



# **Human-Computer Interaction**

## **INFR11017**

### **Week 5: Introduction to Evaluation**

**17<sup>th</sup> October 2023**

**John Vines**

# **Overview of today's session**

**Coursework reminder**

**Introduction to evaluation**

- Heuristics and Evaluation activities

**Q&A**

# Coursework reminder

# **Where you should be in Week 5**

**You have all submitted CW1!**

**(Most) of you have completed Quiz 1**

**This week for you:**

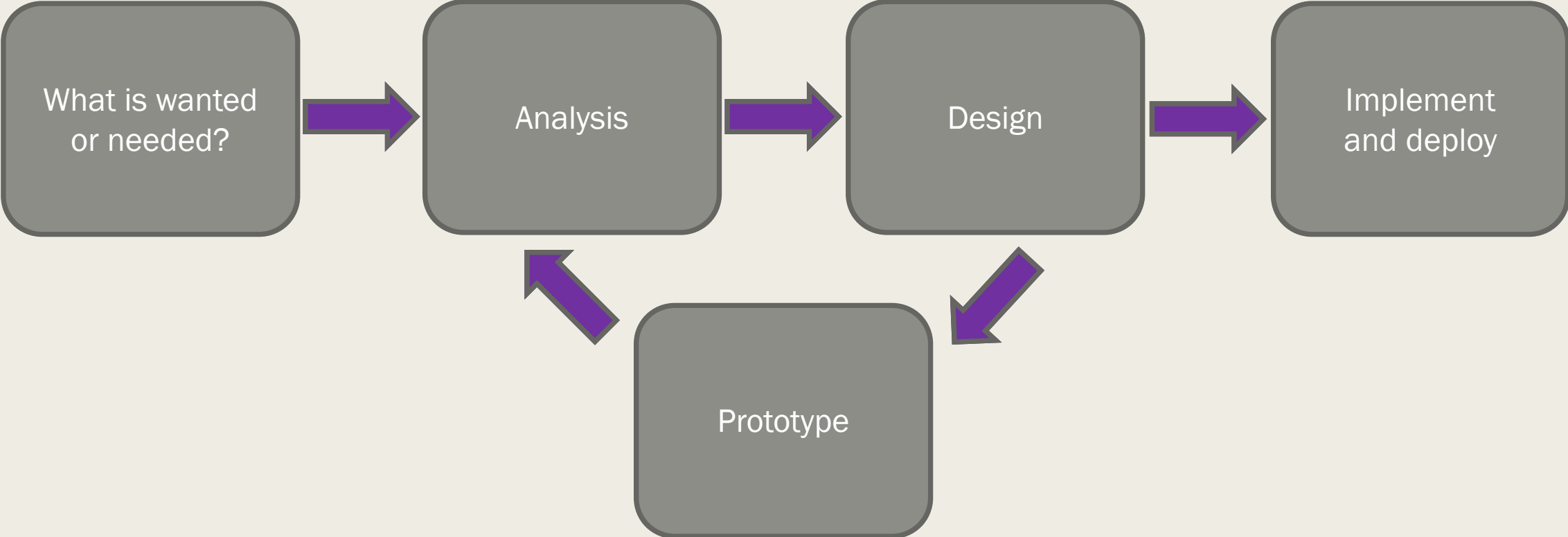
- Your groups will be allocated CW1 designs for CW2: Evaluation
- Check that your allocated designs are complete (i.e., usable for assignment)

**What we are doing...**

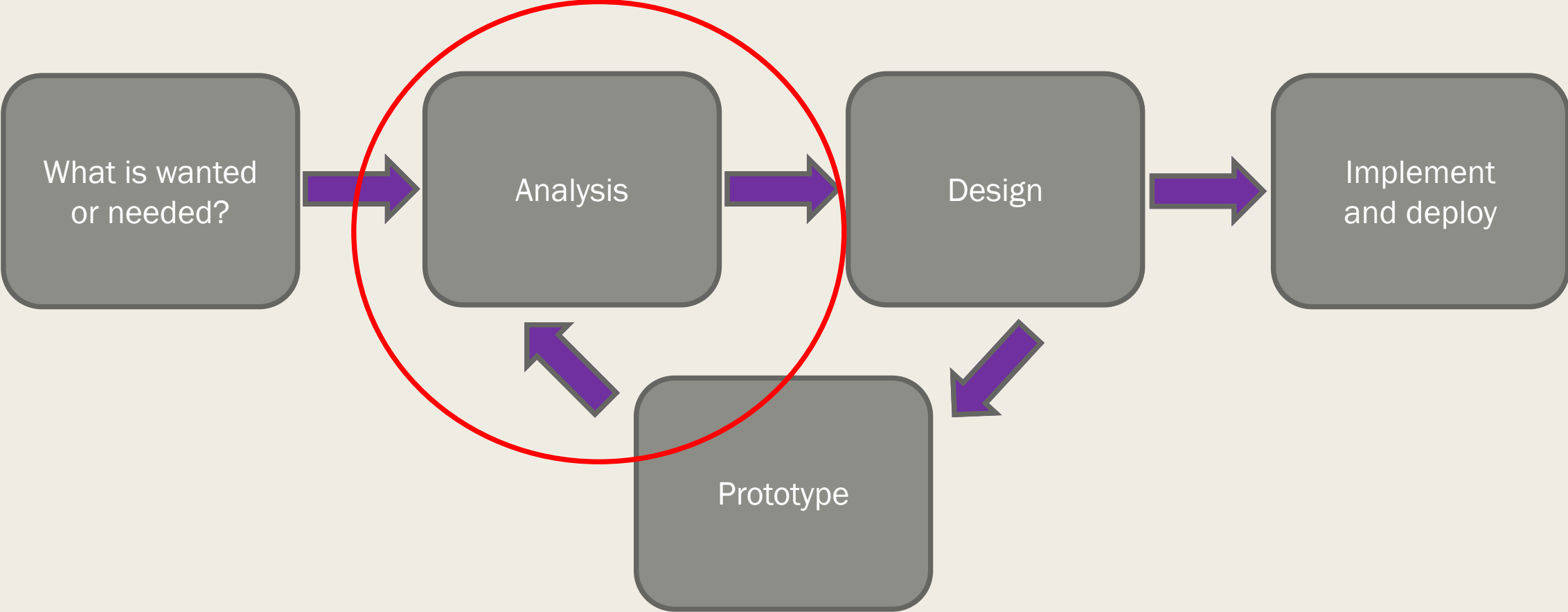
- CW1 was incorrectly set-up as “individual” – but we still treat it as group
- We will provide collective feedback on CW1 / Quiz 1 in Week 7
- CW2 is now visible to you all!
- We will release the CW1 allocations to groups for CW2: Evaluation this week

# Heuristics and Evaluation

# Reminder: The Design Process!



# Reminder: The Design Process!



## Activity 1... a question to start ...

Is Heuristic Evaluation:

- A. *an expert led evaluation,*
- B. *a user led evaluation,*
- C. *or both?*



[https://miro.com/app/board/uXjVNznzn0U=?share\\_link\\_id=389475350783](https://miro.com/app/board/uXjVNznzn0U=?share_link_id=389475350783)  
<https://tinyurl.com/yc3dy3kw>



# Nielsen's 10 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**

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

# Shneiderman's "Eight Golden Rules"

- **1. Strive for consistency**
- **2. Seek universal usability**
- **3. Offer informative feedback**
- **4. Design dialogs to yield closure**
- **5. Prevent errors**
- **6. Permit easy reversal of actions**
- **7. Keep users in control**
- **8. Reduce short-term memory load**

Shneiderman. 2016. <https://www.cs.umd.edu/users/ben/goldenrules.html>

Wong. 2020. <https://www.interaction-design.org/literature/article/shneiderman-s-eight-golden-rules-will-help-you-design-better-interfaces>

# “Hedonic Heuristics”

1. Users can add new service components offered to them through the service. In some cases, users can even create their own service components or applications.
2. Users can access the relevant service elements they need on their PCs and mobile terminals.
3. Users can interact with their relevant user communities, and utilize other users' navigation histories in their interaction with the service.
4. Users can perceive the changes in the service contents or user interface (UI).
5. The service adapts to the user's context of use and offers meaningful contextual information associated with the media contents.
6. The service user interface should be usable and aesthetically pleasing, support users' trust and privacy, and other experiential aspects.

Väänänen-Vainio-Mattila and Wäljas. 2009. Development of evaluation heuristics for web service user experience. <https://doi.org/10.1145/1520340.1520554>

# Granollers (2018) – from heuristics, to questions

## 1.- Visibility and system state

- Does the application include a visible title page, section or site?
- Does the user always know where it is located?
- Does the user always know what the system or application is doing?
- Are the links clearly defined?
- Can all actions be visualized directly? (No other actions are required)

Granollers. 2018. Usability Evaluation with Heuristics, Beyond Nielsen's List. [http://www.thinkmind.org/download.php?articleid=achi\\_2018\\_4\\_10\\_20055](http://www.thinkmind.org/download.php?articleid=achi_2018_4_10_20055)

<p><b>1.- Visibility and system state</b></p> <ul style="list-style-type: none"> <li>- Does the application include a visible title page, section or site?</li> <li>- Does the user always know where it is located?</li> <li>- Does the user always know what the system or application is doing?</li> <li>- Are the links clearly defined?</li> <li>- Can all actions be visualized directly? (No other actions are required)</li> </ul>
<p><b>2.- Connection between the system and the real world, metaphor usage and human objects</b></p> <ul style="list-style-type: none"> <li>- Does information appear in a logical order for the user?</li> <li>- Does the design of the icons correspond to everyday objects?</li> <li>- Does every icon do the action that you expect?</li> <li>- Does the system use phrases and concepts familiar to the user?</li> </ul>
<p><b>3.- User control and freedom</b></p> <ul style="list-style-type: none"> <li>- Is there a link to come back to initial state or homepage?</li> <li>- Are the functions “undo” and “re-do” implemented?</li> <li>- Is it easy to come back to an earlier state of the application?</li> </ul>
<p><b>4.- Consistency and standards</b></p> <ul style="list-style-type: none"> <li>- Do link labels have the same names as their destinations?</li> <li>- Do the same actions always have the same results?</li> <li>- Do the icons have the same meaning everywhere?</li> <li>- Is the information displayed consistently on every page?</li> <li>- Are the colours of the links standard? If not, are they suitable for its use?</li> <li>- Do navigation elements follow the standards? (Buttons, check box, ...)</li> </ul>
<p><b>5.- Recognition rather than memory, learning and anticipation</b></p> <ul style="list-style-type: none"> <li>- Is it easy to use the system for the first time?</li> <li>- Is it easy to locate information that has already been searched for before?</li> <li>- Can you use the system at all times without remembering previous screens?</li> <li>- Is all content needed for navigation or task found in the “current screen”?</li> <li>- Is the information organized according to logic familiar to the end user?</li> </ul>
<p><b>6.- Flexibility and efficiency of use</b></p> <ul style="list-style-type: none"> <li>- Are there keyboard shortcuts for common actions?</li> <li>- If there are, is it clear how to use them?</li> <li>- Is it possible to easily perform an action done earlier?</li> <li>- Does the design adapt to the changes of screen resolution?</li> <li>- Is the use of accelerators visible to the normal user?</li> </ul>

<ul style="list-style-type: none"> <li>- Does it always keep the user busy? (without unnecessary delays)</li> </ul>
<p><b>7.- Help users recognize, diagnose and recover from errors</b></p> <ul style="list-style-type: none"> <li>- Does it display a message before taking irreversible actions?</li> <li>- Are errors shown in real time?</li> <li>- Is the error message that appears easily interpretable?</li> <li>- Is some code also used to reference the error?</li> </ul>
<p><b>8.- Preventing errors</b></p> <ul style="list-style-type: none"> <li>- Does a confirmation message appear before taking the action?</li> <li>- Is it clear what information needs to be entered in each box on a form?</li> <li>- Does the search engine tolerate typos and spelling errors?</li> </ul>
<p><b>9.- Aesthetic and minimalist design</b></p> <ul style="list-style-type: none"> <li>- Is used a design without redundancy of information?</li> <li>- Is the information short, concise and accurate?</li> <li>- Is each item of information different from the rest and not confused?</li> <li>- Is the text well organized, with short sentences and quick to interpret?</li> </ul>
<p><b>10.- Help and documentation</b></p> <ul style="list-style-type: none"> <li>- Is there the "help" option?</li> <li>- If so, is it visible and easy to access?</li> <li>- Is the help section aimed at solving problems?</li> <li>- Is there a section of frequently asked questions (FAQ)?</li> <li>- Is the help documentation clear, with examples?</li> </ul>
<p><b>11.- Save the state and protect the work</b></p> <ul style="list-style-type: none"> <li>- Can users continue from a previous state (where they had previously been or from another device)?</li> <li>- Is "Autosave" implemented?</li> <li>- Does the system have a good response to external failures? (Power cut, internet not working, ...)</li> </ul>
<p><b>12.- Colour and readability</b></p> <ul style="list-style-type: none"> <li>- Do the fonts have an adequate size?</li> <li>- Do the fonts use colours with sufficient contrast with the background?</li> <li>- Do background images or patterns allow the content to be read?</li> <li>- Does it consider people with reduced vision?</li> </ul>
<p><b>13.- Autonomy</b></p> <ul style="list-style-type: none"> <li>- Does it keep the user informed of system status?</li> <li>- Moreover, is the system status visible and updated?</li> <li>- Can the user take their own decisions? (Personalization)</li> </ul>
<p><b>14.- Defaults</b></p> <ul style="list-style-type: none"> <li>- Does the system or device give the option to return to factory settings?</li> <li>- If so, does it clearly indicate the consequences of the action?</li> <li>- Is the term "Default" used?</li> </ul>
<p><b>15.- Latency reduction</b></p> <ul style="list-style-type: none"> <li>- Is the execution of heavy work transparent to the user?</li> <li>- While running heavy tasks, is remaining time or some animation shown?</li> </ul>

## 247 web usability guidelines

Although designing usable systems requires far more than simply applying guidelines, guidelines can still make a significant contribution to usability by promoting consistency and good practice. We use this list of guidelines in our consultancy work. For best results, remember to interpret the guideline in context — this requires a bit more thought but ensures you will get a lot more from your review. — [DAVID TRAVIS](#), OCTOBER 22, 2014. LAST UPDATED APRIL 12 2016

### Web usability guidelines

Home page usability

Task orientation

Navigation and IA

Forms and data entry

Trust and credibility

Writing and content quality

Page layout and visual design

Search usability

Help, feedback and error tolerance



Photo by Tirza van Dijk on Unsplash

***“One of the best spreadsheets I’ve ever seen!” – @handrus***

***“This covers it all! Great resource-->RT.” – @WP4SmallBiz***

***“Definitely Bookmarked!!” – @gregprogramming***

***“Well thought out info for improving site***

### Web usability guidelines

- [Home page usability](#): 20 guidelines to evaluate the usability of home pages.
- [Task orientation](#): 44 guidelines to evaluate how well a web site supports the users tasks.
- [Navigation and IA](#): 29 guidelines to evaluate navigation and information architecture.
- [Forms and data entry](#): 23 guidelines to evaluate forms and data entry.
- [Trust and credibility](#): 13 guidelines to evaluate trust and credibility.
- [Writing and content quality](#): 23 guidelines to evaluate writing and content quality.
- [Page layout and visual design](#): 38 guidelines to evaluate page layout and visual design.

<https://www.userfocus.co.uk/resources/guidelines.html>

## Activity 2: Comparing heuristics

Go to the Miro board and onto activity 2....

In your group, look at Nielsen's 10 Heuristics and Shneiderman's 8 Golden Rules – compare these, and note:

- What is similar / the same?
- What is different / unique?
- Which would you consider most important?

## Activity 3: Having a “poke around”

Go to the Miro board and onto activity 3....

In your group, run through the activity:

1. **5 minutes**: Discuss in your group a recent experience of a frustrating website or application you have used (online, mobile, computer). Choose one and post a link – 5 minutes
2. **10 minutes**: “Poke around” the website or application – select two of Nielsen’s heuristics that it contravenes. Try to also select one it does well.

# Limitations of Heuristics...

- It is hard to adhere all the heuristics at the same time
- They are very (very!) general - some will be more / less relevant depending on type of application or user
- Heuristic evaluation is focused on designing interfaces that can be used, not finding out what people want to use
- Heuristic evaluation tends to focus on relatively “minor” issues compared to major flaws
- Requires a small group of “experts” to evaluate and catch issues
- Not a replacement for testing and evaluation with representative users
- Not a replacement for following established accessibility guidance



# Week 3 Q&A

- Questions about Week 5 videos?
- Question on CW1/2?

# For next week (Week 6)

- Week 6 videos – Lab Studies
- Checking your assigned designs, checking these are usable, allocating roles for CW2

**Study 1 - materials**

Support materials for Idea generation: [left] worksheet; [right] images to support children in generating ideas on "rewards" topic.

Constantin et al. 2017

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Week 6: Lab studies  
2 videos

HCI Study Design 42:01  
HCI Study Design Slides

HCI 2020 - Lab Studie... 21:57  
HCI 2020 - Lab Studies - examples

9:47 / 21:57