# Heuristic Evaluation – UCL Systems Engineering COMP 2014

## Heuristics (Nielson, 1995: http://www.nngroup.com/articles/ten-usability-heuristics/)

1. **Visibility of system status**
   - The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.
2. **Match between system and the real world**
   - The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.
3. **User control and freedom**
   - Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.
4. **Consistency and standards**
   - Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.
5. **Error prevention**
   - Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.
6. **Recognition rather than recall**
   - Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
7. **Flexibility and efficiency of use**
   - Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.
8. **Aesthetic and minimalist design**
   - Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.
9. **Help users recognize, diagnose, and recover from errors**
   - Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.
10. **Help and documentation**
    - Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

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## Severity Ratings (Nielson, 1995: http://www.nngroup.com/articles/how-to-rate-the-severity-of-usability-problems/)

The severity of a usability problem is a combination of three factors:

- The **frequency** with which the problem occurs: Is it common or rare?
- The **impact** of the problem if it occurs: Will it be easy or difficult for the users to overcome?
- The **persistence** of the problem: Is it a one-time problem that users can overcome once they know about it or will users repeatedly be bothered by the problem?

The following 0 to 4 rating scale can be used to rate the severity of usability problems:

0 = **I don't agree** that this is a usability problem at all
1 = **Cosmetic problem only**: need not be fixed unless extra time is available on project
2 = **Minor usability problem**: fixing this should be given low priority
3 = **Major usability problem**: important to fix, so should be given high priority
4 = **Usability catastrophe**: imperative to fix this before product can be released

## Exercise to Be Included in Meeting Minutes

Each team member is to evaluate the usability of their systems engineering project designs individually using heuristic evaluation on the attached forms. Each aspect of the user interface should be examined and compared to Nielson's heuristics and usability issues are to be identified. After identifying the heuristic violated, the team member is to rate the issue's frequency, impact and persistence on a scale of 0 to 4. A total severity score should be determined by the average of these three ratings. After completing this task individually, the individual forms are to be scanned or photographed to be included in the meeting minutes.

The team is then to discuss the findings from the individual evaluations together with attention paid to the severity scores. Together, create a summary of findings. From these findings, recommendations for changes to the interface should be made in a list. For every recommendation that was not implemented, the team needs to provide justification as to why it was not implemented. This summary and list should be typed up and included in the meeting minutes.

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Name: Reece Doyle Project Title: Politics Mapper

| **Interface** | **Issue** | **Heuristic(s)** | **F**requency 0 (rare) to 4 (common) | **I**mpact 0 (easy) to difficult (4) | **P**ersistence 0 (once) to 4 (repeated) | **Severity** = Sum Total of F+I+P /3 |
|---|---|---|---|---|---|---|
| Home page | Inclusion of the “Our Team” section which is not necessary on the system web site | 8 | 0 | 1 | 2 | 1 |
| Home page | Lack of help and documentation on the page; the “Help” link does not direct to a help page | 10 | 0 | 4 | 1 | 2 |
| Results page | While the search is being carried out, there is no indication that the search is on-going and that the system hasn’t crashed | 1 | 2 | 2 | 2 | 2 |
| Results page | The result blocks which display the retrieved records are not of a uniform size and therefore buttons are in different places for each query and the list is not aesthetically pleasing | 6, 7, 8 | 3 | 2 | 2 | 2 |
| Results page | The user cannot query the database again without returning to the home page and can only do this by returning to the URL as there is no button or search bar | 3, 6, 7, 8 | 3 | 4 | 2 | 3 |
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