pass: Screen by screen



Second pass: Inter Screen Flow



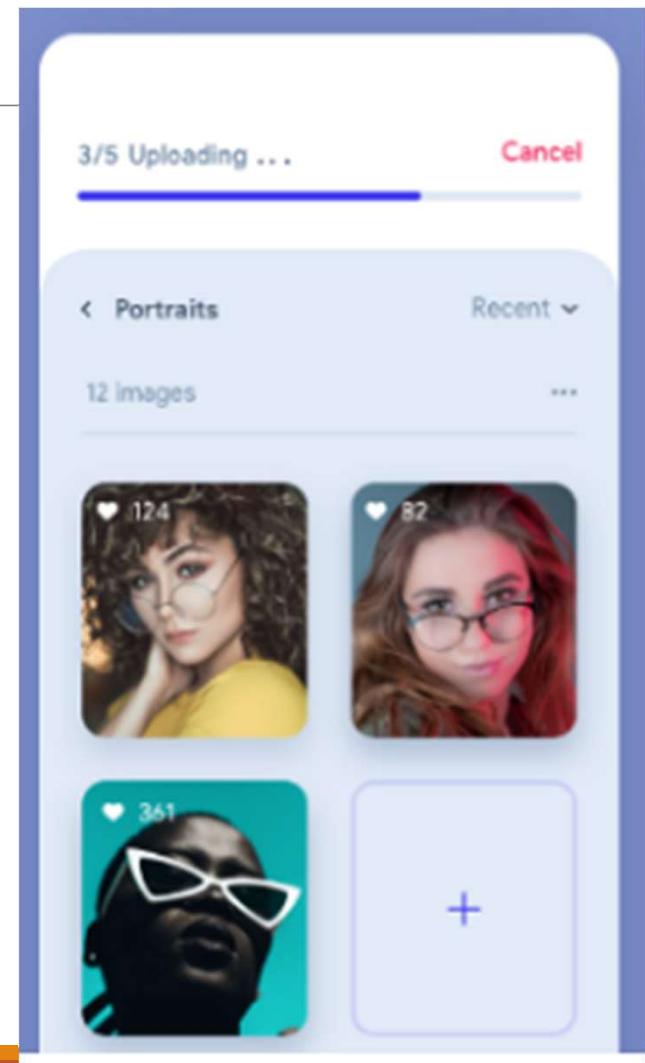
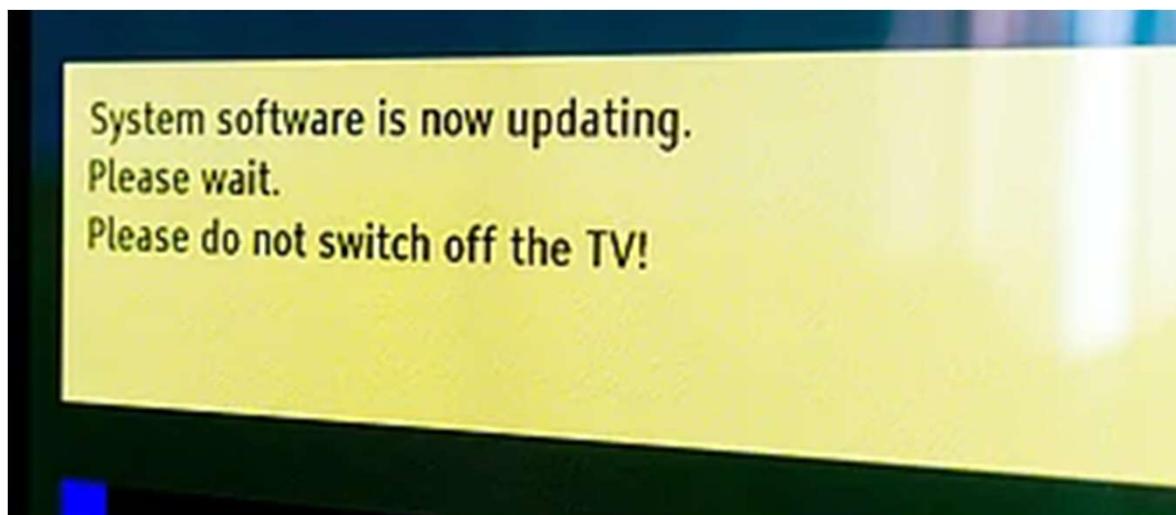
10 Usability Heuristics (Nielsen's)

<https://www.nngroup.com/articles/ten-usability-heuristics/>

1. Visibility of system status
2. Match between system and the real world. ...
3. User control and freedom. ...
4. Consistency and standards. ...
5. Error prevention. ...
6. Recognition rather than recall. ...
7. Flexibility and efficiency of use. ...
8. Aesthetic and minimalist design.
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

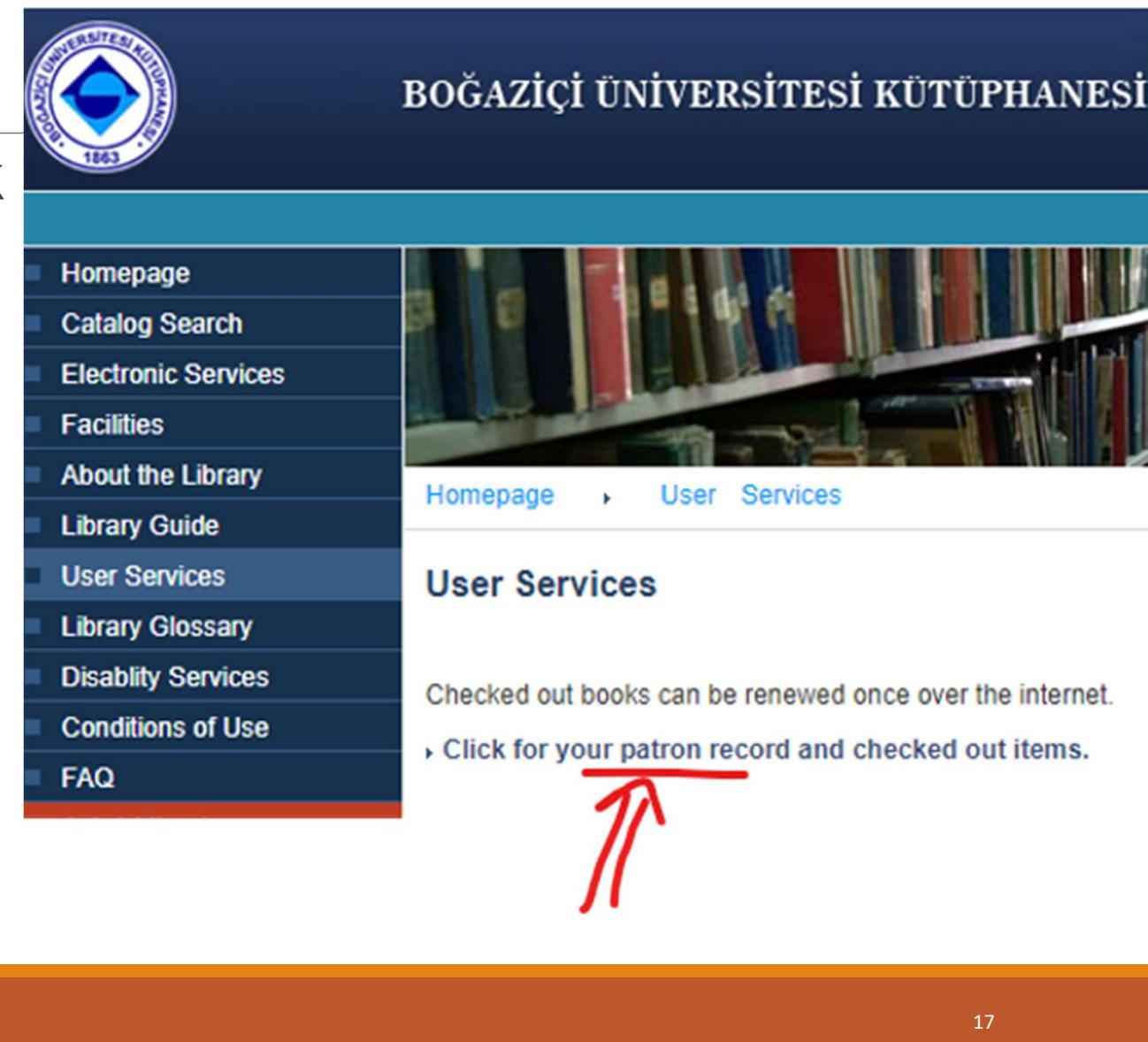
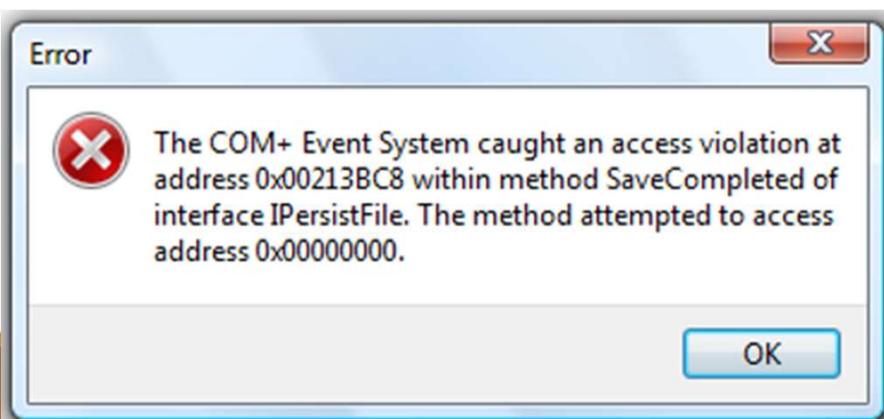
1 Visibility of system status

- Keep users informed about what is going on
- Communicate clearly
- Present fast feedback



2-Match between system and the real world

- The design should speak the users' language
- Use words, phrases, and concepts familiar to the user



BOĞAZİÇİ ÜNİVERSİTESİ KÜTÜPHANESİ

- Homepage
- Catalog Search
- Electronic Services
- Facilities
- About the Library
- Library Guide
- User Services
- Library Glossary
- Disability Services
- Conditions of Use
- FAQ

Homepage > User Services

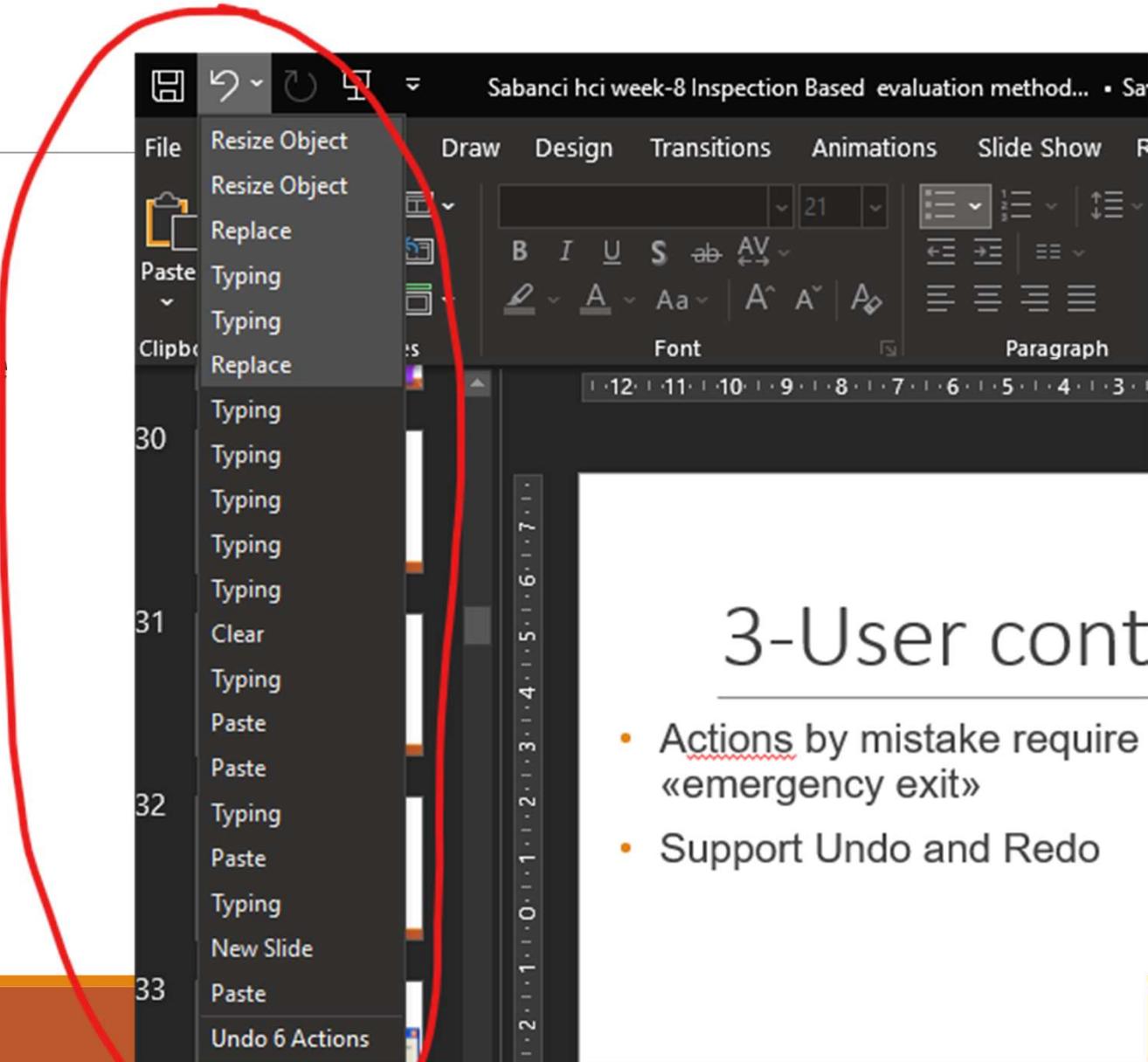
User Services

Checked out books can be renewed once over the internet.

Click for your patron record and checked out items.

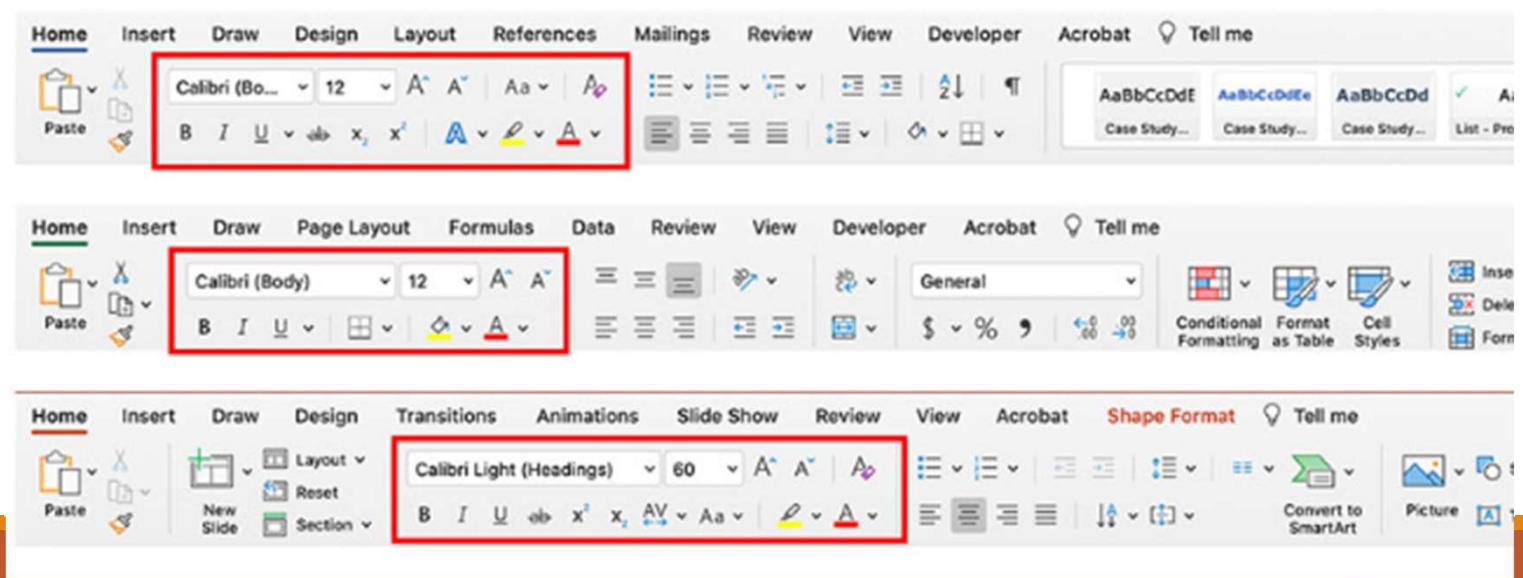
3-User control and freedom

- Actions by mistake require «emergency exit»
- Show a clear way to exit the current interaction, like a Cancel button
- Support Undo and Redo



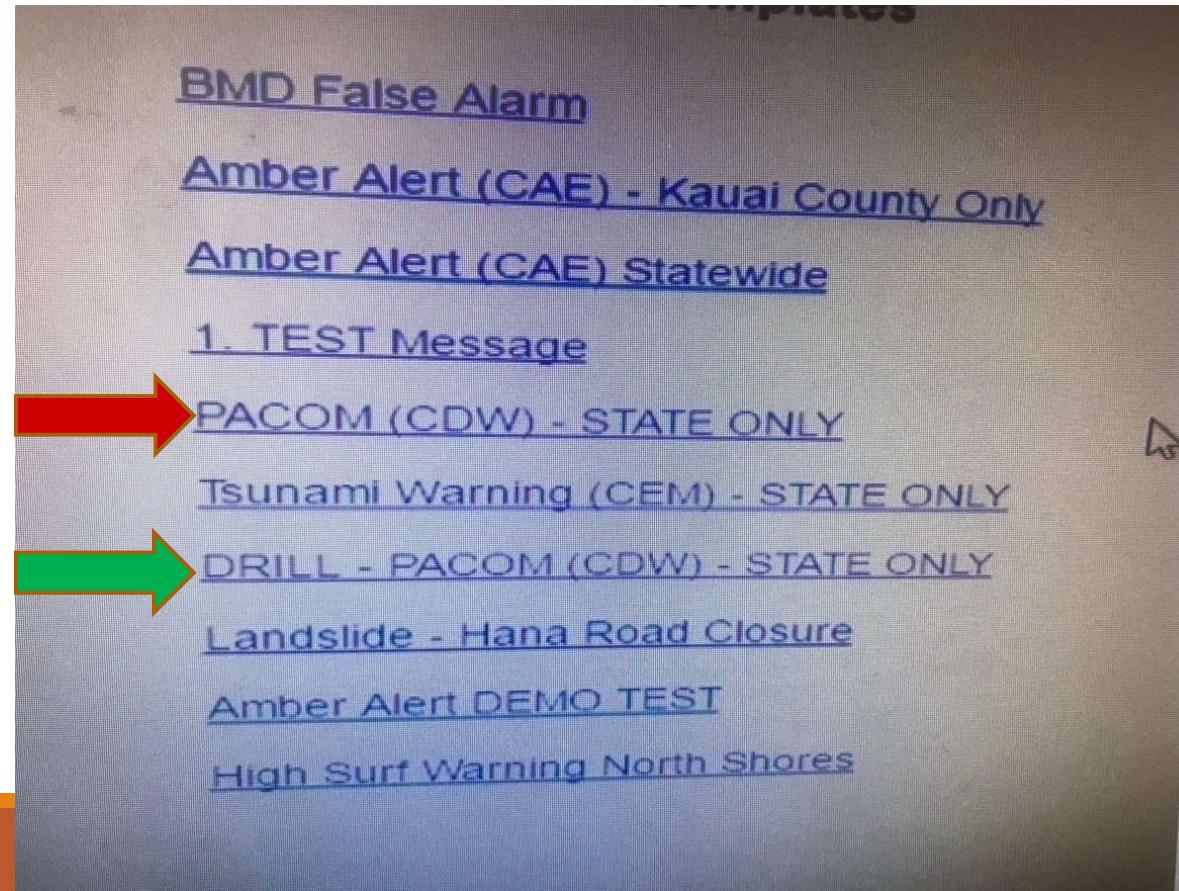
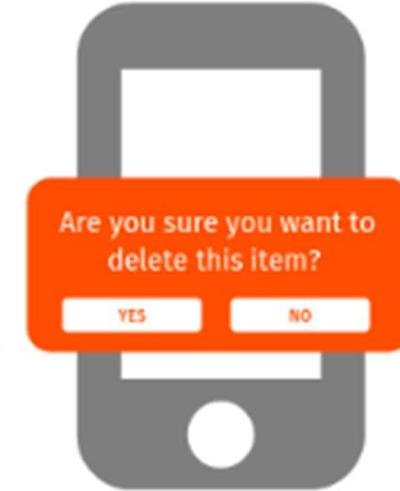
4-Consistency and standards

- consistency: internal and external.
- Maintain consistency within a single product or a family of products (internal consistency).
- Follow established industry conventions (external consistency)



5-Error prevention

- Prevent high-cost errors first, then little frustrations.
- Slips vs Mistakes
- Avoid slips by providing helpful constraints and good defaults.
- Prevent mistakes by removing memory burdens, supporting undo, and warning your users.



6-Recognition rather than recall

- Recognize information in the interface, rather than having to remember (“recall”) it.
- Offer help in context, instead of giving users a long tutorial to memorize.
- Reduce the information that users have to remember

Create a password



Passwords must:

- be 8 characters or more
- include at least one number
- include at least one capital letter
- include at least one lowercase letter

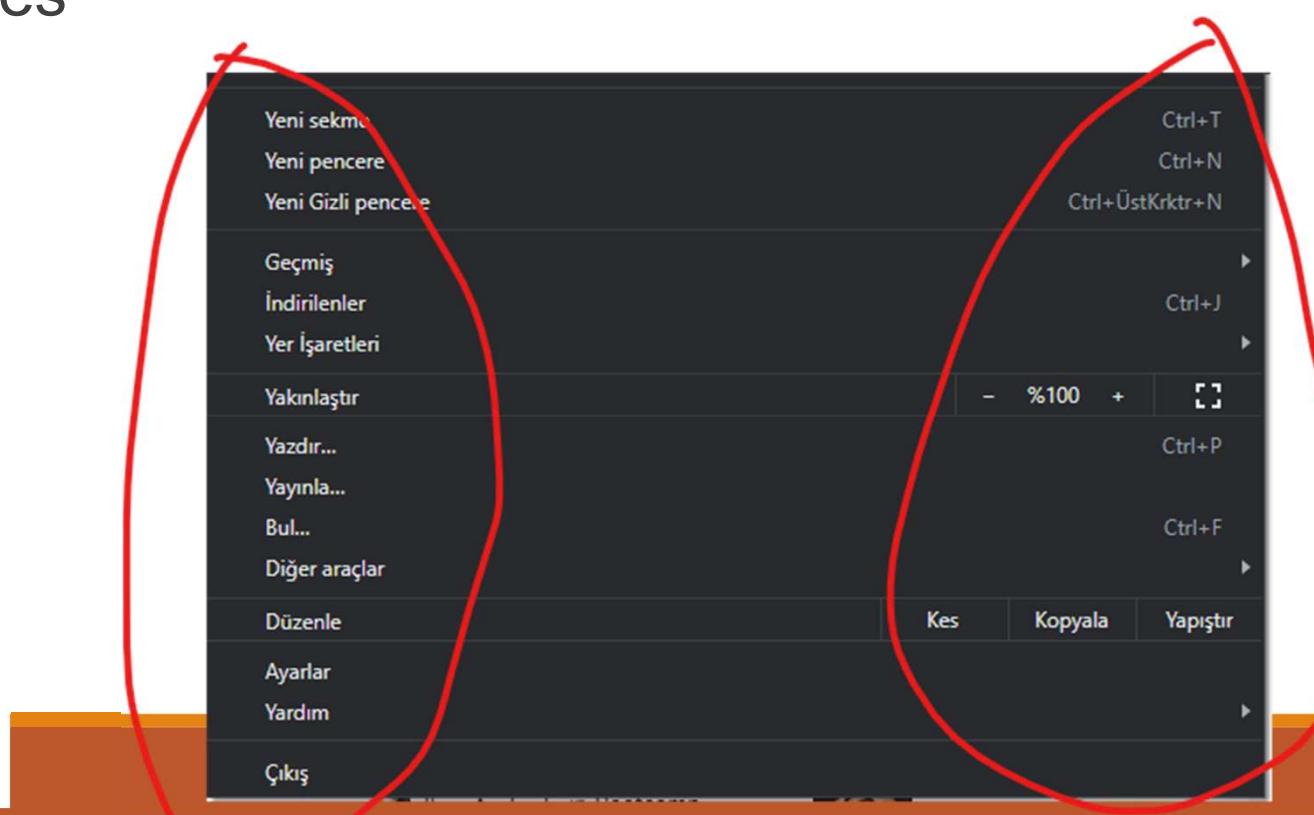
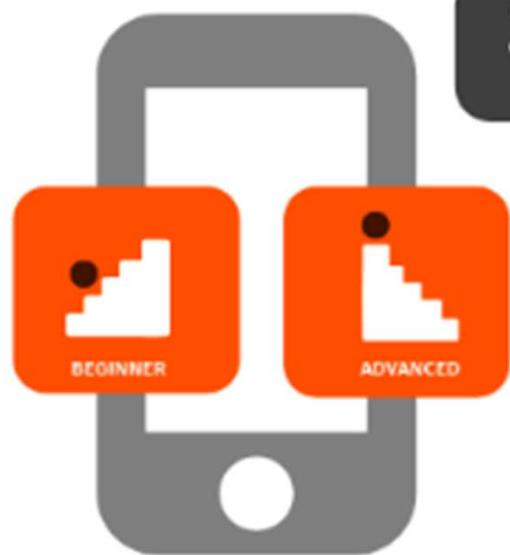
Create a password

Passwords must not include *,(,),&,%,\$,£,",!



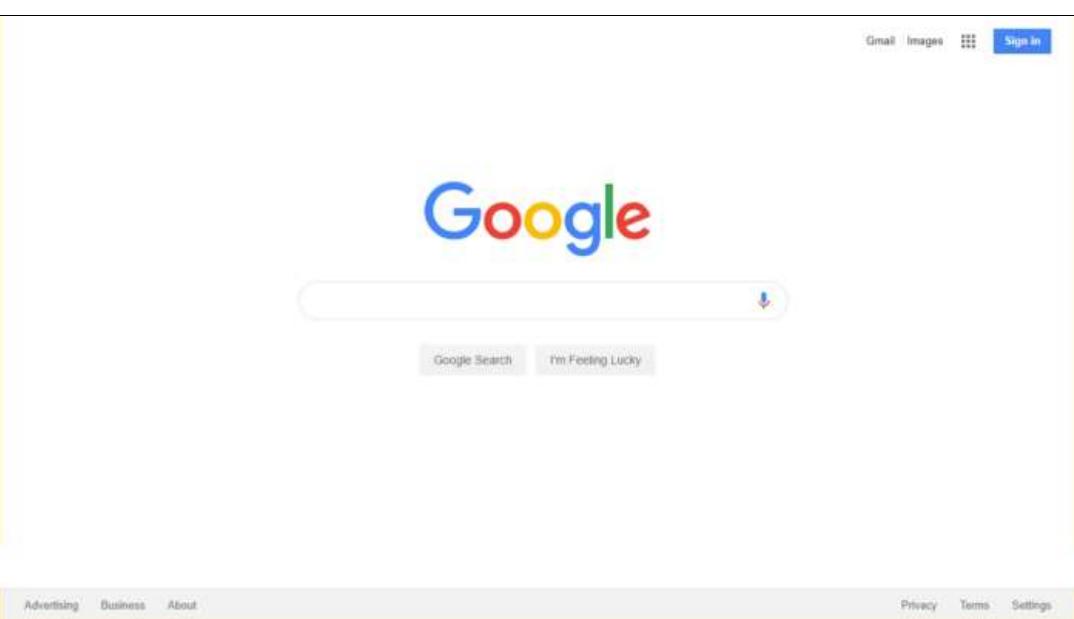
7-Flexibility and efficiency of use

- Allow users to tailor frequent actions
- Provide accelerators like keyboard shortcuts and touch gestures



8-Aesthetic and minimalist design

- keeping the content and visual design focused on the essentials
- Visuals support primary goals
- Don't distract users



The image displays the homepage of Babaskent University's website. It features a dark sidebar on the left with user profile information and links to various university services like mySU, Request/Complaint Form, Bookmarks Search, and my SUCard. The main content area includes a large image of the university building, a 'People Search' bar, and sections for 'ALL ANNOUNCEMENTS' and 'ALL EVENTS'. The announcements list various opportunities and events, while the events section shows scheduled activities for different clubs and organizations. The footer contains emergency contact numbers for security and health.

9-Help users recognize, diagnose, and recover from errors

- plain language (no error codes),
- precisely indicate the problem,
- constructively suggest a solution

Email address

joe@gamil.com

Did you mean [joe@gmail.com](#)?

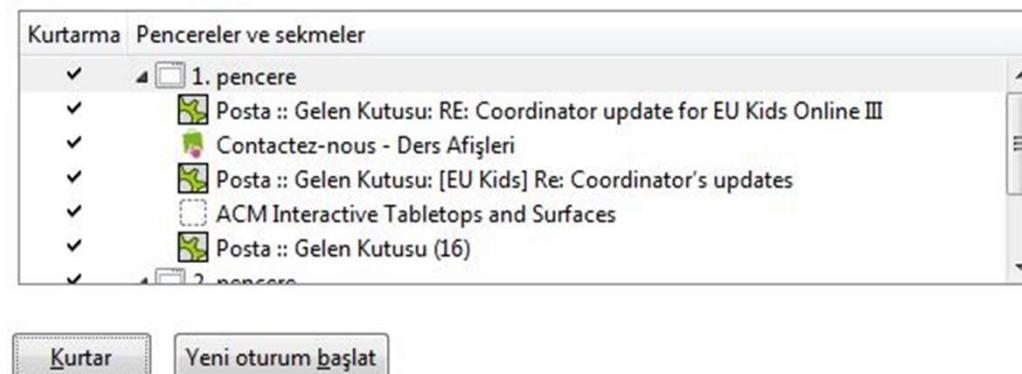
Yes

Söylemekten utanıyoruz ama...

Firefox pencerelerinizi ve sekmezinizi kurtarma konusunda sorun yaşıyor. Bu da genelde daha yeni açılan bir sayfadan kaynaklanır.

Bunları yapmayı deneyebilirsiniz:

- Soruna neden olduğunu düşündüğünüz bir veya daha fazla sekmeyi kaldırma
- Tamamen yeni bir tarama oturumu başlatmak

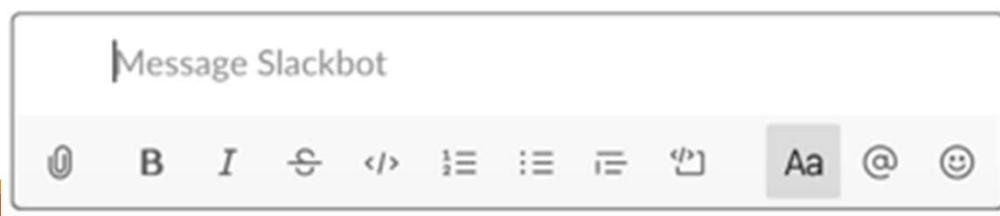


10-Help and documentation

- Help documentation is easy to search.
- present it right at the moment that the user requires it.
- List concrete steps to be carried out.

 Slackbot 3:51 AM
I searched for that on our Help Center. Perhaps these articles will help:

- An introduction to Slackbot
- Improve company culture with Slack
- Getting started for workspace creators



10 Usability Heuristics : How?

<https://www.nngroup.com/articles/ten-usability-heuristics/>

1. Visibility of system status
2. Match between system and the real world. ...
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6. Recognition rather than recall. ...
7. Flexibility and efficiency of use. ...
8. Aesthetic and minimalist design.
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

An Activity on Heuristics

- Heuristics based usability testing
- Devlet Tiyatroları / State Theatres
- <https://www.devtiyatro.gov.tr/>
- 2-3 people
 - Make 2 passes through,
 - First for a screen-by-screen check of principles, to get a “feel” for the system, that is, both the general scope of the system and the flow of interaction.
 - Second for inter-screen flow, focus on specific elements of the user interface

1 Visibility of system status

- Keep users informed about what is going on
- Communicate clearly
- Present fast feedback

2-Match between system and the real world

- The design should speak the users' language
- Use words, phrases, and concepts familiar to the user

- **Menti.com 1664 700**
 - <https://www.menti.com/alfgq71iob1g>
-



Types of Inspection/Expert Methods

- Heuristics
- Cognitive Walkthrough
- Heuristic Walkthrough
- Pluralistic Cognitive Walkthrough

Cognitive Walkthrough (CW)

“Walk up and use systems” + task-based assessment. Based on four CW questions. Evaluators assess :

Q1- The user know what to do? Is it correct?

Q2-User notice that correct action is available/visible? recognize it?

Q3. User associate correct action with the effect to be achieved? visible, understand?

Q4. User sees that progress is made? Is there visible/understandable/feedback

CW Procedure

- Four questions, and walkthrough procedure, are main resources.
- If goal is set, the evaluator then breaks the “goal” down into the component task steps required to successfully achieve it.
- At each step, the evaluator asks questions. A negative response to any of the CW questions indicates a *possible* usability problem.
- To identify *probable* problems, evaluators must form success or failure judgments based on the cumulative impact of possible problems for a task.

An Example CW Session



Task: User records and uploads a video

Action Sequence:

① User Presses Record

② User Presses Stop

③ User Presses Upload

Notes:

Types of Inspection/Expert Methods

- Heuristics
- Cognitive Walkthrough
- Heuristic Walkthrough
- Pluralistic Cognitive Walkthrough

Heuristic Walkthrough-HW

- Hybrid approach that combines HE and CW.
- prioritized list of user tasks, frequent or critical ones
- HW provides more guidance on task selection than HE, CW,
- It has two phases: task-based and free-form:
Evaluators
 - explore tasks using questions from CW.
 - freely explore system. Use thought provoking questions & heuristics.

Types of Inspection/Expert Methods

- Heuristics
- Cognitive Walkthrough
- Heuristic Walkthrough
- Pluralistic Cognitive Walkthrough

Pluralistic Walkthrough (PW) from IBM

- PW, an administrator + a team of three diverse participants
 - a representative user,
 - a product developer, and
 - a usability specialist who pretend to be system users.



Pluralistic Walkthrough (PW) from IBM

- PW, an administrator + a team of three diverse participants
- They are given a set of screens and task descriptions.
- For each screen, the participant is asked to write down in as much detail the next action that the user would take to achieve the task.
- Once each participant has written down the next action, the screen is discussed, usability specialists and product developers talk (e.g., to explain the rationale of certain features).

Knowledge resources for problem discovery and analysis

- **User** (knowledge of/beliefs / experience and abilities)
- **Task** (knowledge of what/how users want to do)
- **Domain** (domain knowledge of the system being evaluated)
- **Design** (knowledge and experience of interaction design principles)
- **Interaction** (knowledge of how humans interact with computers)
- **Technical** (knowledge of platform technologies)
- **Product** (information about the system and its capabilities)

Advantages of Expert-based Evaluations

- Can be quick
- Cheaper than user testing
- Can lead to diagnosis
- Can be employed at all stages of design
- No special facilities required

Disadvantages of Expert-based Evaluations

- Who determines ‘expertise’
- Expertise in task is also important (Nielsen 1993 study)
- Experts disagree!
- Predicting user behavior is difficult

Strategies to enhance the user experience[Home](#) [People](#) [Services](#) [Publications](#) [Events](#) [About NN/g](#)[NN/g Home](#) > [Services](#) > Design Reviews

Design Reviews (Usability Inspections)

Price:

\$38,000 for a review of a website or intranet.

\$73,000 for a competitive review of your website + 3 competitors.

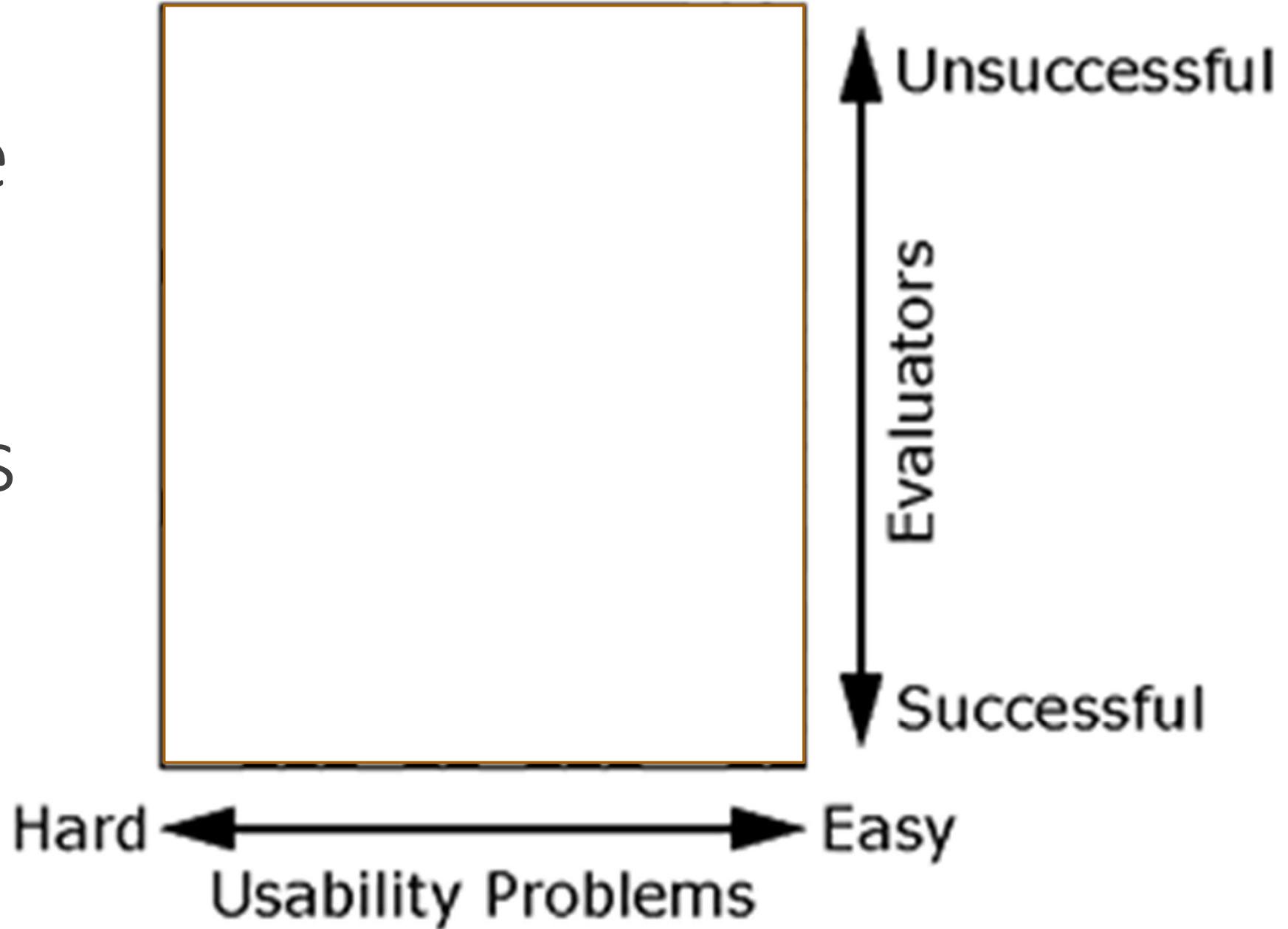
Method

Nielsen Norman Group provides an **independent expert** assessment of your user experience. Getting an independent review is important, because research shows that different people tend to identify different problems. The outside view is not just more objective; it's free of the

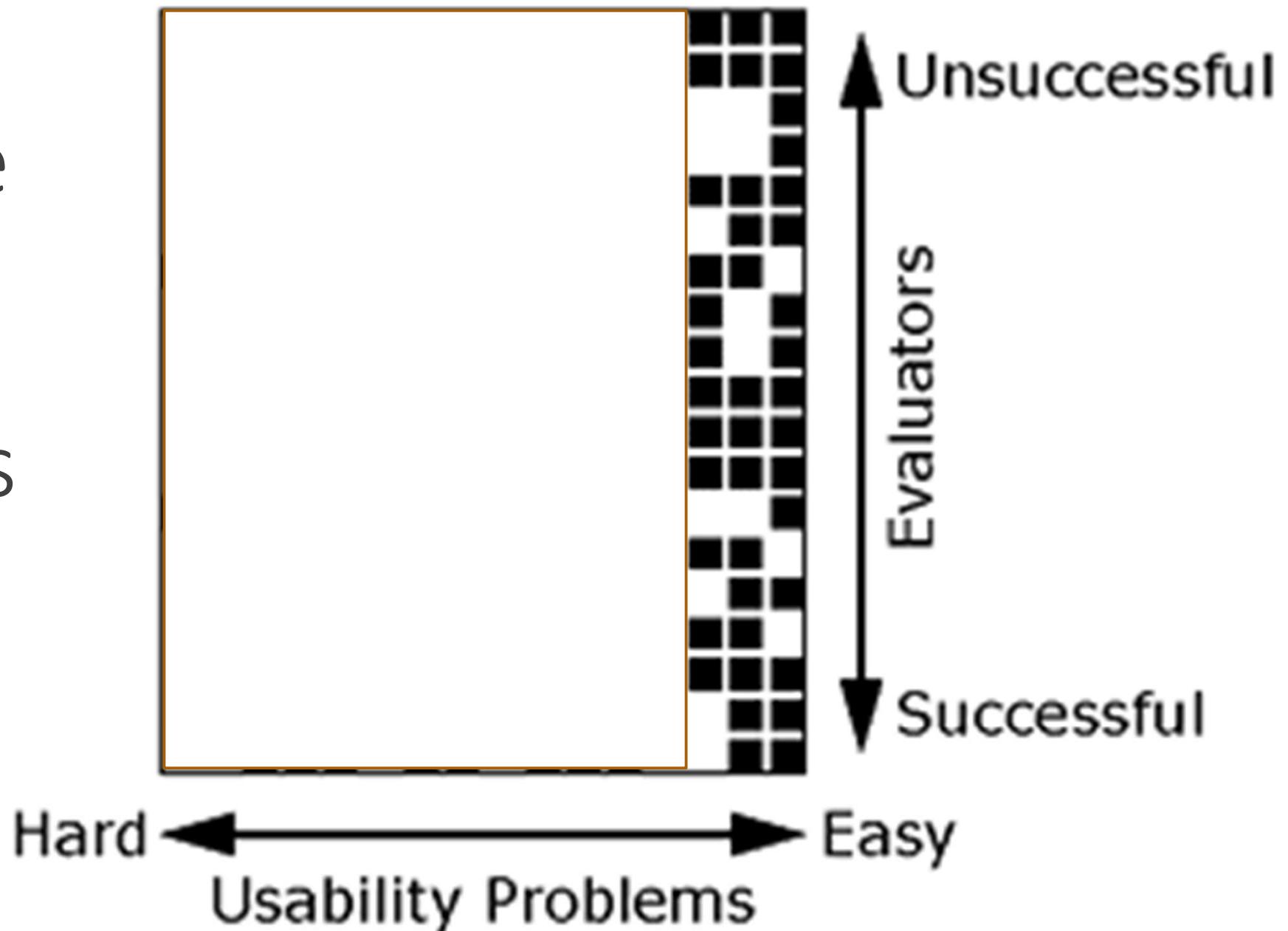
► How to Order

Please contact Nielsen Norman Group at info@nngroup.com if you would like more information or are interested in this service.

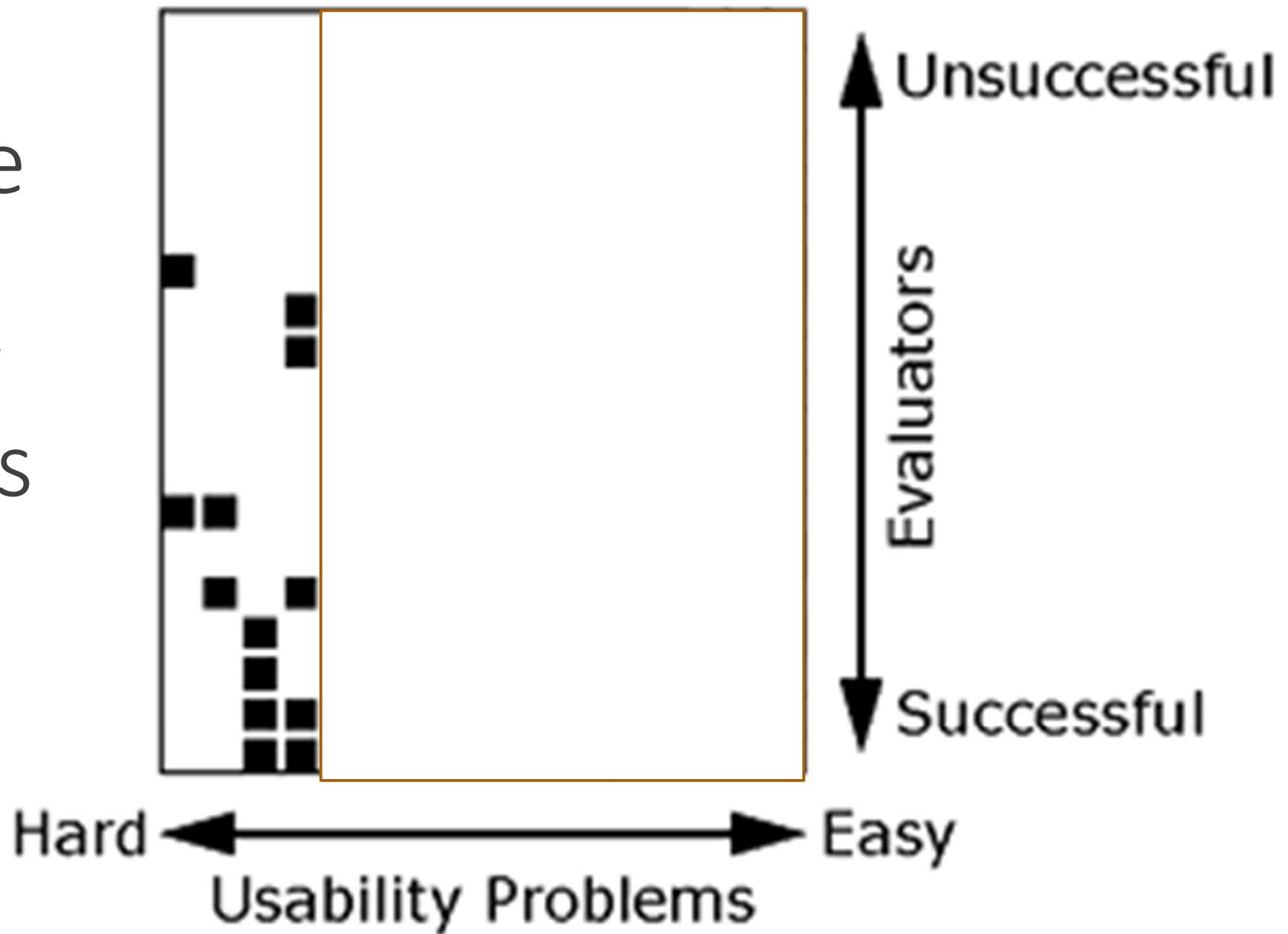
Expertise vs Usability Problems



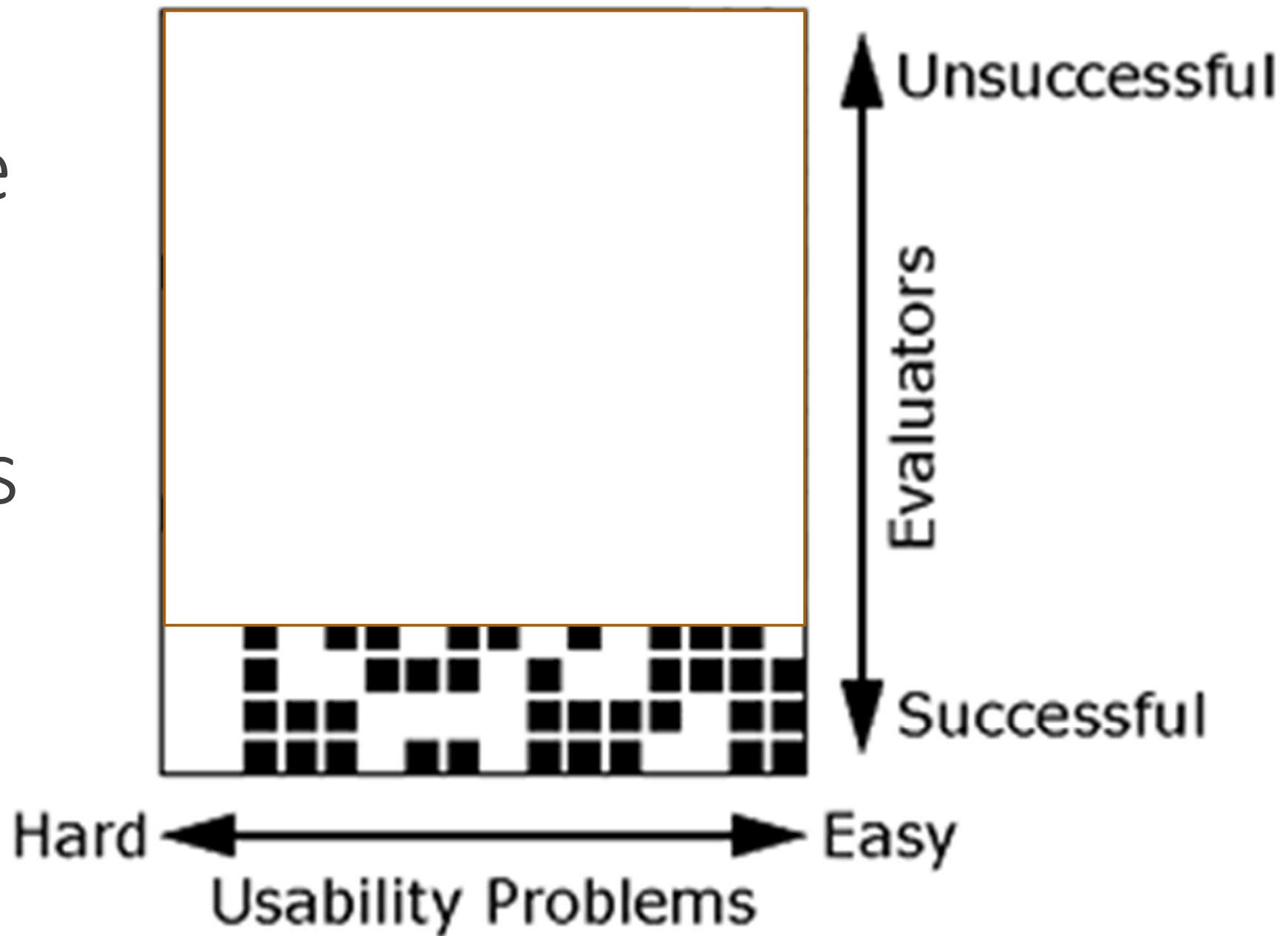
Expertise vs Usability Problems



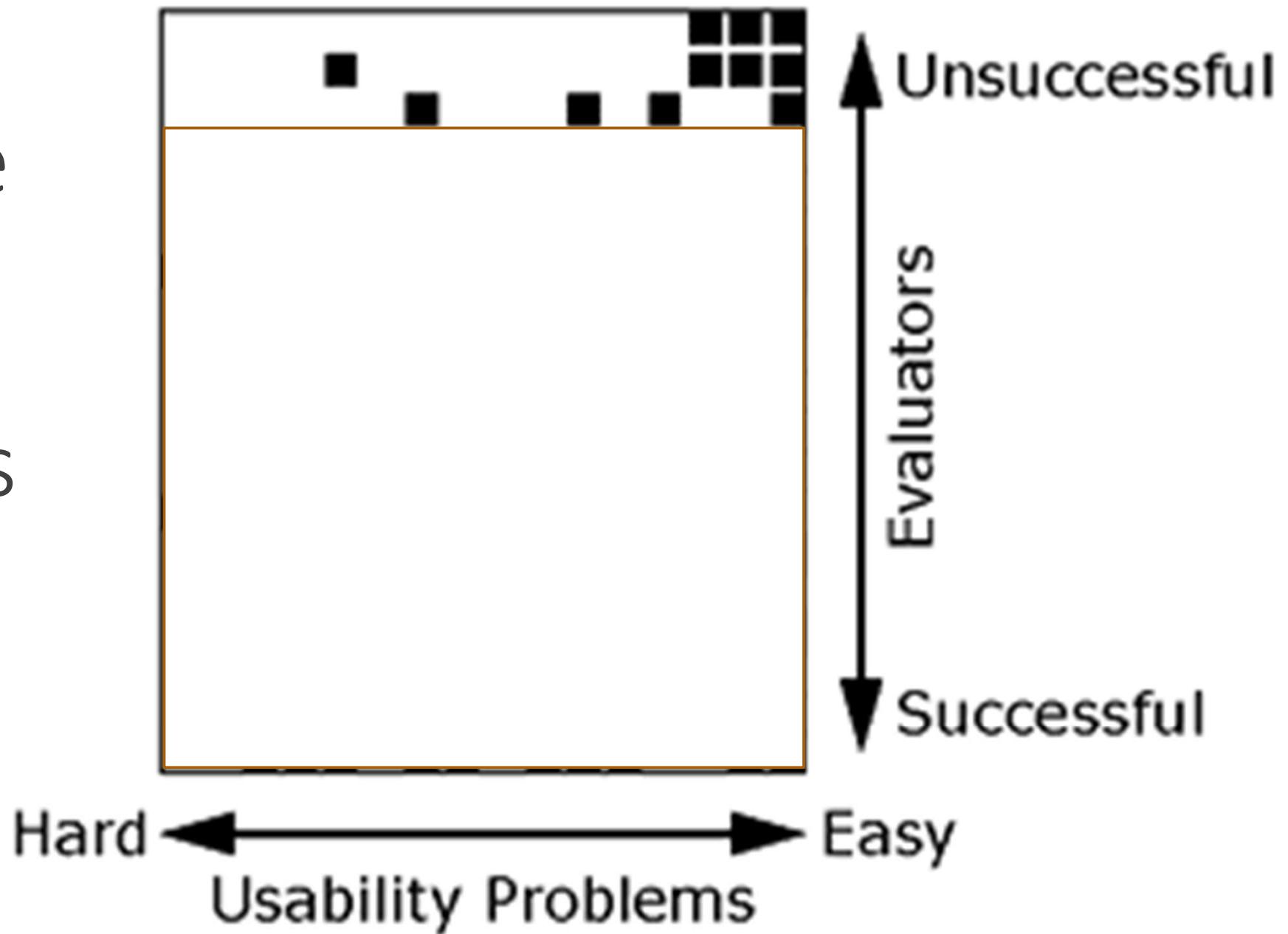
Expertise vs Usability Problems



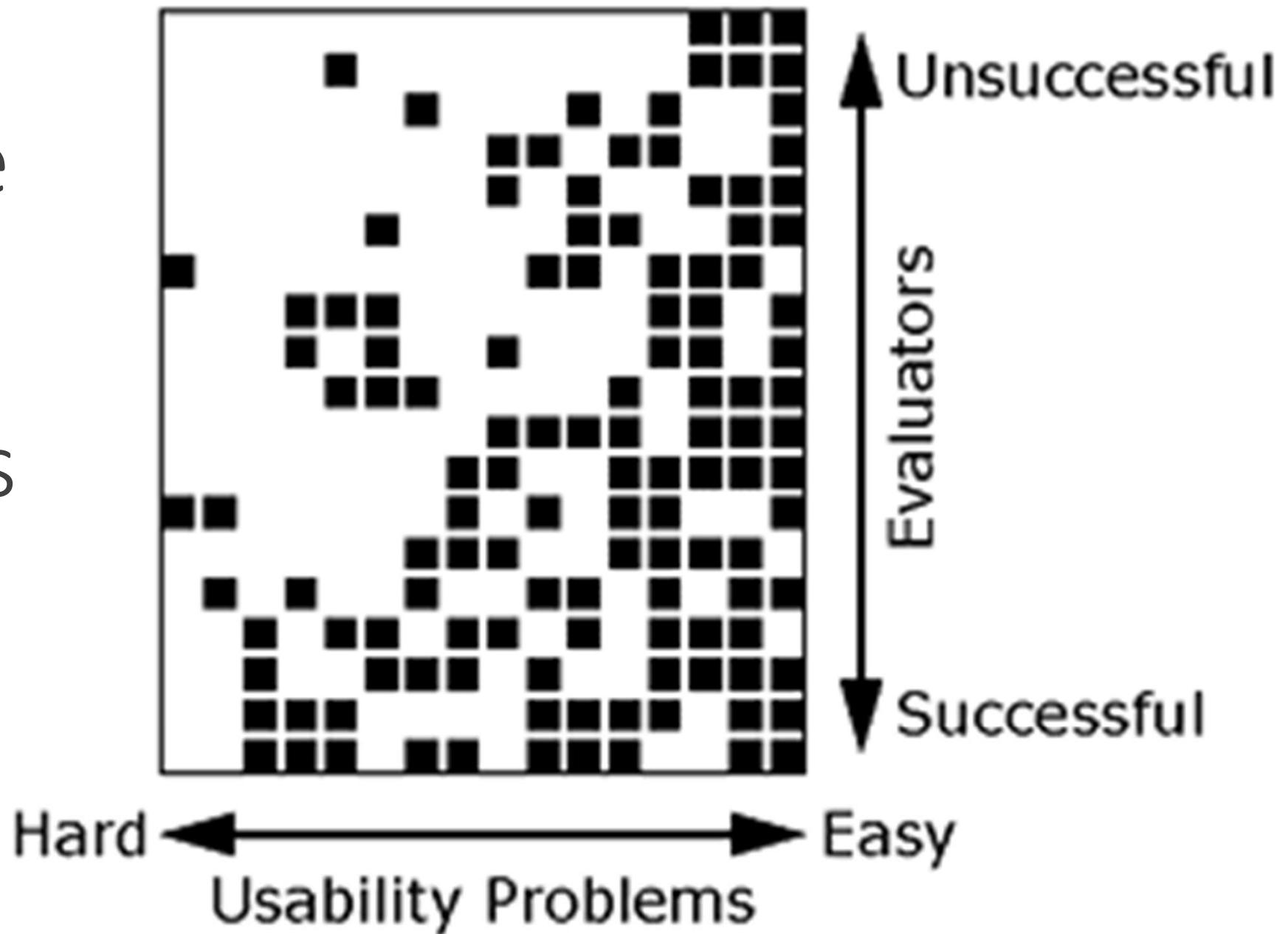
Expertise vs Usability Problems



Expertise vs Usability Problems



Expertise vs Usability Problems



Xerox Heuristics



Heuristic Evaluation - A System Checklist

1. Visibility of System Status

The system should always keep user informed about what is going on, through appropriate feedback within reasonable time.

#	Review Checklist	Yes	No	N/A	Comments
1.1	Does every display begin with a title or header that describes screen contents?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.2	Is there a consistent icon design scheme and stylistic treatment across the system?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.3	Is a single, selected icon clearly visible when surrounded by unselected icons?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.4	Do menu instructions, prompts, and error messages appear in the same place(s) on each menu?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.5	In multipage data entry screens, is each page labeled to show its relation to others?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.6	If overtype and insert mode are both available, is there a visible indication of which one the user is in?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.7	If pop-up windows are used to display error messages, do they allow the user to see the field in error?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
-	-	-	-	-	

Assignment-4

- conducting heuristics/inspection-based usability testing
- You are the UX expert
- Summative testing of a location-based game – Gezdir
- Developed to play at Sabancı University campus
- Target group high school students visiting the campus
- Under development

eyesoft

E-Posta

kursat.cagiltay@sabanciuniv.edu

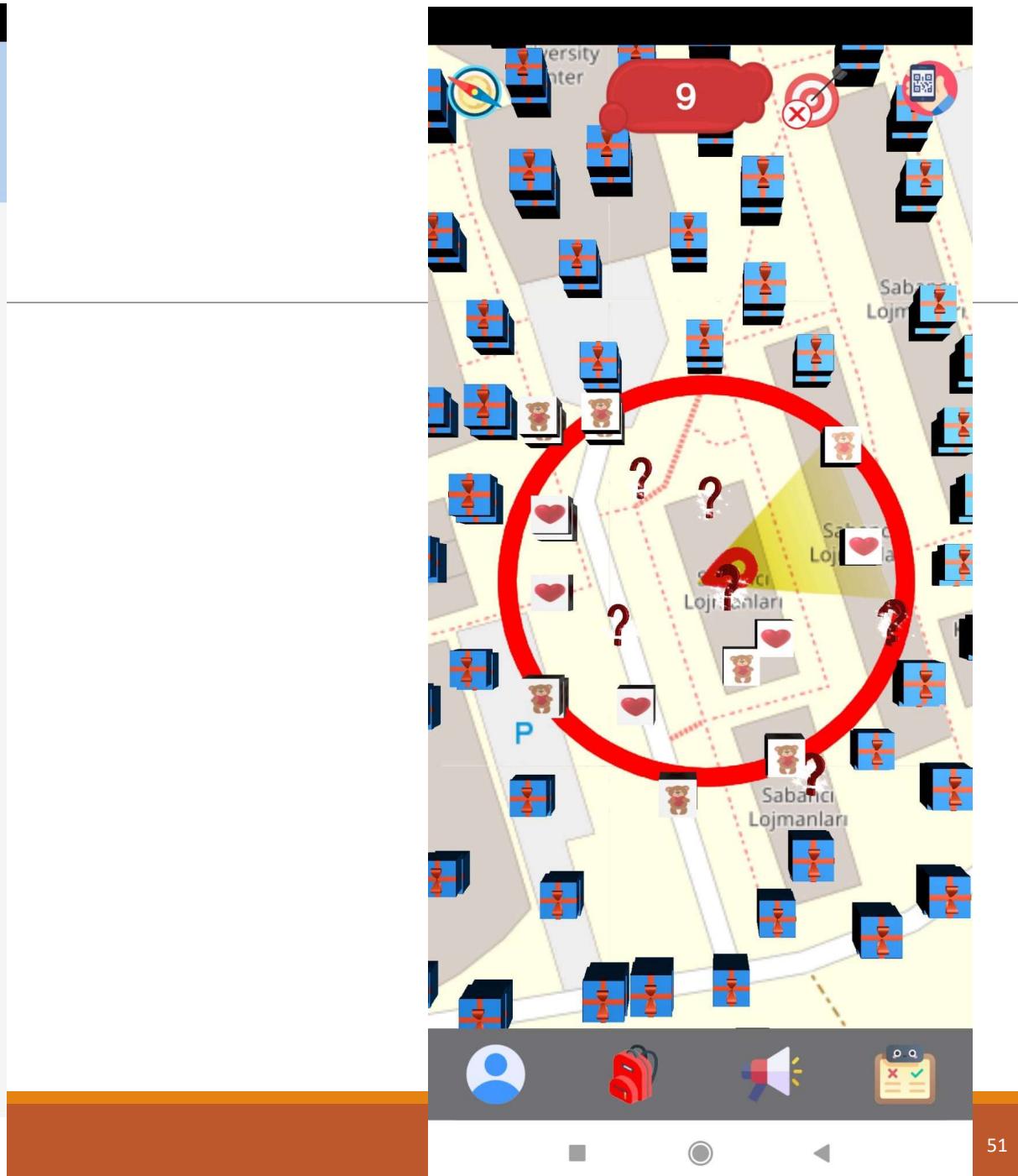
Şifre

Şifremi
Unuttum

Bilgilerimi
Hatırla

Giriş Yap

Kayıt Ol



<https://www.nngroup.com/articles/usability-heuristics-applied-video-games/>

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Nielsen Norman Group

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10 Usability Heuristics Applied to Video Games

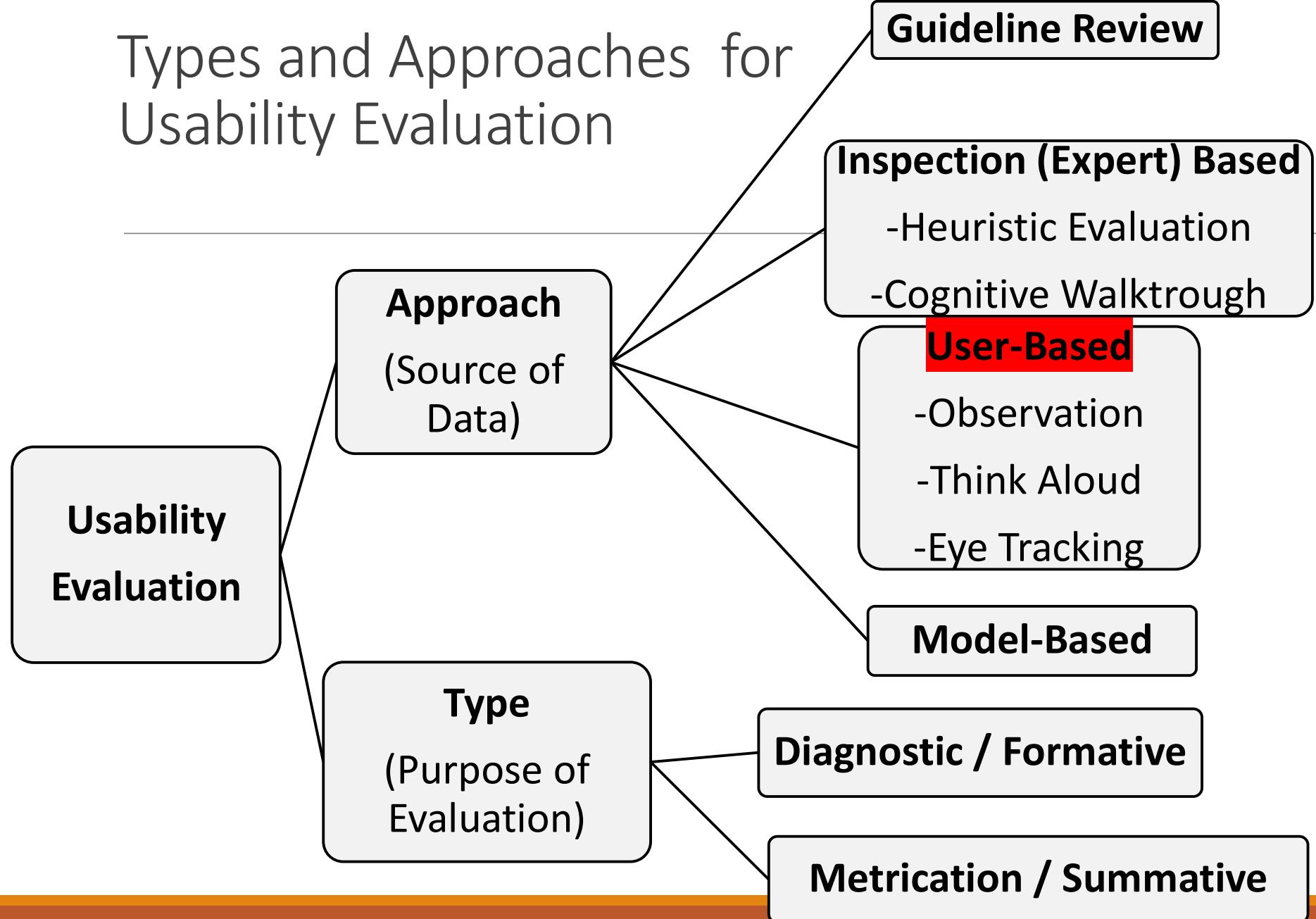
Summary: Following Jakob Nielsen's 10 heuristics for user-interface design will improve the user experience of video games.

Assignment-4

- Identify and explain usability problems of this game
 - rate how serious those problems are
 - propose a possible solution
-
- December 12th Tuesday

Now user based usability

Types and Approaches for Usability Evaluation



KODAKA

NO-USABILITY OF
OUR WEBSITE ISN'T A
PROBLEM, IT WORKS
FINE FOR ME....



MY 93 YEAR OLD GRANDMA HAS A HARD TIME WITH TECHNOLOGY, ESPECIALLY HER TV

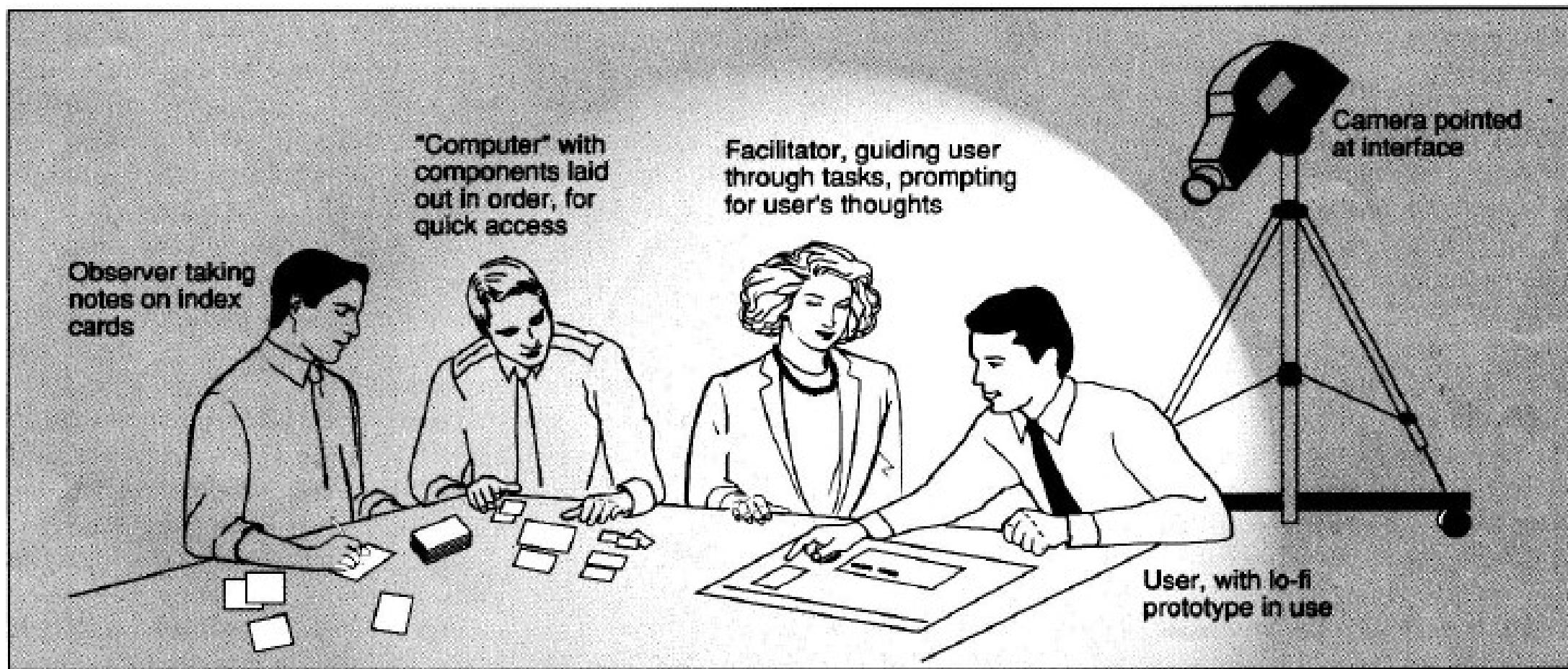


User-based usability

- Involves one or more users
- Who complete one or more tasks
- In an appropriate environment
- One or more UX experts

In formal usability tests, the user, task, and environmental characteristics (*contextual variables*) must match those in which the product will be used.

From early stages of design





Planning a usability evaluation

- Describe:
 - What data will you collect?
 - What will these data tell you?
 - What data collection methods will you employ?
 - How long will it take to produce the test results?
 - What form of feedback will you provide?
- List advantages/disadvantages of this plan

Turkiye.gov.tr – Usability & security

- 60 million users
- 7000 services

The screenshot shows the homepage of turkiye.gov.tr. At the top, there's a navigation bar with icons for 'Hızlı Çözüm' (Fast Solution), a key, a star, and a user profile labeled 'KÜRŞAT' with 5 notifications. Below the header, five service categories are listed with icons: 'e-Hizmetler' (Circular arrow icon), 'Kurumlar' (Building icon), 'Belediyeler' (Town hall icon), 'Firmalar' (Factory icon), and 'Üniversiteler' (Graduation cap icon). Each category has a brief description below it. In the bottom right corner, there's a large red circle and arrow highlighting a section titled 'Hesap Güvenliğini Artırın' (Increase Account Security) which says 'İki Aşamalı Giriş özelliğini açarak hesabınızı daha güvenli hale getirin.' (Enable Two-Step Verification to make your account more secure.) with a 'Two-Step Verification' button.

turkiye.gov.tr

Hızlı Çözüm

e-Hizmetler

Kurumlar

Belediyeler

Firmalar

Üniversiteler

ATAM

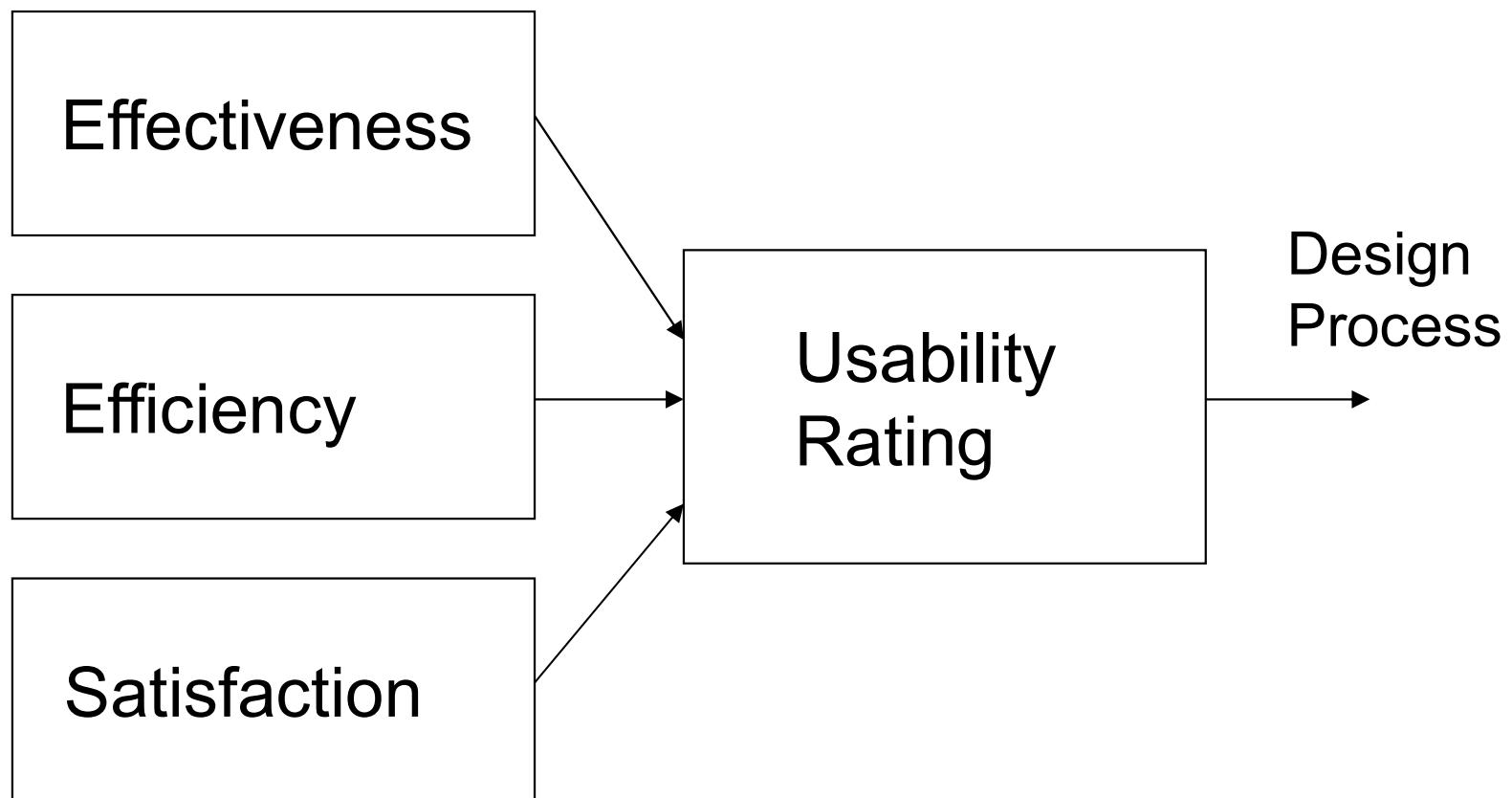
Atatürk Araştırma Merkezi Başkanlığı Internet sitesini ziyaret edin.

Hesap Güvenliğini Artırın

İki Aşamalı Giriş özelliğini açarak hesabınızı daha güvenli hale getirin.

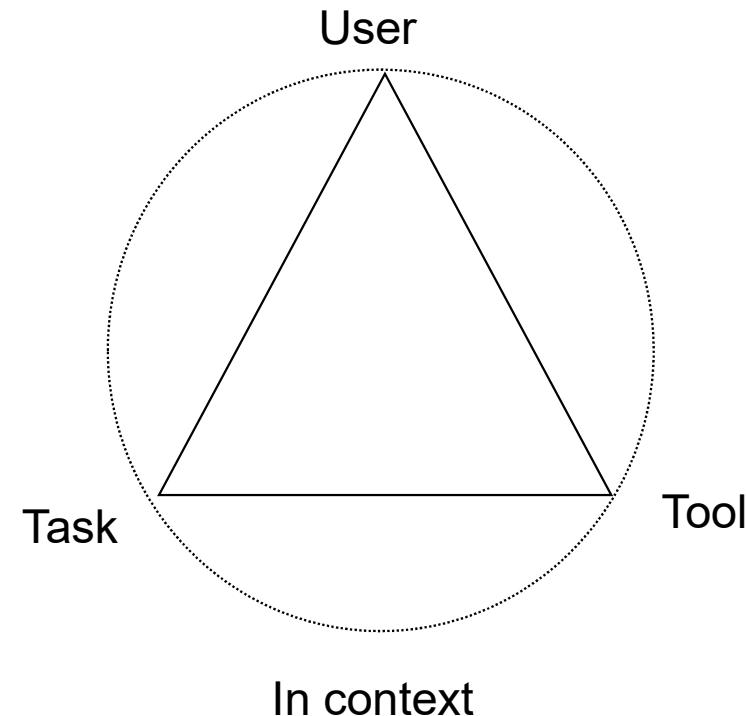
İki Aşamalı Giriş

Determinants of usability rating



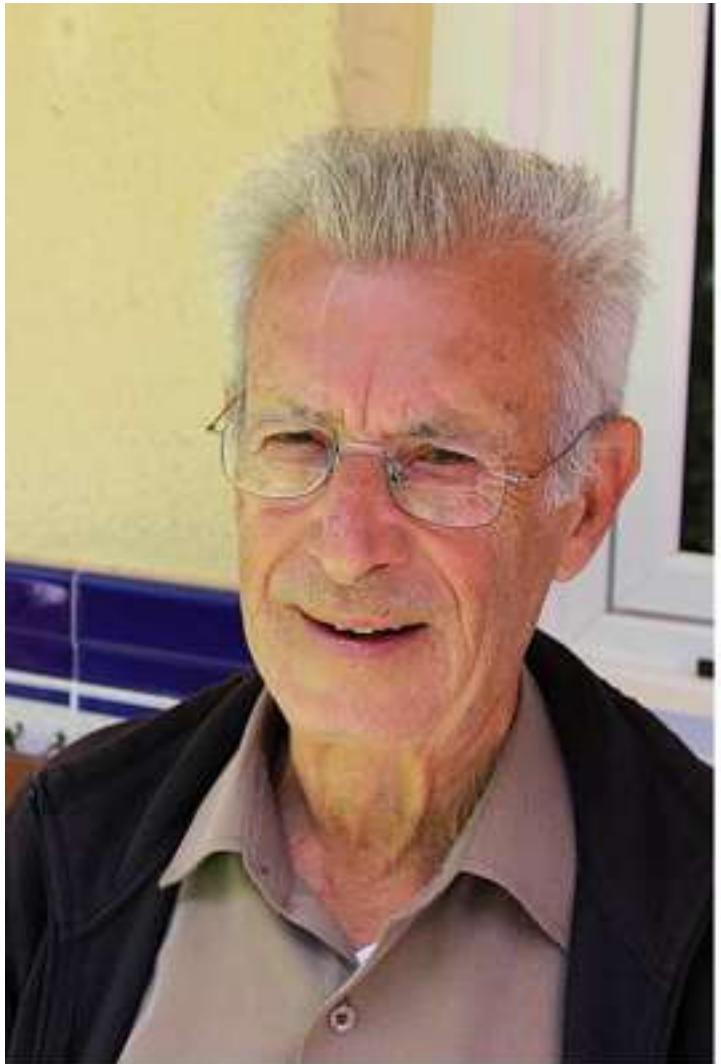
How are criteria derived?

- User analysis
- Task analysis
- Situation analysis



User analysis

- Determine key variables:
 - Demographics, work and task skills
 - computing experience
 - training
 - support
 - working practices
 - and many other variables
- Personas...



Peter Smith

72 years old
Retired
Widower
3 children and 6 grandchildren
Lives in Manchester

Skills and knowledge:

Basic training. No university studies
Construction worker all his working life
Low level of information literacy

Likes:

Spending leisure time with his children and grandchildren
Passionate about football. Close follower of all the national football leagues, the England team and English clubs in the Champions League
Reading the daily press
Wants to learn to cook. Loves cooking new recipes
Likes to takes his grandchildren to the cinema once a month

Activities:

Doing the daily housework
Reading the press online each day in the senior citizens' centre
Likes to meet his friends to play cards in the afternoons in the senior citizens' centre
Picking up his grandchildren when they come out of school

Needs:

To know about the latest film releases and what's on at his local cinemas
To access the press
Would like to be able to do all his administrative paperwork online to avoid having to travel into the city

Limitations:

Barely knows how to use the internet – he has not had nor does he have access to any internet training
Does not have a computer at home or a smart phone with internet access
Needs glasses to read the computer screen



Olivia

ABOUT

- 10 years old
- Primary Six
- Kinesthetic learner
- Loves being creative

GOALS

Olivia has a deaf cousin, and wants to be able to communicate with her without always needing an adult.

DEVICES

- iPad
- Laptop
- Desktop Computer (at school)

PERSONALITY

Olivia is a 10 year old girl who is always happy and bouncing about. She is confident for her age, loves being creative and performing.

FRUSTRATIONS

- Complicated language in apps
- BSL courses are expensive
- BSL courses aren't targeted to children

UX NEEDS

- Fun and engaging
- Simple Language
- Colourful
- Memorable



ORTA DOĞU TEKNİK ÜNİVERSİTESİ - BİLGİ İŞLEM DAİRE BAŞKANLIĞI

**İNSAN BİLGİSAYAR ETKİLEŞİMİ ARAŞTIRMA VE UYGULAMA
LABORATUVARI**



PERSONA1

Mehmet Demir

Yaş: 43

Cinsiyet: Erkek

İş: Teknisyen

Eğitim Seviyesi: Lise Mezunu

Bilgi: Mehmet 15 yıldır teknisyen olarak çalışıyor. Televizyonda izlediği haberlerden dolayı, e-Devlet sistemine giriş yapmak için kullanılan kimlik bilgileri ve şifresinin güvenlik için yeterli olmayacağı düşündürmektedir. Bilgilerinin korunması için sistem tarafından sağlanacak farklı yöntemlerin güvenlik seviyesini artıracağını düşünüyor.

Projeden Beklentileri: Mehmet bankacılık uygulamalarında olduğu gibi mobil cihazıyla e-Devlet sistemini kolayca kullanabilmek istiyor. Bu sebeple, geliştirilecek güvenlik yöntemlerini mobil cihazı ile birlikte kullanmak istiyor. Herhangi bir nedenle mobil cihazını değiştirirse, sistemde kayıtlı bilgilerini veya çipli kimlik kartını kullanarak güvenlik adımlarını tamamlayabilmeyi umuyor. Herhangi bir aşamada zorluk yaşarsa, sistem üzerinden kendisine yardım verilebileceğini düşünüyor.

Teknolojik Donanımı:

- Günlük işlerinde kişisel bilgisayar kullanmıyor ama vergi ve trafik cezalarını e-devlet mobil uygulaması üzerinden düzenli olarak kontrol ediyor.
- E-devlet mobil uygulamasını kullanarak sisteme giriş yapıyor ve arama kısmından ilgili işlemlerine erişebiliyor.
- E-devlet sistemi üzerinden verilen hizmetlere erişebilmek için ailesinden yardım alıyor.

- Turkiye.gov.tr
- Two-factor authentication

PERSONA 2

Ayşe Yılmaz

Yaş: 35

Cinsiyet: Kadın

İş: Sekreter

Eğitim Seviyesi: Lisans Mezunu

Bilgi: Ayşe 8 yıldır sekreter olarak çalışıyor. Sorgulama, başvuru ve ödeme hizmetlerine e-Devlet sistemi üzerinden ulaşabiliyor. Kişisel bilgilerinin dijital ortamda alınmasından endişeli. Bir cihazının daha sisteme giriş için kaydedilmesiyle güvenliğinin artacağını tahmin ediyor.

Projeden Beklentileri: Mobil cihazını çipli kimlik kartı ile e-Devlet sistemine kaydetmeyi hedefliyor. Kaydedilen mobil cihaz ile iki aşamalı giriş yöntemlerini kullanarak e-Devlet sistemine daha güvenli bir şekilde giriş yapabilme umuyor. Ayrıca, e-Devlet sisteminde mobil cihazının ona ait olduğunu kısa ve güvenilir yolla kanıtlayabilmek istiyor.

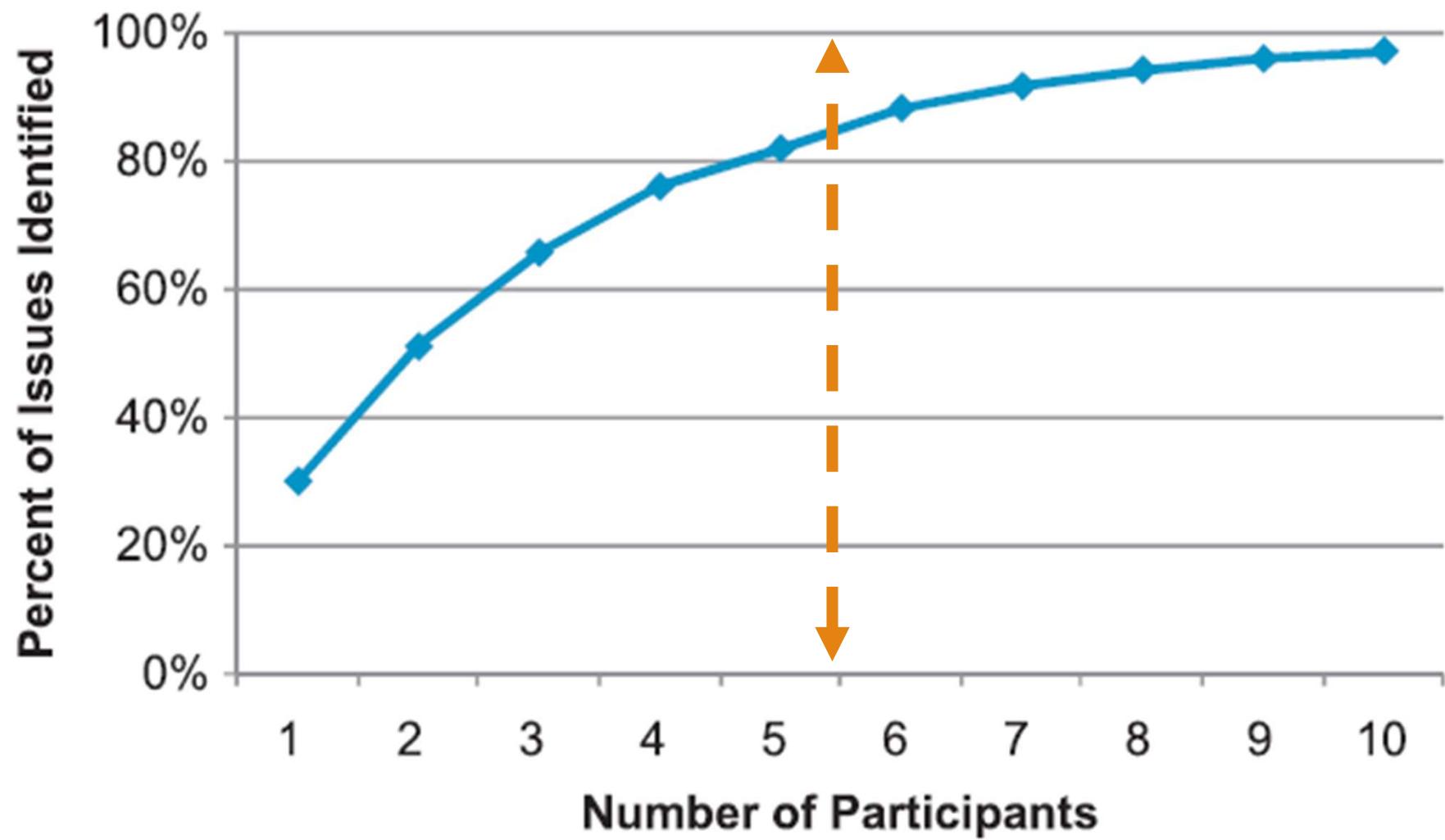
Teknolojik Donanımı:

- İş yerindeki günlük işlerinden dolayı sıkılıkla kişisel bilgisayar ve mobil cihaz kullanıyor.
- E-devlet mobil uygulamasını ve web sitesini kullanarak sisteme giriş yapabiliyor. Arama kısmından ilgili hizmete erişip bilgi almak için gerekli adımları tamamlayabiliyor.

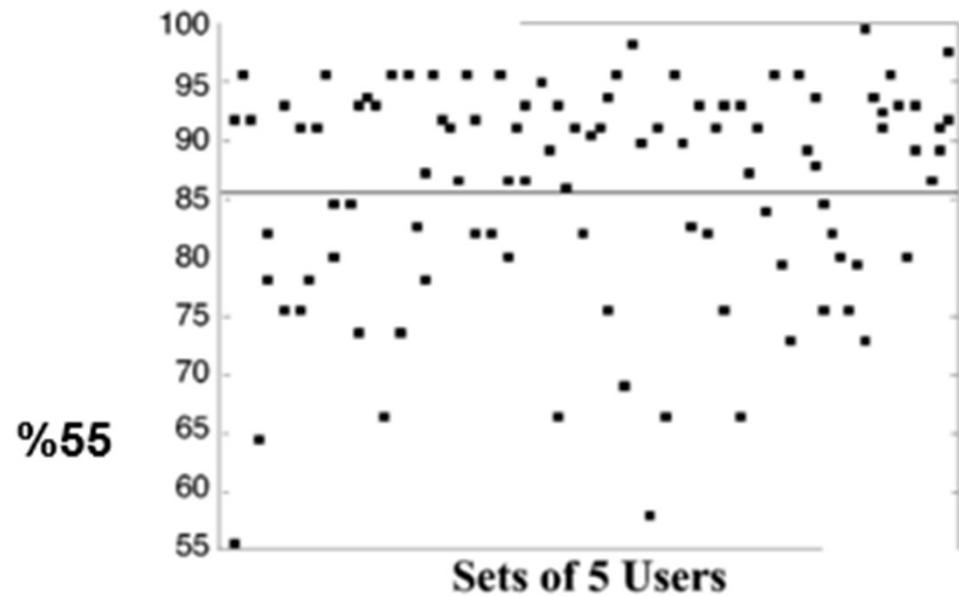


How Many Users?

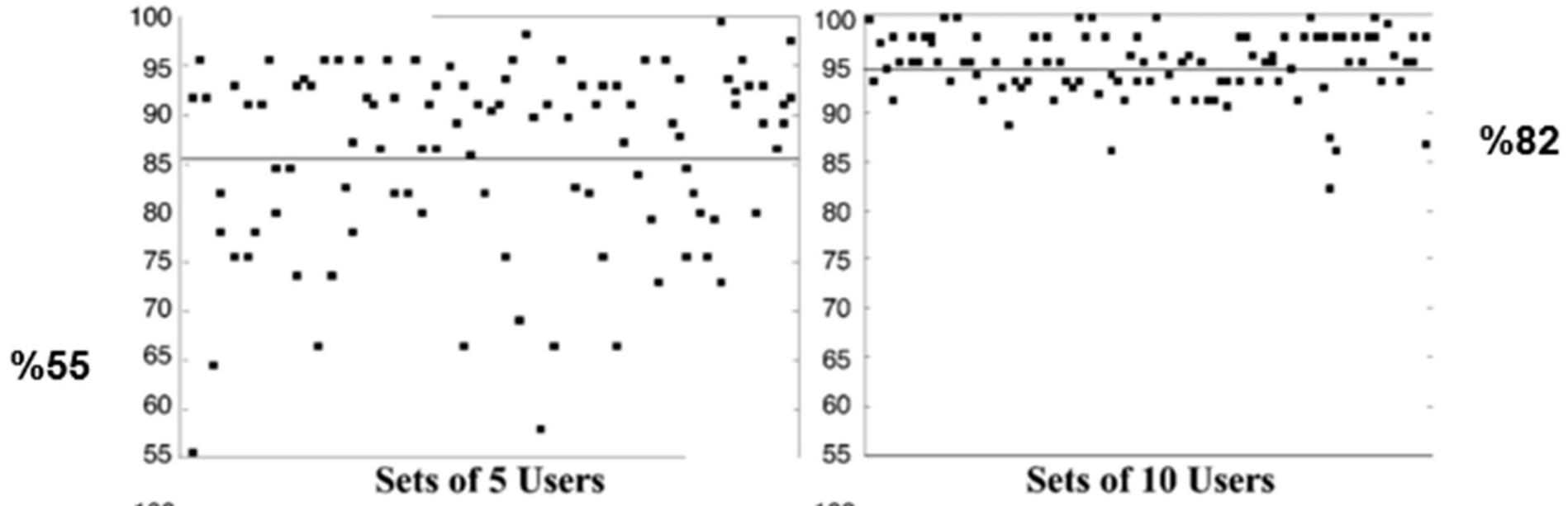
Usability Testing Participants - Nielsen



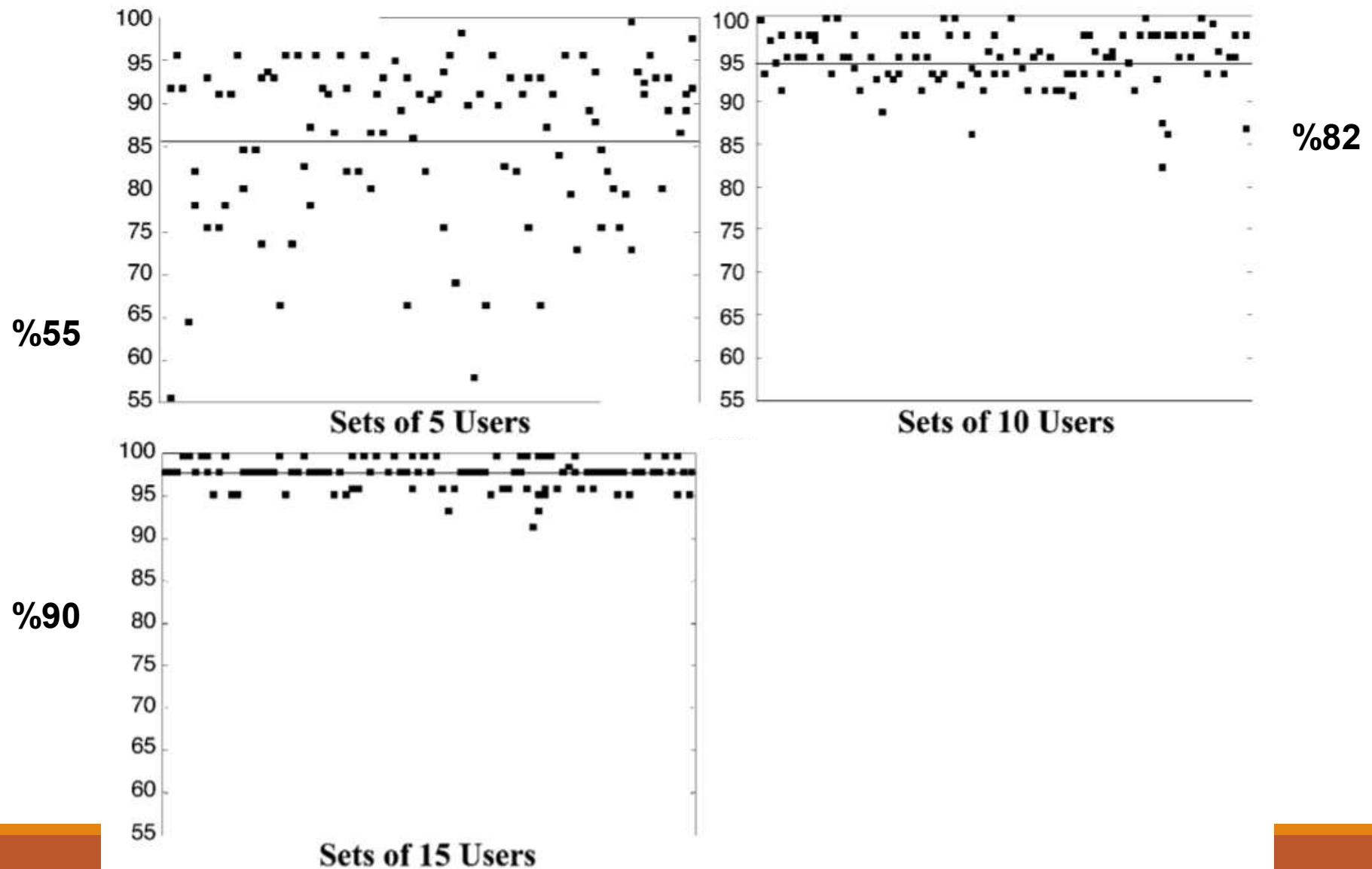
However, Faulkner, 2003 !



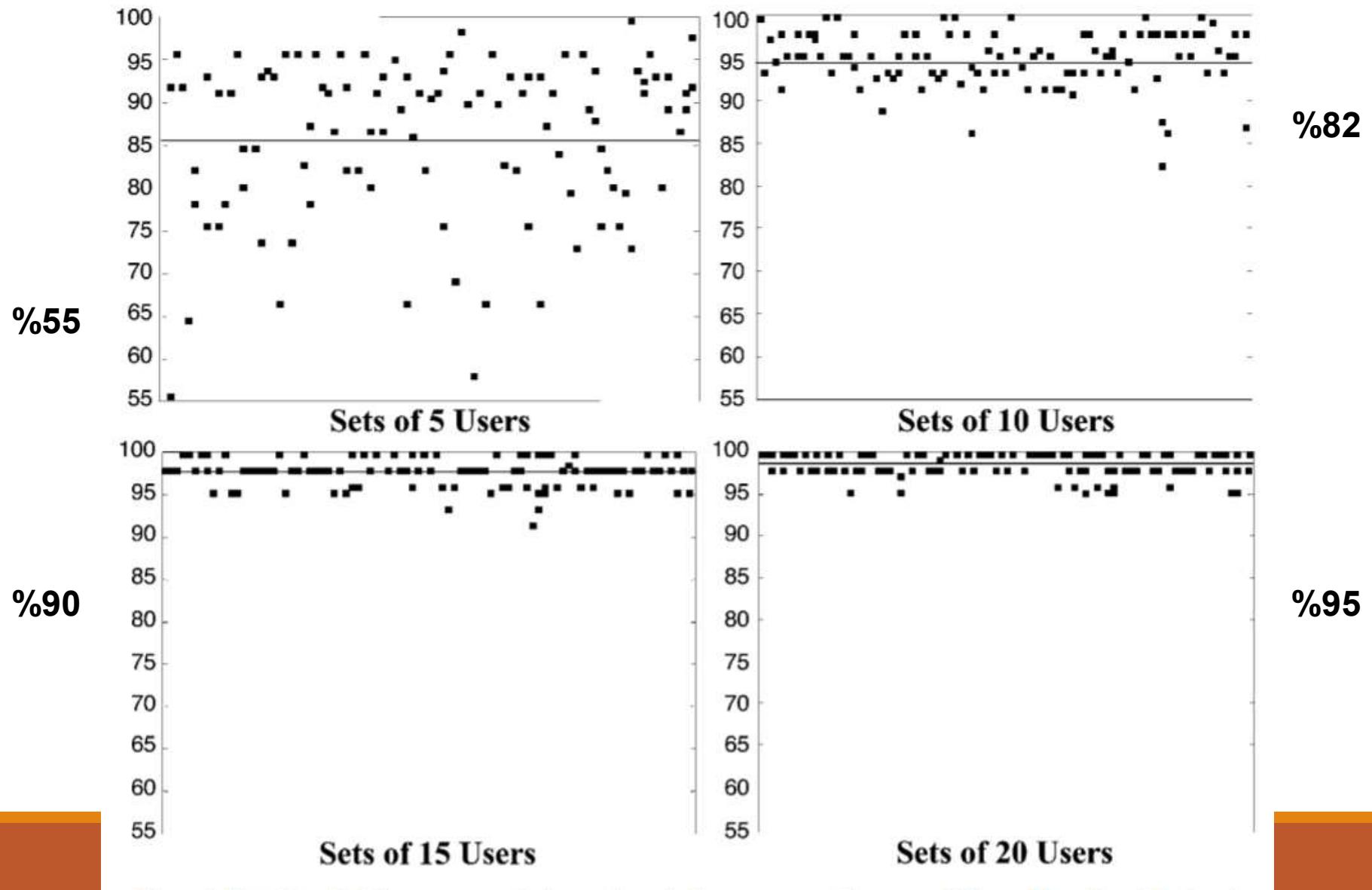
However, Faulkner, 2003 !



However, Faulkner, 2003 !



However, Faulkner, 2003 !



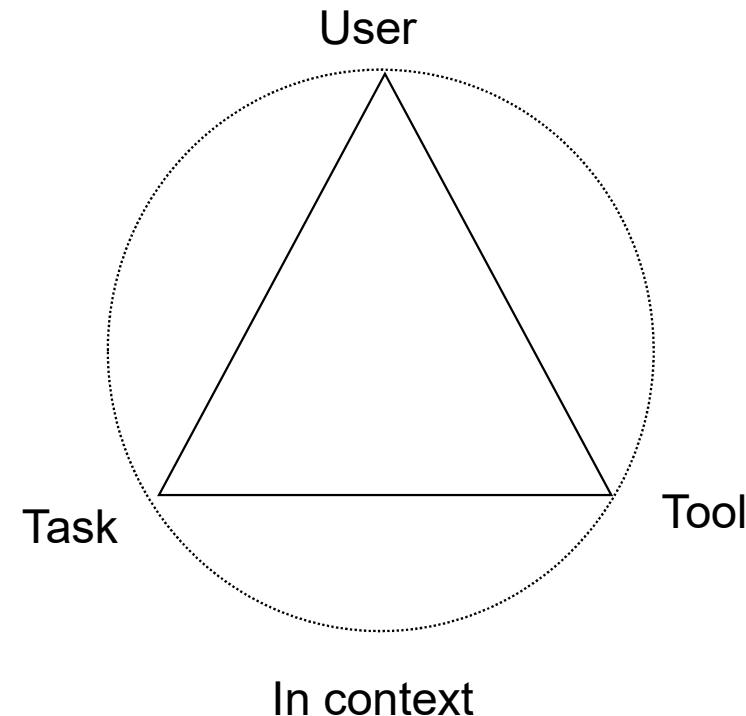
Test Group

5 female, 5 male and 1 total blind
8 Android, 2 iOS

Katılımcı	Age	Gender	Education	Occupation	Computer& Phone use	Phone
P01	45	Erkek	MYO (2 Yıl)	İşçi	Az	Android
P02	49	Kadın	Üniversite	Sekreter	İyi	Android
P03	42	Erkek	Lise	İşçi	Ortalama	Android
P04	23	Kadın	Lise	Öğrenci	İyi	Android
P05	21	Erkek	Lise	Teknisyen	Ortalama	Android
P06	47	Kadın	Üniversite	Memur	Ortalama	Android
P07	63	Kadın	İlkokul	İşçi	Az	Android
P08	58	Erkek	Üniversite	Muhasebe	Ortalama	Android
P09	30	Erkek	Üniversite	Mühendis	Çok İyi	iOS
P10	25	Kadın	Üniversite	Mimar	İyi	iOS

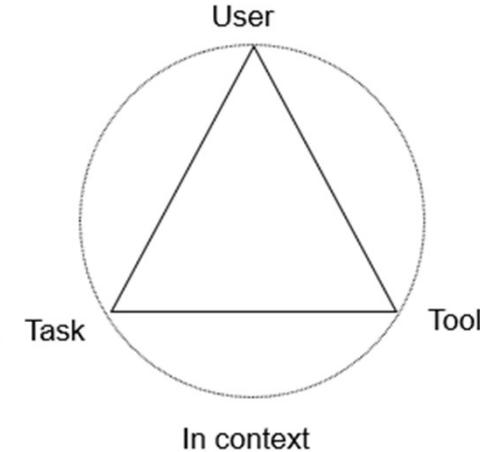
How are criteria derived?

- User analysis
- Task analysis
- Situation analysis



Task analysis

- The process of observing, describing, and decomposing tasks into their constituent components
- analyzing the human, technological and environmental resources required for the completion of each component.



Task analysis methods

- Self trial
- Observation
- Interview
- Verbal protocol analysis
- Formal description (e.g. GOMS analysis)
- Hierarchical tasks analysis (HTA)

Task analysis questions

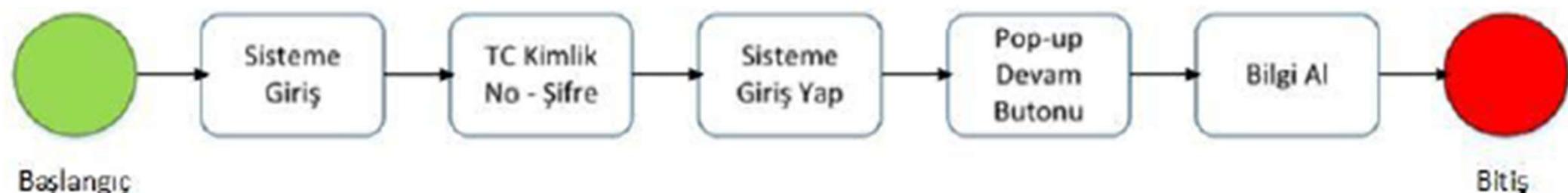
- What does the user see?
- What decisions does a user make?
- What must a user know?
- How does a user get help?
- How does a user recover from errors?
- What physical acts must be accomplished?

Tasks

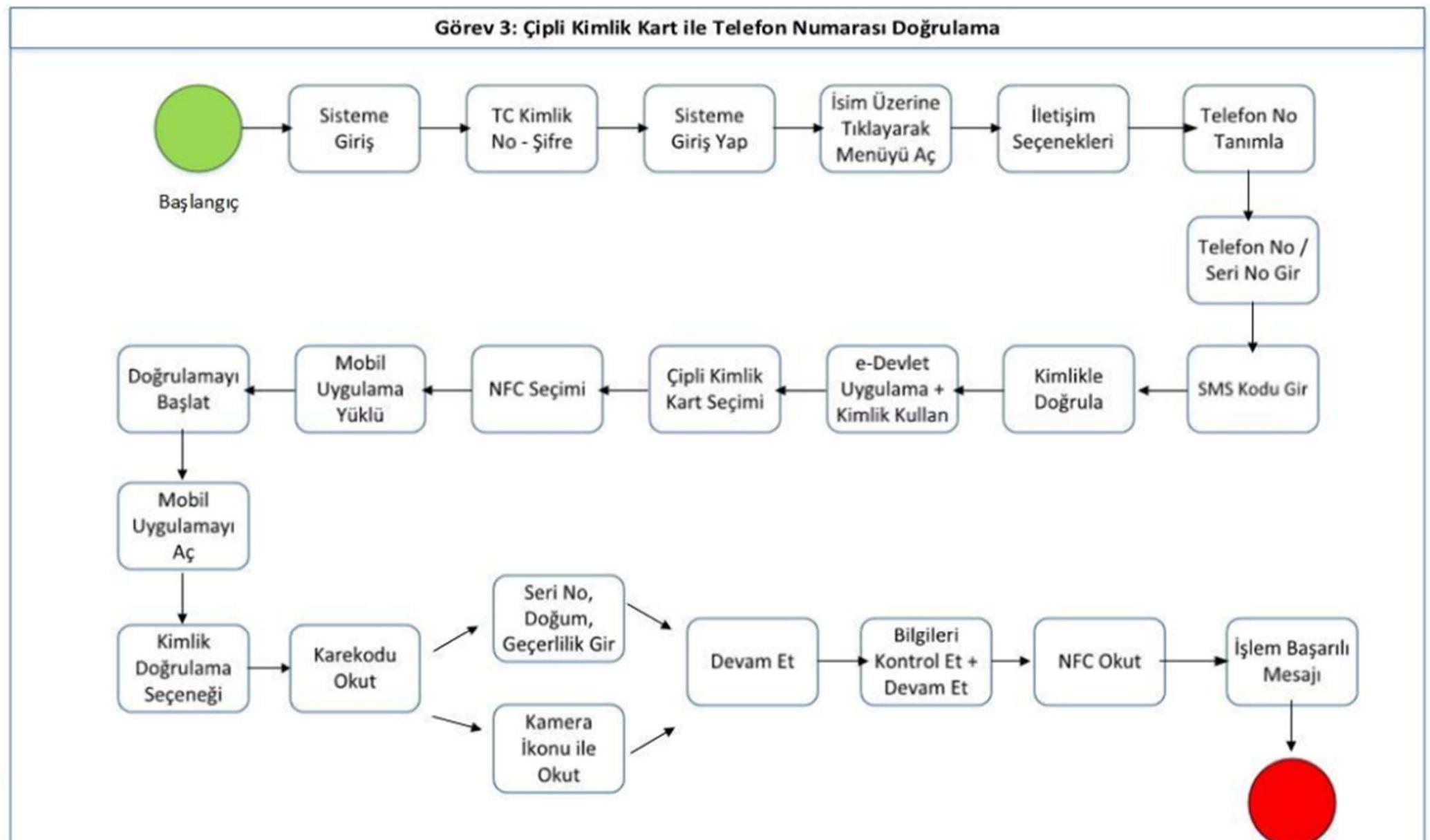
No	Görev
1	Getting Help via Pop-up on e-Government Gate Website and Banner in Mobile Application
2	Receiving Information via Identifying Text Message (SMS) and Email
3	Phone Number Verification with Chip ID Card via e-Government Gate Website and Mobile Application
4	Two-Stage Login Activation via e-Government Website and Mobile Application
5	Two-Stage Login to e-Government Website and Mobile Application with Text Message (SMS) Verification Code
6	Make a Mobile Device a Registered Device
7	Two-Stage Login to e-Government Website Using QR Code, Mobile Approval and Mobile Notification Features
8	Creation of Backup Code via e-Government Website and Mobile Application
9	Getting Information About Two-Stage Login Methods via e-Government Website and Mobile Application
10	SIM Unblocking via e-Government Website and Mobile Application

1-Getting Help via Pop-up on e-Government Gate Website and Banner in Mobile Application

Görev 1: Web Sayfasından Açıılır Pencere (pop-up) ile Bilgi Alma

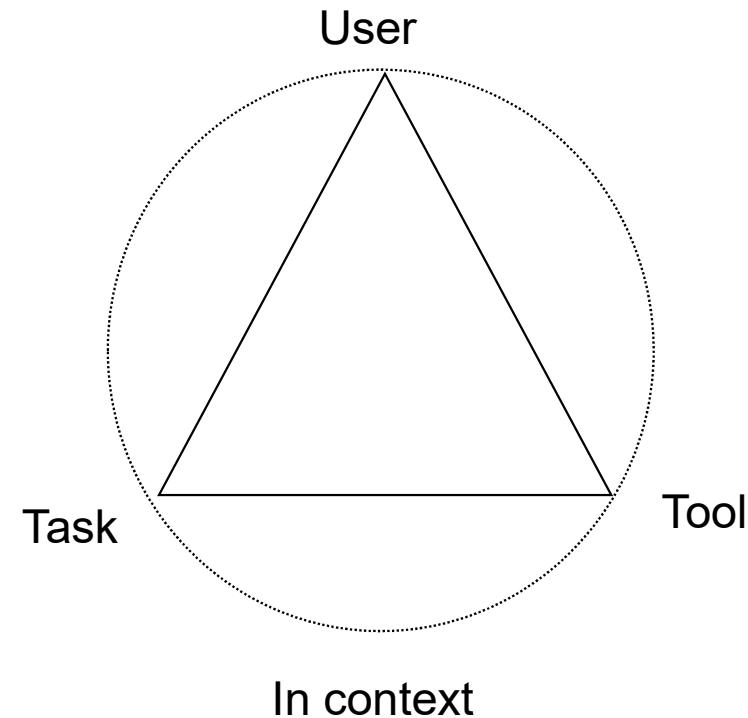


3-Phone Number Verification with Chip ID Card



How are criteria derived?

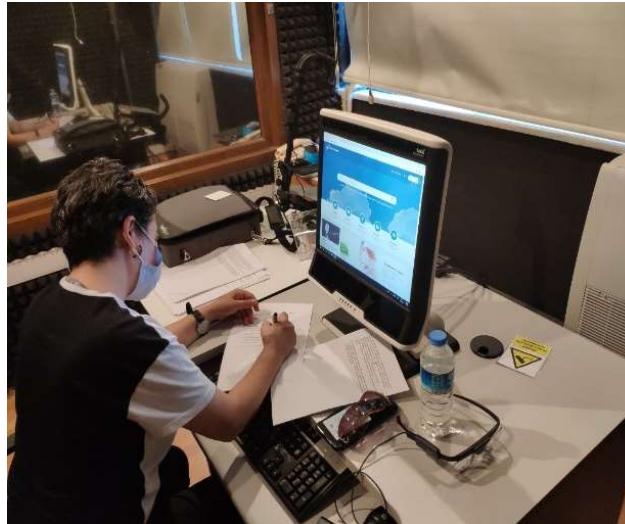
- User analysis
- Task analysis
- Situation analysis



Situation-Context analysis

- Outlines the physical and social context of use:
 - Location
 - Home, office, shop, car, street etc.
 - Relationship to other users
 - Collaboration, recipient, passive/active
 - Socio-technical environment
 -

Target Group & Tests



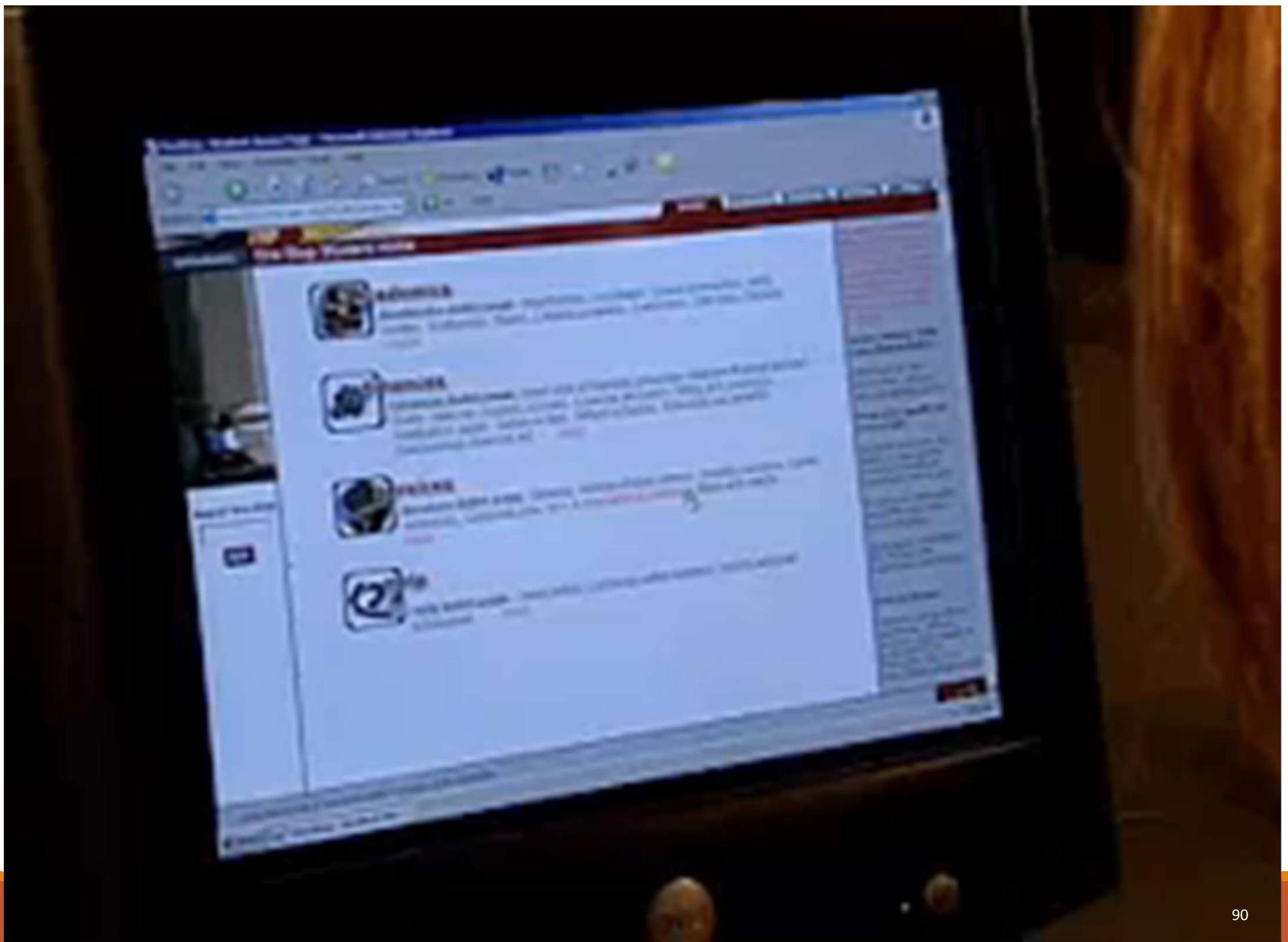
Output

- Scenarios of use
 - “Stories” of interaction in which users, tasks and contexts are described
- Scenarios form basis of decisions on
 - Effectiveness
 - Efficiency
 - Satisfaction
- And the training, tasks, and environment in which the tool will be used

How do we conduct the tests?

Usability Evaluation





Usability Testing session (In Turkish)



- <https://youtu.be/d4vILkGUYFQ?si=-oAALB4PZJSedjIA>

Advantages of User-based Approach

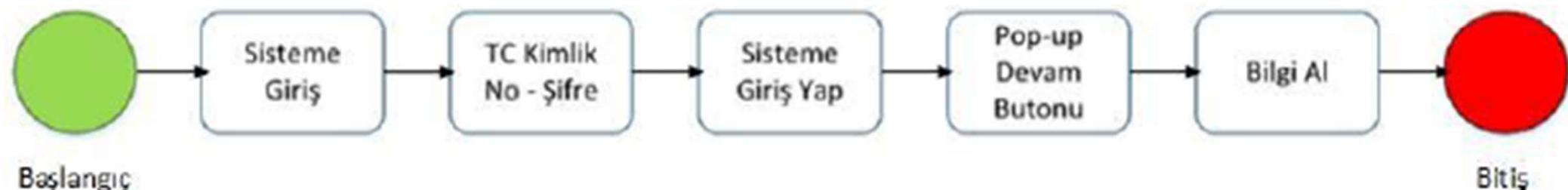
- Most valid data (true measure of usability)
- Most reliable data (measure is stable)
- Provides the most convincing data
- Formative and Summative evaluation

Disadvantages of User-based approaches

- Can be expensive
 - Time
 - Resources
- Requires patience
- Must be planned (to be useful)
 - in terms of tasks, likely scenarios etc.
- Does not logically determine re-design

1-Getting Help via Pop-up on e-Government Gate Website and Banner in Mobile Application

Görev 1: Web Sayfasından Açıılır Pencere (pop-up) ile Bilgi Alma



- Ideal performance: 6 steps 75 seconds

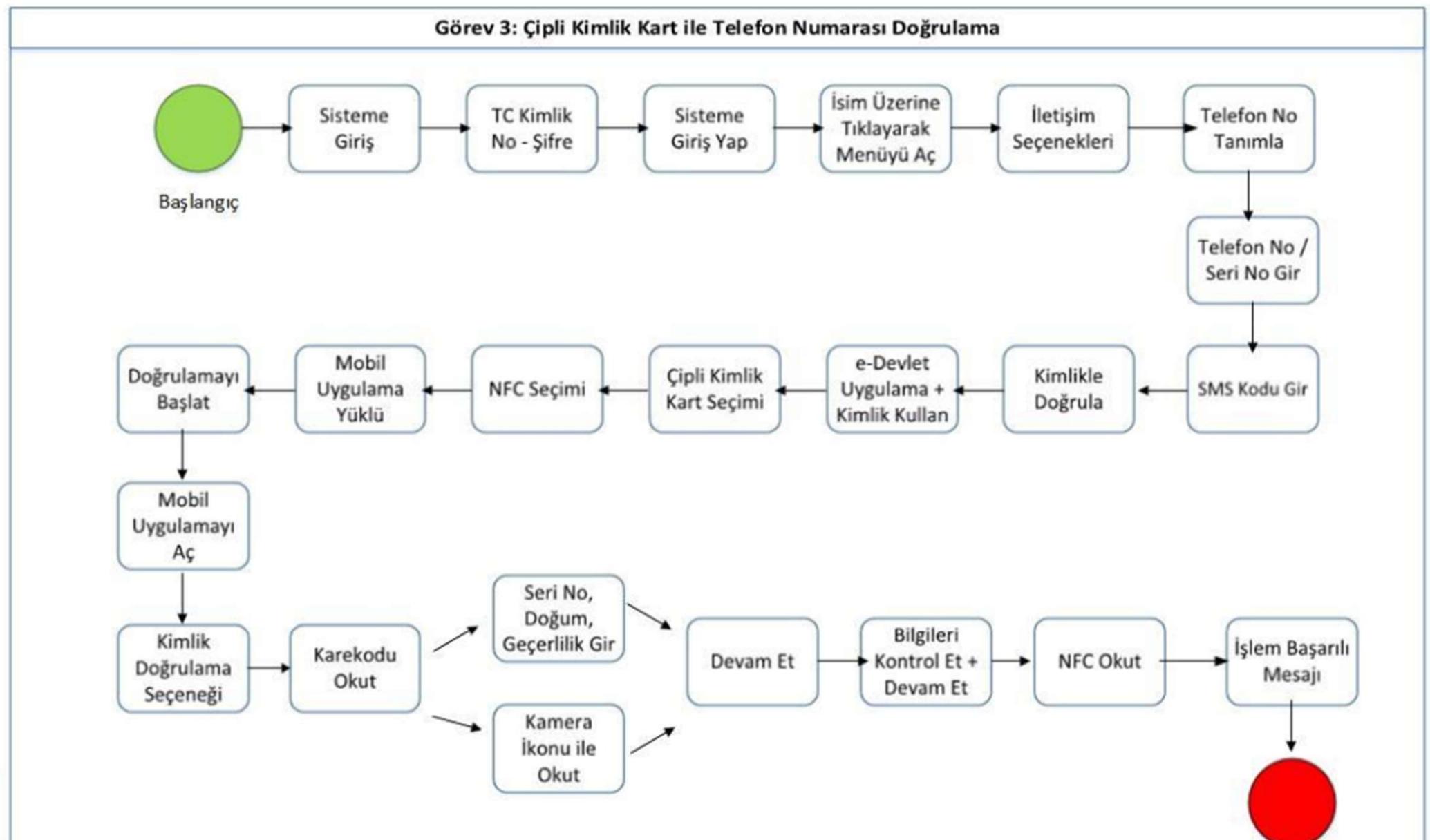
Tablo 4 - Görev ve hedef kitle bazında performans analizi

Görev	Deneyimsiz Kullanıcı			Deneyimli Kullanıcı		
	Süre (sn.)	Adım sayısı	Başarı (%)	Süre (sn.)	Adım sayısı	Başarı (%)
Görev1- e-Devlet web sayfası açılır pencere (pop-up) üzerinden yardım alma	132.7	7.5	25.0	87.1	7.3	33.3
Görev1- e-Devlet mobil uygulama afiş (banner) üzerinden yardım alma	99.0	11.0	50.0	70.0	8.0	66.6

Eye Tracking analysis

Şifre ve Güvenlik	Bana Özel	Bilgilerim	Güvenlik	İşlemler
Ayarlarım				
E-Digital Giriş	<p>UYARI! Güvenlik doğrulama numarasını kullanabilmek için doğrulanmış telefon numaranızın olması gereklidir. 10 gün içinde telefon numarası doğrulama işlemlerini gerçekleştirebilirsiniz.</p> <p>Kimlikle doğrulanmış telefon numarası bulunmamaktadır.</p> <p>Kurtarma e-postası bulunmamaktadır.</p> <p>Kurtarma e-postası SIM kartınızın kaldırma işlemlerinde kullanılır. Kurtarma e-postasını İletişim Seçeneklerim sayfasından değiştirebilirsiniz.</p> <p>İki aşamalı giriş ayannızı açtığınızda, e-Devlet Kapısı hesabınıza girişlerinizde hesabınıza uygun olarak mobil bildirim, kısa mesaj gibi yöntemler ile ikinci güvenlik sürecini tamamlayarak giriş yapabilirsiniz. İki aşamalı giriş ile ilgili detaylı bilgi almak için tıklayınız.</p> <p>Tarayıcıda bu işlemi gerçekleştireceğinize dair bilgi almak için kullanım kılavuzunu inceleyebilirsiniz. Kullanım kılavuzu için tıklayınız.</p>			
e-Devlet Anahtar				
Erişim Kısıtlamaları				
Kullanım Geçmişi				

3-Phone Number Verification with Chip ID Card



Görev	Deneyimsiz Kullanıcı			Deneyimli Kullanıcı		
	Süre (sn.)	Adım sayısı	Başarı (%)	Süre (sn.)	Adım sayısı	Başarı (%)
Görev3- e-Devlet web sitesi üzerinden çipli kimlik kart ile telefon numarası doğrulama	338.0	40.7	75.0	390.8	33.0	100.0
Görev3- e-Devlet mobil uygulama üzerinden çipli kimlik kart ile telefon numarası doğrulama	224.0	25.0	100.0	154.0	22.0	100.0

Kimlik Bilgilerim

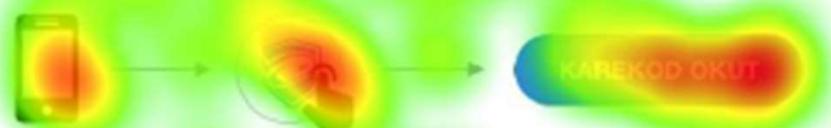
Adres Bilgilerim

İletişim Ayarları

Bilgilendirme Tercihleri

Kimlikle Telefon Numarası Doğrulama İşlem Adımları

- e-Devlet Kapısı mobil uygulamada giriş ekranında "Kimlik Doğrulama" düğmesine basınız.
- Karekod okutmayı seçtiğinizde ekranın sağ tarafında "KAREKOD OKUT" düğmesine basınız.
- Kameranızla aşağıdaki karekodu okutunuz.
- Karekod okunduktan sonra doğrulama işleminin mobil uygulama ekranları üzerinden devam ediniz.



Design Suggestions



e-Devlet Kapısı Kimlik Doğrulama Sistemi



Kayıtlı cihazınıza gelen bildirimi onaylayarak giriş yapabilirsiniz.

Kayıtlı Cihazınız: Telefon Modeli

e-Devlet Kapısı mobil uygulamasında yer alan aşağıdaki giriş yöntemlerinden birini kullanarak giriş yapabilirsiniz. Süre bittikten sonra mesaj ile doğrulama kodu alarak giriş işleminizi tamamlayabilirsiniz.

Mobil Uygulama "Mobil Onay" menüsünden işleminize onay verebilirisiniz.

Mobil Uygulama "Karekod ile Giriş" menüsünde yandaki karekodu okutarak işleminizi tamamlayabilirsiniz.



Yedek Kod
İle Giriş

Yeni Numara
Tanımlama

Mobil Onay Yardım

Karekod Yardım

Mobil Bildirim Yardım

Yedek Kod Yardım

Yeni Numara Yardım

How to Conduct User Based Usability Test?

Conducting your test: Things to consider

- How many users?
- Length of test session?
- Where to conduct the session?
- Role of facilitator:
 - put participant(s) at ease (testing the material, not them)
 - observe and take notes
 - not to intervene or assist
- Role, placement and responsibilities of other observers
- Verbal protocol (“think-aloud”)
- Token reward for participation (if appropriate)

Data collection

- Quantitative data
 - Number of errors made using the system
 - Time required for activity(s)
 - Number of clicks, all other data
- Qualitative data
 - Ease of use – are materials convenient, easy to locate, to use?
 - Learners' reactions to materials, activities, evaluation

Analyzing & reporting your usability results

- Quantitative data
 - descriptive data (number of users, time spent, errors)
 - data tables (what do they mean?)
- Qualitative data
 - consolidate your observations (negatives and positives!)
 - extract common themes
 - identify critical themes
 - perform member checking if possible
 - determine solutions for addressing the problems
 - summarize and present your findings and solutions

Analyzing & reporting usability results

Observations	Interpretation	Recommendation
<ul style="list-style-type: none">- She couldn't find checkout icon- Did not like background music	<ul style="list-style-type: none">- checkout icon too small- Music is too fast	<ul style="list-style-type: none">- Redesign checkout icon- Replace music with a soft one

Protocol

- **Introduction**
 - Thank you...for agreeing to participate in this session.
 - **Product Description...** "An online shopping website... "
 - **Purpose of session...**is to make this product better.
 - This product does have problems.
 - Any problems you have or find with the product is with the product, not your fault.
- **Instructions...**
 - I'll be asking you do certain things with the program and watching and writing notes as you do them. That's just to help me remember how things went later on.
 - To help me do this, I'd like you to "think out loud" as you use the program and make your decisions to do certain things.
 - I'd like you to try and perform the given tasks on your own as best you can. If you're really stuck, I may be able to help, but I'd really like you to try it without my help.
 - At any time, you can quit a particular task and move on or you may choose to quit the entire session.

Observation sheet

Start time:		Finish time:	
page/link name	Notes		+/-
name of starting page			

Efficiency

Efficiency

Effectiveness

Activity: Usability testing

- I need a volunteer
 - Protocol
 - Think aloud
 - Measuring efficiency, effectiveness and satisfaction
 - Reporting

METU Library Web site usability test

Task 1. Check whether the book “İnsan Bilgisayar Etkilesimi” written by Kürşat Çağiltay is available or not?

Start time:	Finish time:	
Page/ <u>link_name</u>	Notes	+/-
Name of starting page		

Before Finishing Today's Class

- Term Project Groups!!!
- Term Project Topics!!!