Usability Testing
Of Sirsi Unicorn / WebCat

Tracey Depellegrin-Connelly & Denise A. Troll

Poster session, *American Library Association Conference*, July 9, 2000

ABSTRACT

Carnegie Mellon University Libraries conducted research for Sirsi that exemplifies how a partnership between libraries and vendors can improve software.

The Libraries conducted research and recommended changes to the Unicorn user interfaces. Sirsi revised the software based on the results of the initial phase of research. The Libraries then tested the new version of the software using the same research instruments to determine whether usability was improved.

The initial phase of testing revealed problems in the design and performance of Unicorn. For example, users complained that WebCat and the Unicorn staff modules were slow, difficult to navigate and provided inadequate onscreen instructions and error messages. The second phase of testing revealed improvements in interface design and functionality. Users still experienced some problems, but they were more satisfied with system speed and navigation. The University Libraries also used the research results to further customize WebCat.

PROBLEM

Systems designed with thorough knowledge of the tasks the software is to perform but without thorough knowledge of how users interact with the software are bound to have problems in the interface between human and computer.

OBJECTIVES

- □ To identify areas for improvement in the Unicorn staff and public user interfaces
- □ To make recommendations for enhancements

RESEARCH

1995

Summer	Circulation GUI protocols & survey
Summer	Acquisitions GUI protocols & survey
Summer	GUI & CHUI interface survey
Fall	Windows OPAC protocols & survey

1996

Winter	Macintosh OPAC protocols & survey
Spring	OPAC focus groups
Fall	Serials GUI protocols & survey

1997

Spring	Cataloging GUI protocols & survey
Summer	Recommendations Report
Fall	WebCat protocols & survey

1998

Spring/Fall	System performance tests
Fall	WebCat protocols & survey
Winter	GUI & WebCat interface survey

1999

Spring	Workflows Circulation protocols & survey
Fall	Focus groups

2000

Winter	Workflows Cataloging protocols & survey

CONCLUSIONS

Research & development take longer than expected.

Interface Design & Functionality

Reduce clutter

- □ Remove or gray-out inactive options & buttons
- □ Remove the scroll bar when it is inactive
- □ Simplify & shrink the icons

Change colors

- □ Use soft blues, greens, grays, yellows
- □ Avoid putting difficult-to-discern colors together

Improve readability

- □ Use upper- & lower-case letters on buttons & menus

Simplify navigation

- □ Provide keyboard shortcuts for often used options
- □ Enable the Page Up, Page Down & Arrow keys
- □ Enable the scroll bar when it is visible

Provide

- □ Visible, explanatory, enduring & consistently formatted error messages & system feedback
- □ Onscreen examples of data-entry formats
- □ Onscreen indicators of required data-entry fields
- □ Onscreen instructions to press Return
- □ Contextual cues to indicate where users are
- □ Vocabulary that matches user expectations
- □ Better context-sensitive online help

Enable users to

- □ Cancel searches in progress
- □ Return to their previous result set after doing a hypertext search
- □ View, navigate & submit as a query a list of marked items
- □ Save, mail & print result sets, a list of marked items, single records without marking them, & multiple (marked) records at once

Other

- ❑ Protect users from common trivial errors
- ❑ Integrate Unicorn authentication with Kerberos
- ❑ Make date limits & sorting results easier to do
- ❑ Make the reserves functions easier to use

Performance

Spring 1998 baseline test

DEC AlphaServer (single 200 MHz processor, 256 MB memory, SCSI-2 disk controller, Digital Unix v2.0, 10 Megabit per second connection to the campus network), CERN web server, & Digital 486/33, Digital 586/133 & Dell Pentium 166 client PCs

- ❑ The number of records retrieved did *not* affect system load or the speed with which results were delivered
- ❑ Other Unicorn functions running at the same time (e.g., reports) *did* affect server load & the speed with which results were delivered
- ❑ WebCat searches were *slower* than GUI searches for the same or similar client hardware

Fall 1998 follow-up test

DEC AlphaServer (dual 400 MHz processor, 512 MB memory, SCSI-2 Ultra disk controller, Digital Unix v4.0, 100 Megabit per second connection to the campus network), Apache web server, & Dell Pentium II/233 client PCs

- ❑ WebCat searches were *not* slower than GUI searches and consumed identical amounts of system resources
- ❑ Other Unicorn functions running at the same time (e.g., reports) did *not* affect server load & the speed with which results were delivered
- ❑ A dual processor machine becomes bottlenecked when the load average (the number of processes waiting to run because the CPU is busy) is 2.0

SIGNIFICANCE

Libraries can improve automated systems by

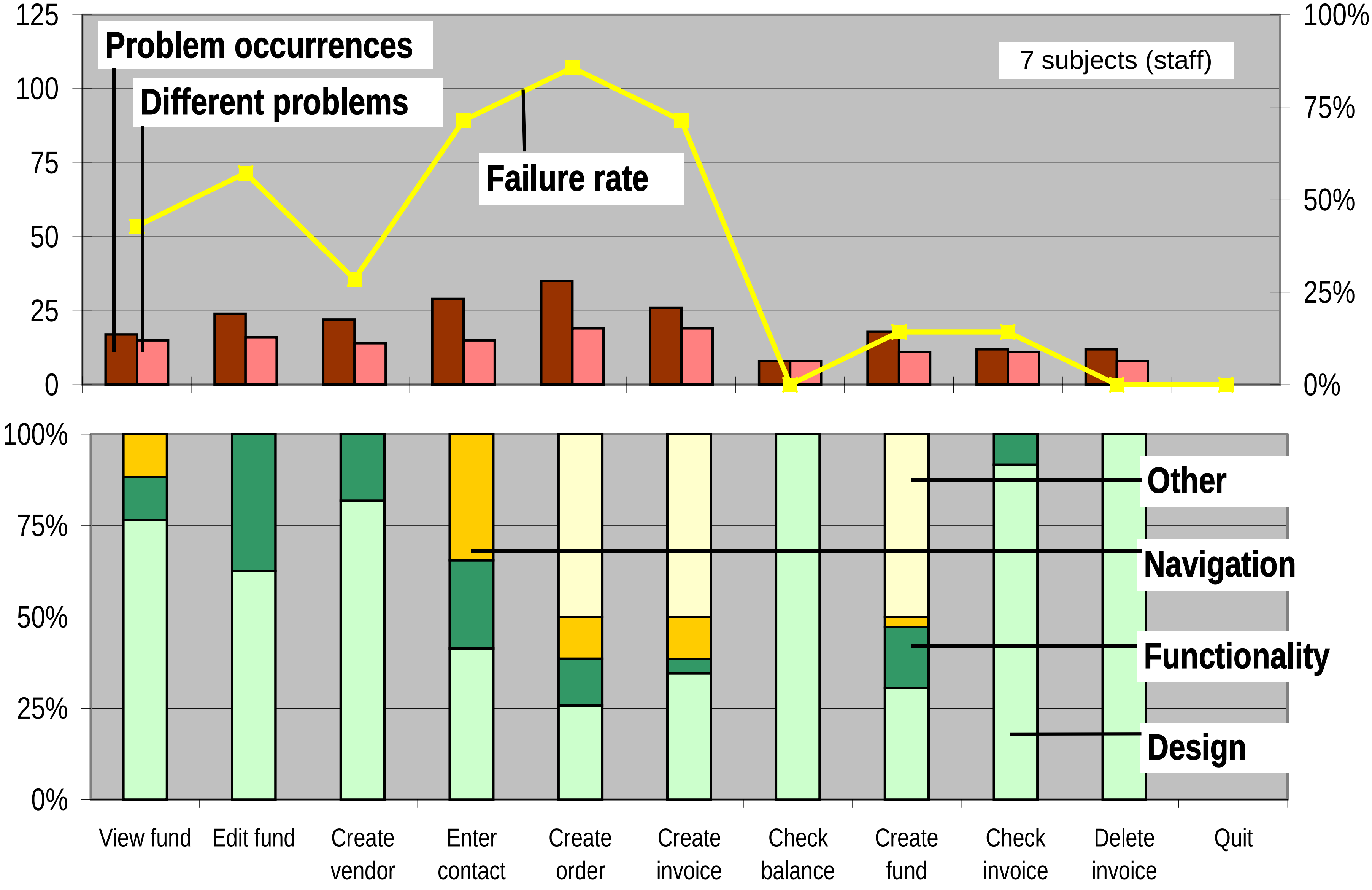
- ❑ Conducting research & applying the results to interface design & functionality
- ❑ Working closely with vendors to serve users

Libraries can improve system performance by providing

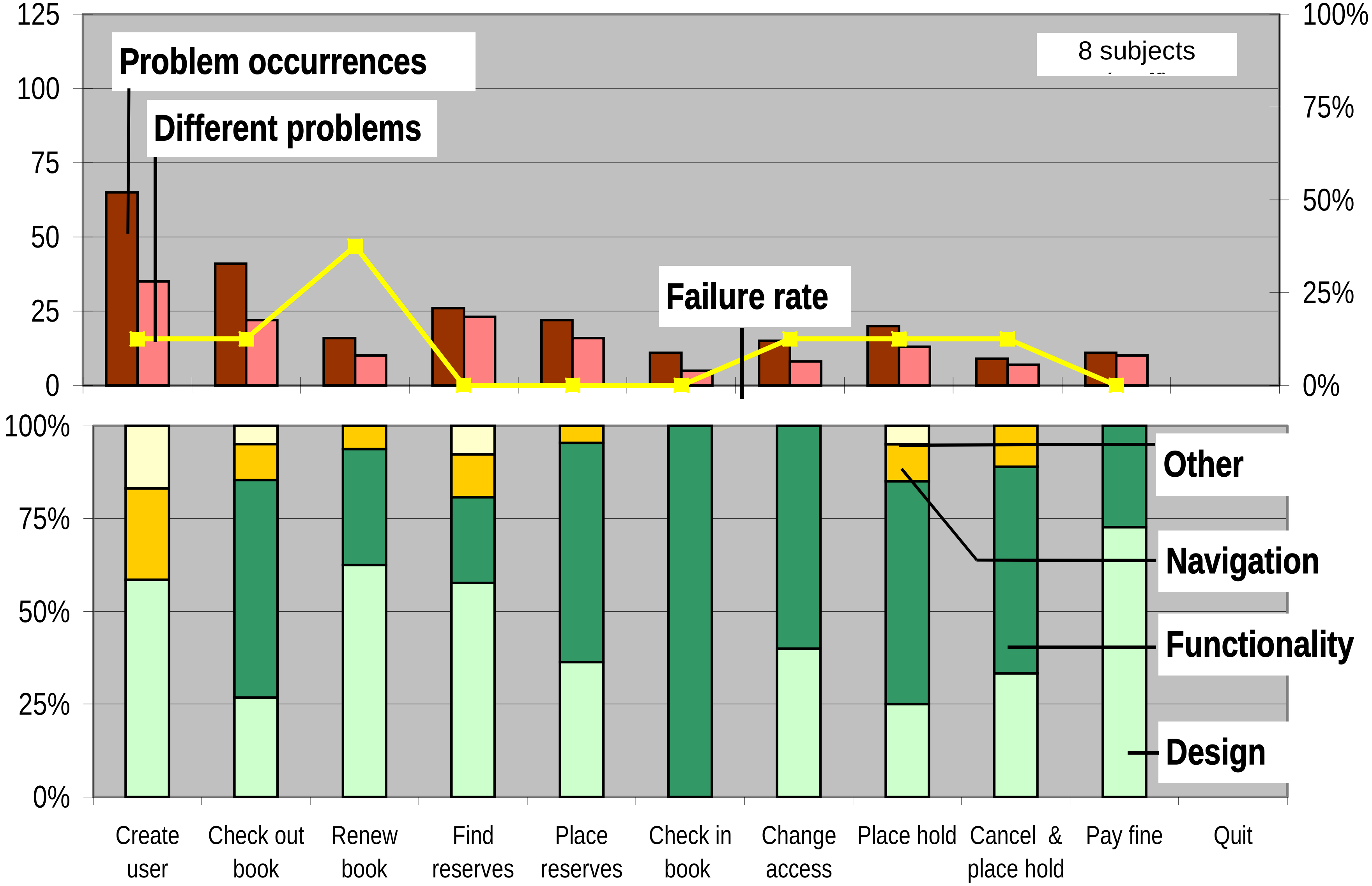
- ❑ Better server & client equipment
- ❑ A higher-speed network connection

Task Analysis

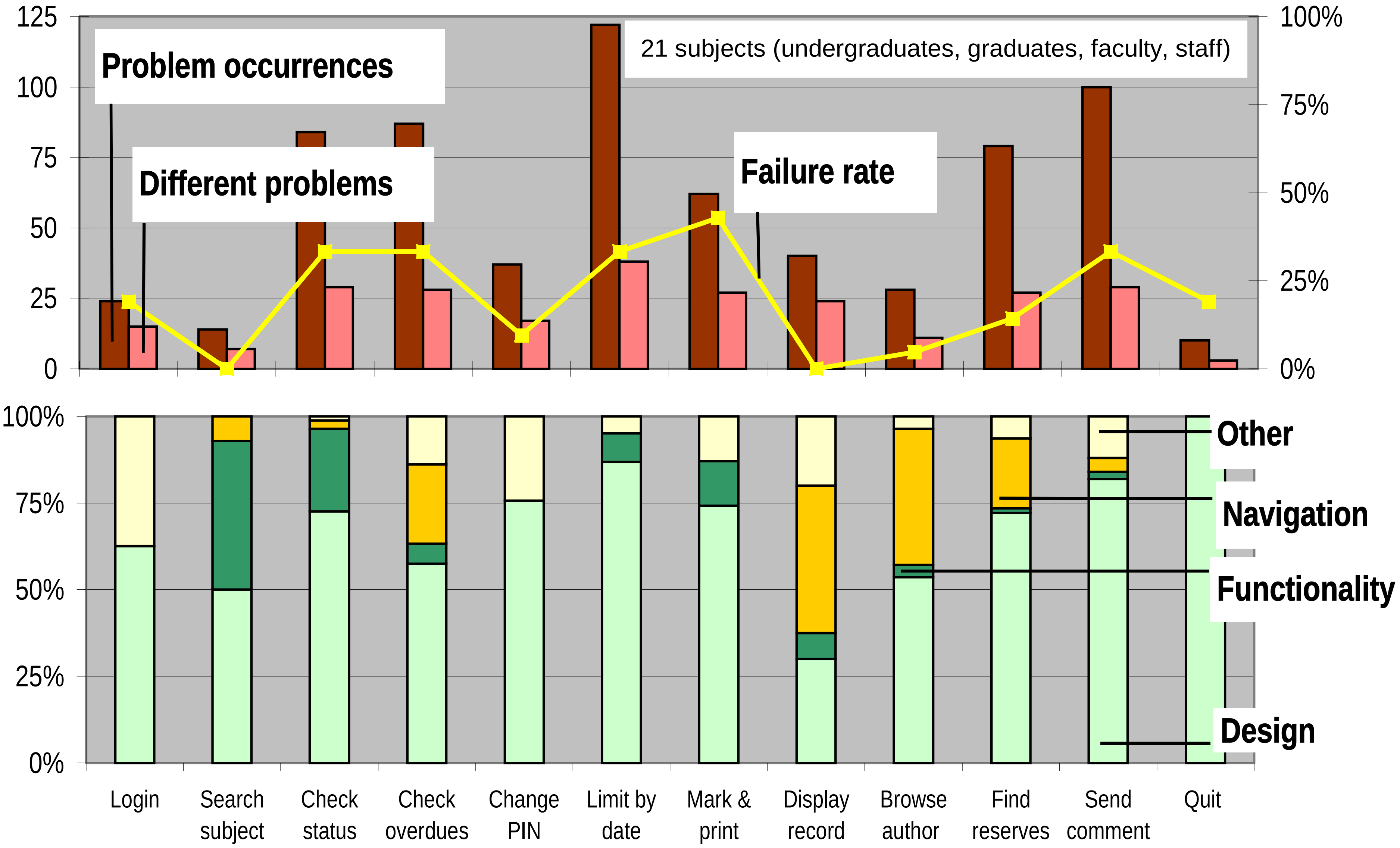
1995 Acquisitions GUI Problems & Failure Rate



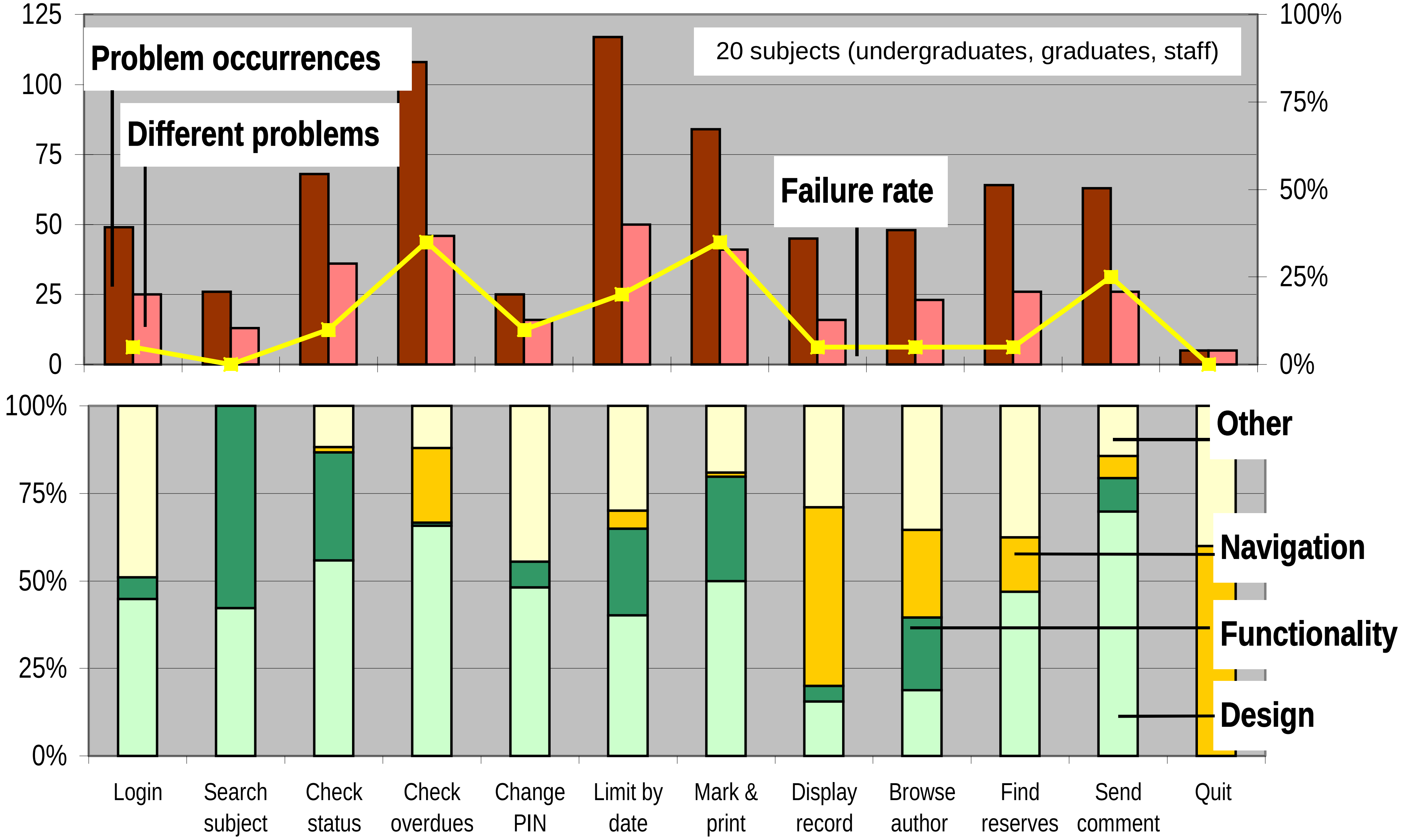
1995 Circulation GUI Problems & Failure Rate



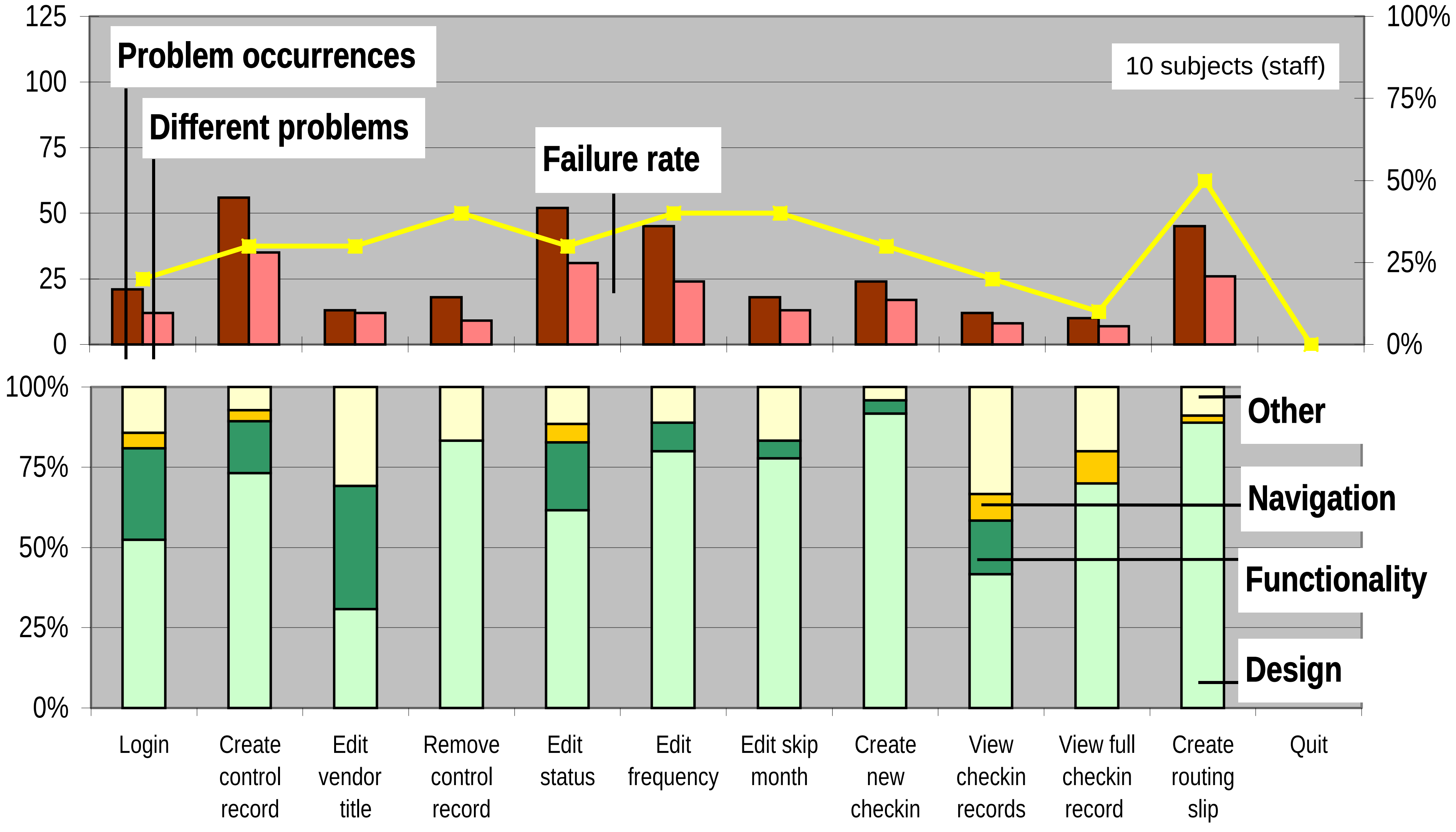
1995 Windows OPAC Problems & Failure Rate



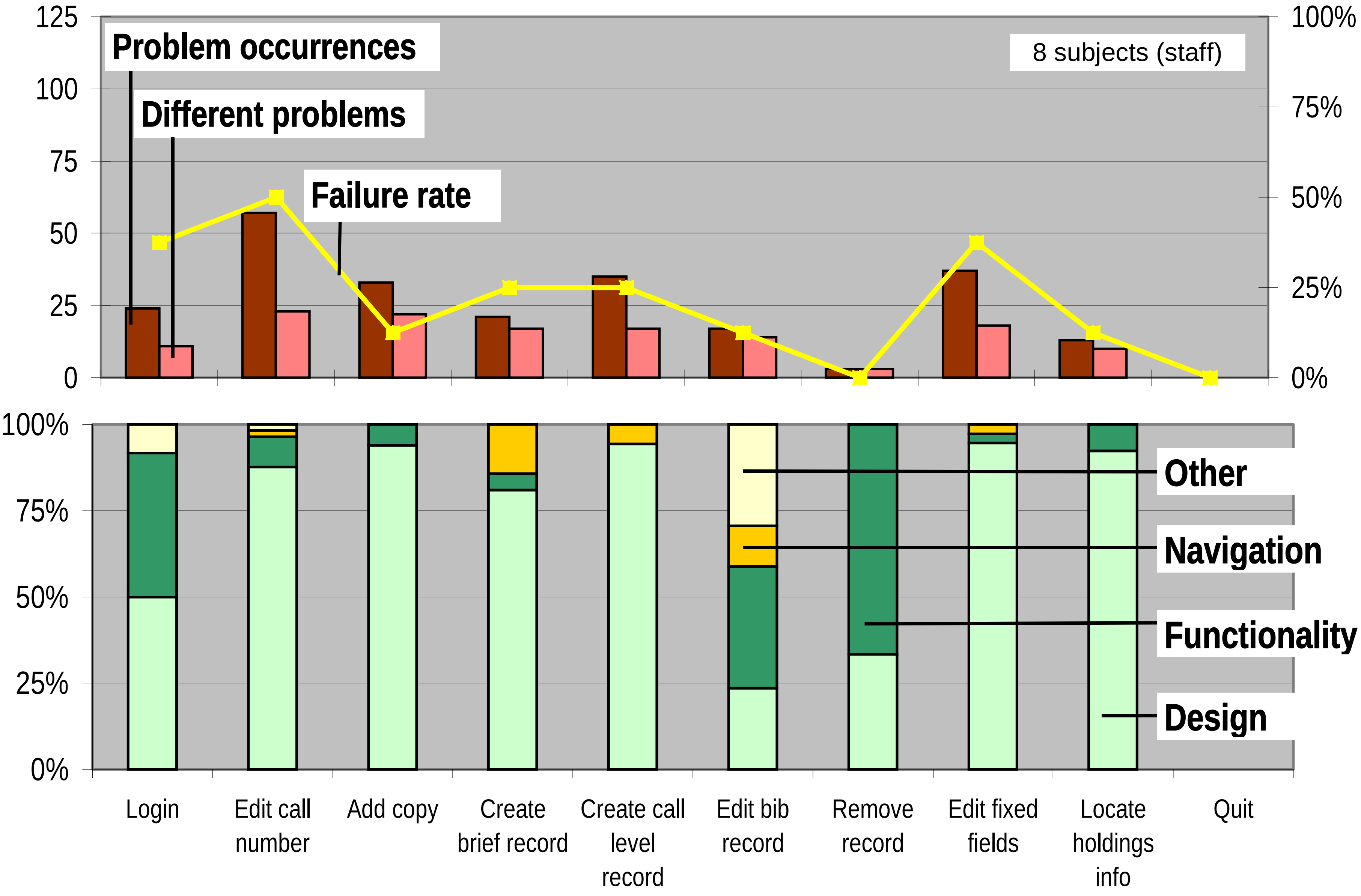
1996 Macintosh OPAC Problems & Failure Rate



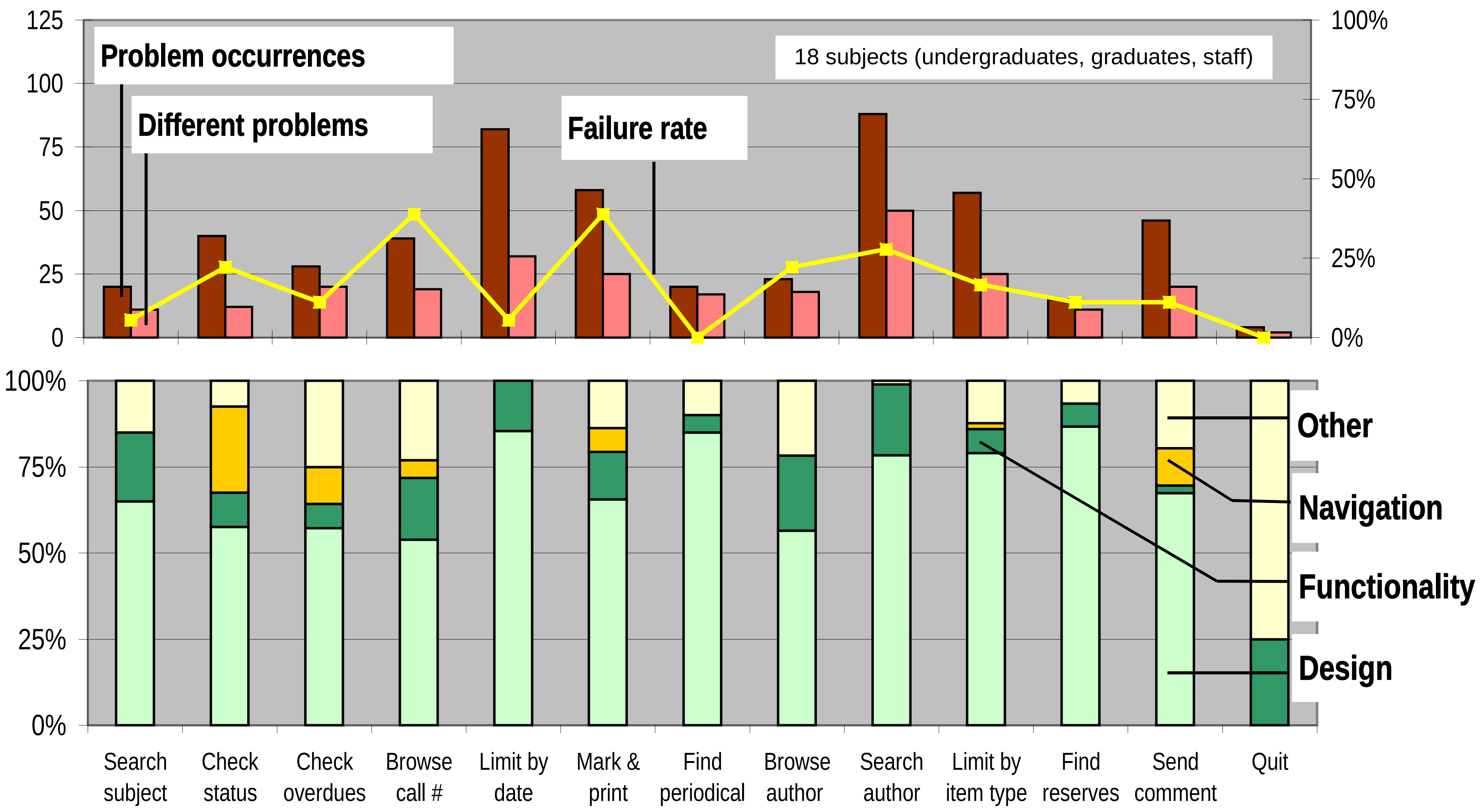
1996 Serials GUI Problems & Failure Rate



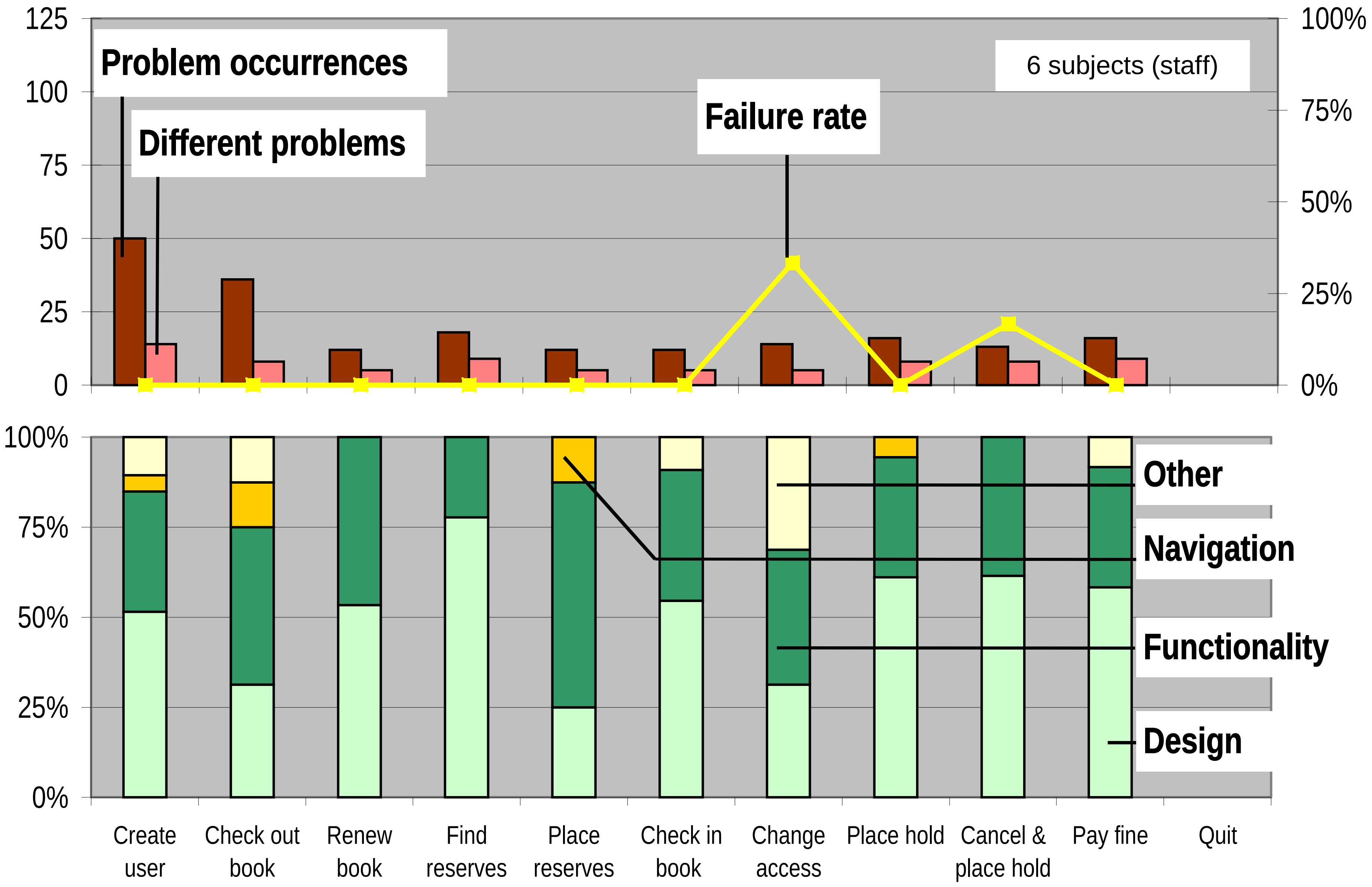
1997 Cataloging GUI Problems & Failure Rate



1998 WebCat Problems & Failure Rate

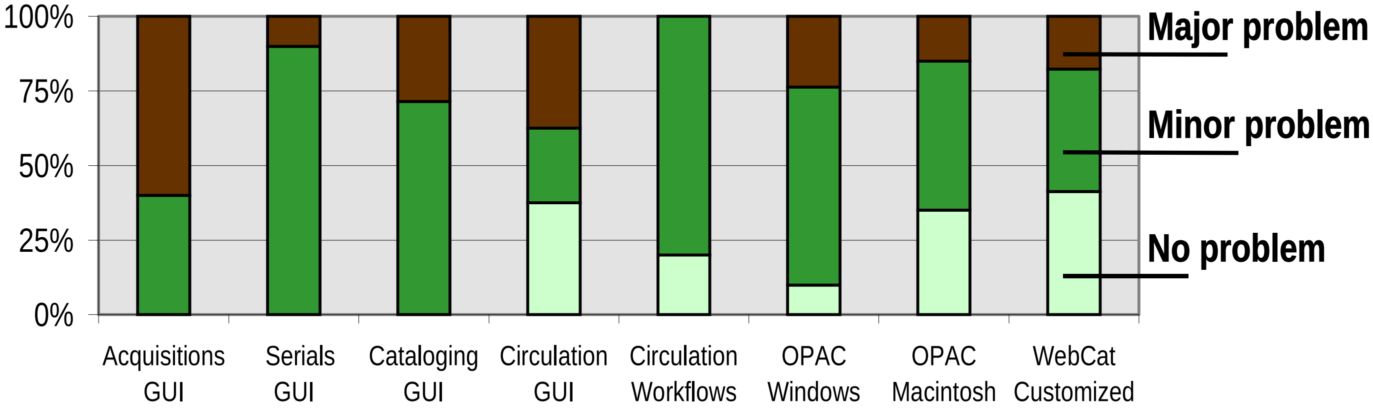


1999 Circulation Workflows Problems & Failure Rate

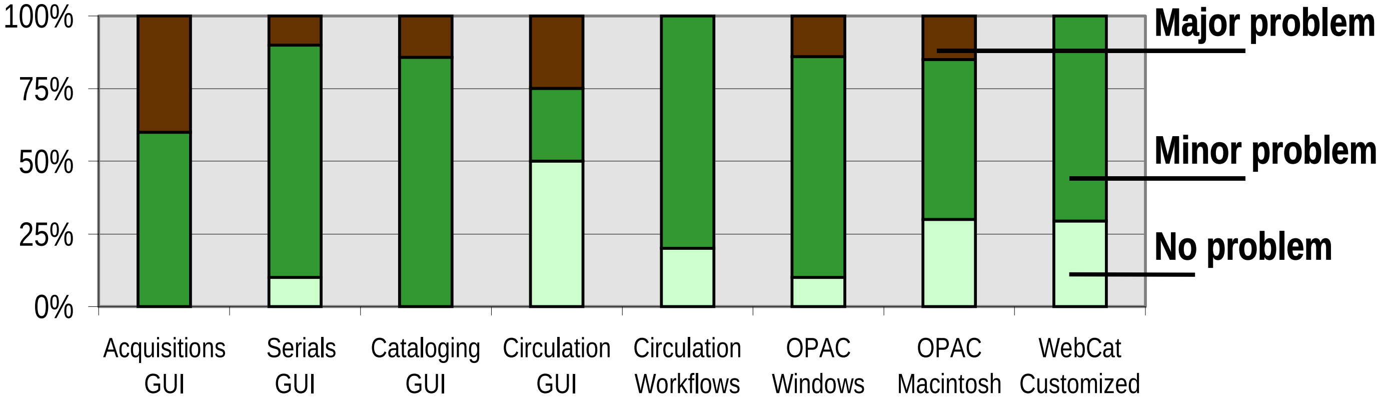


Usability

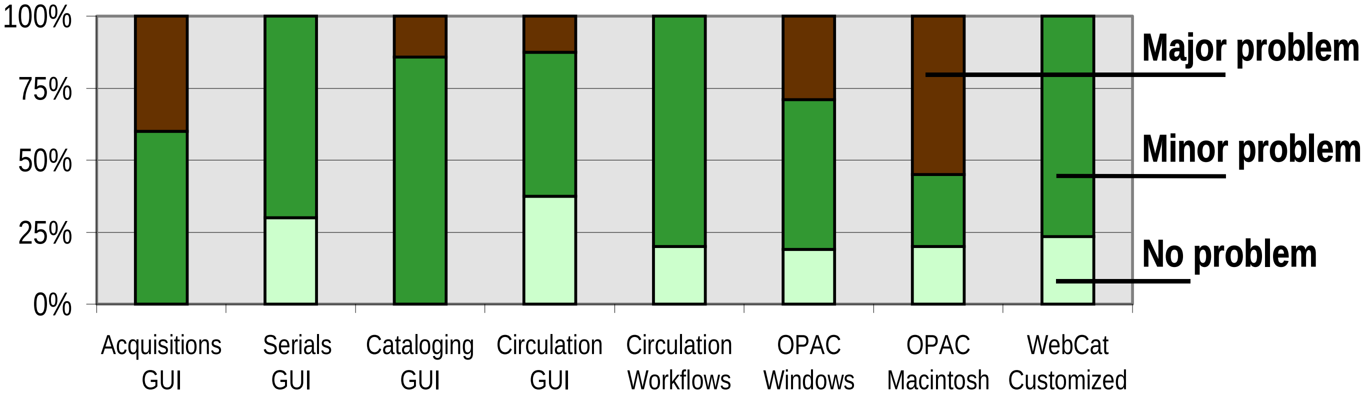
Figuring out how to use the system



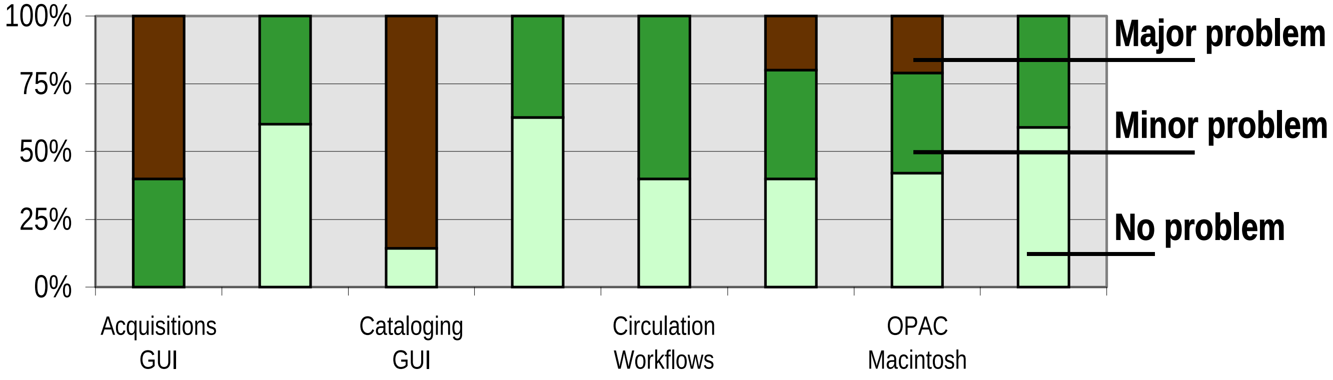
Understanding how to do the tasks



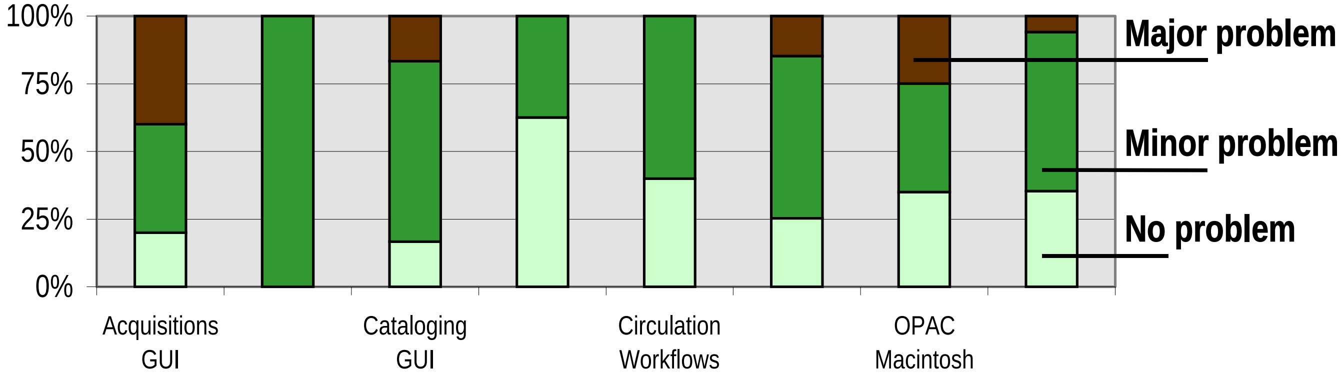
Knowing what to do next



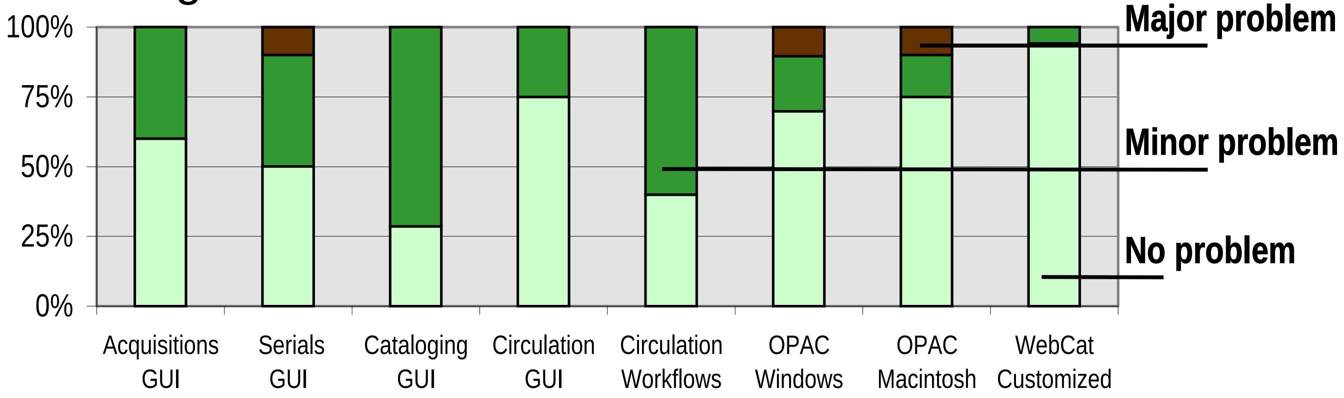
Knowing where you are or what you are doing



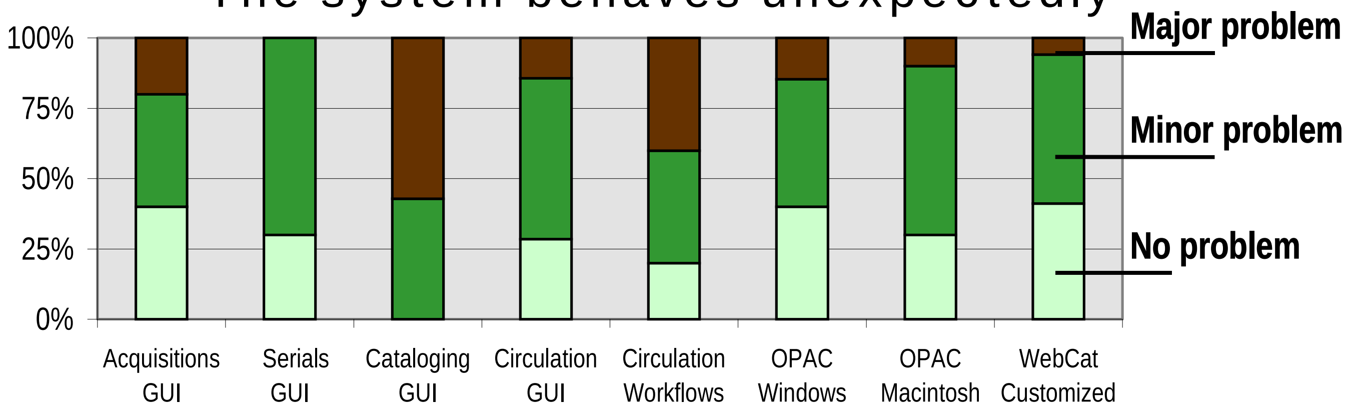
Knowing how the information relates to the task



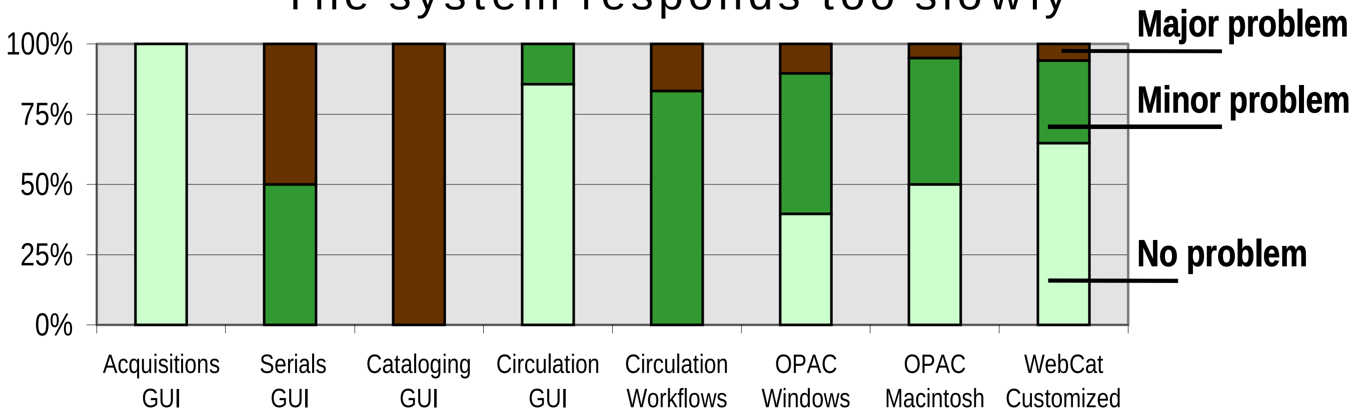
Having to remember too much to do a task



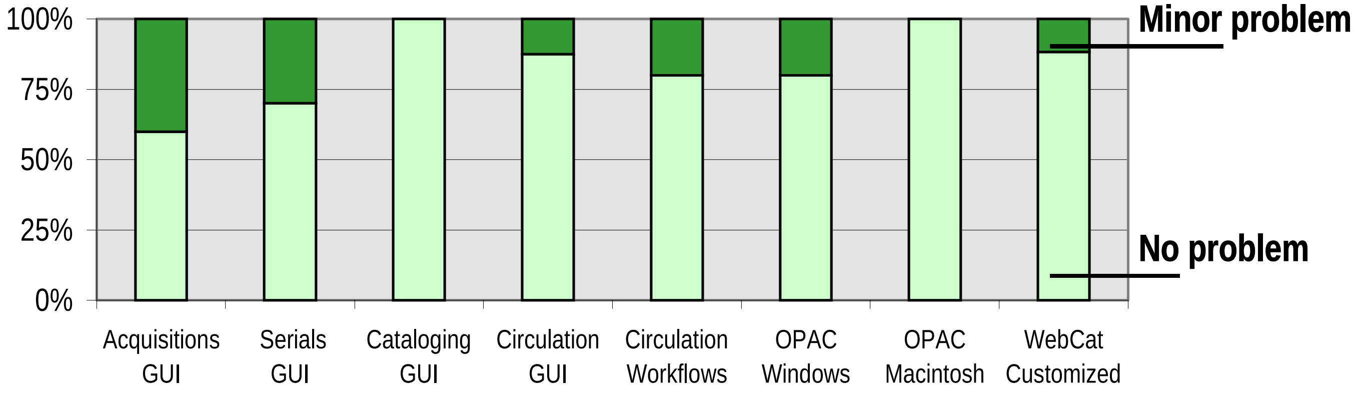
The system behaves unexpectedly



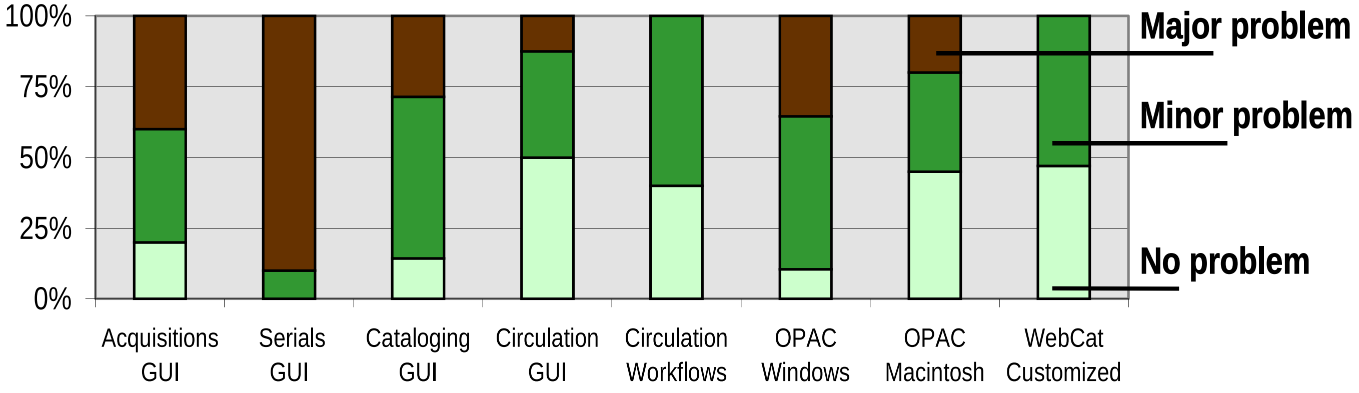
The system responds too slowly



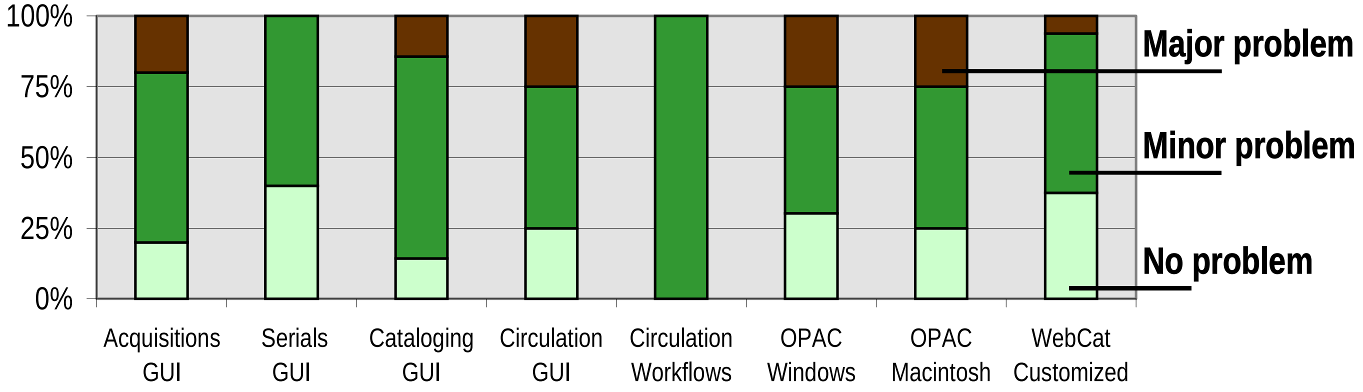
The system responds too quickly



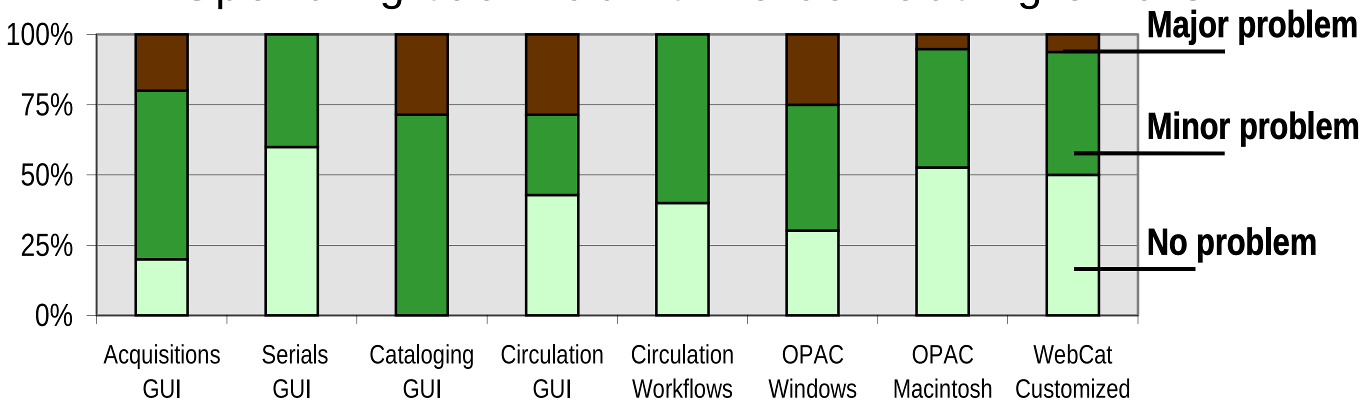
Figuring out how or where to enter information



Figuring out how to correct errors

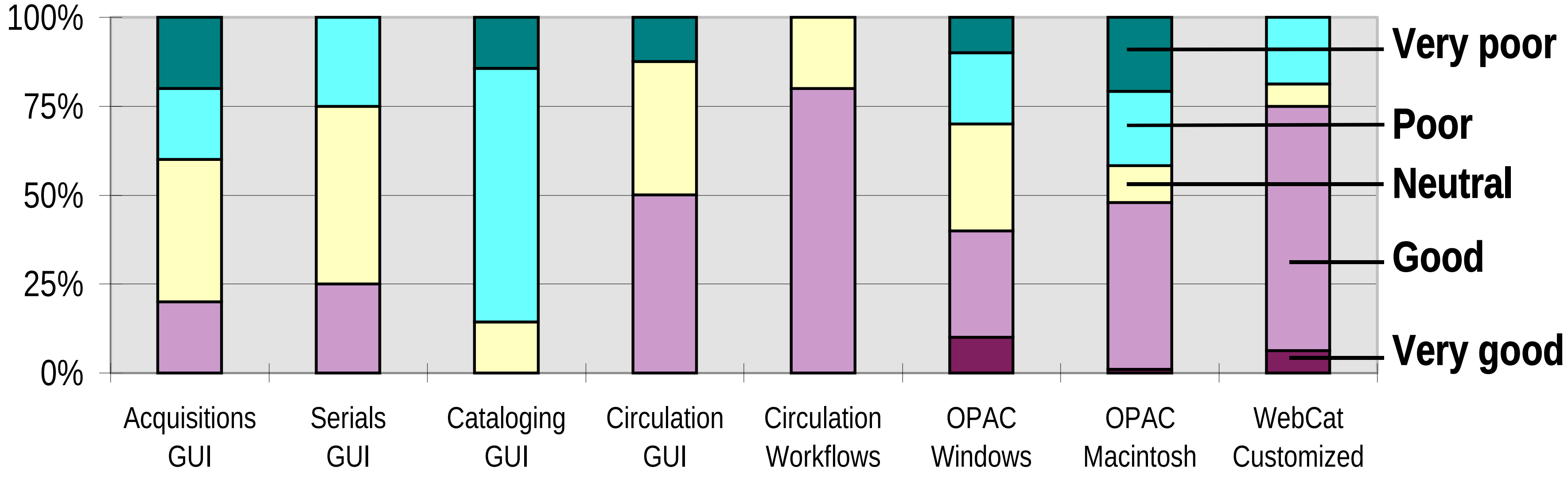


Spending too much time correcting errors

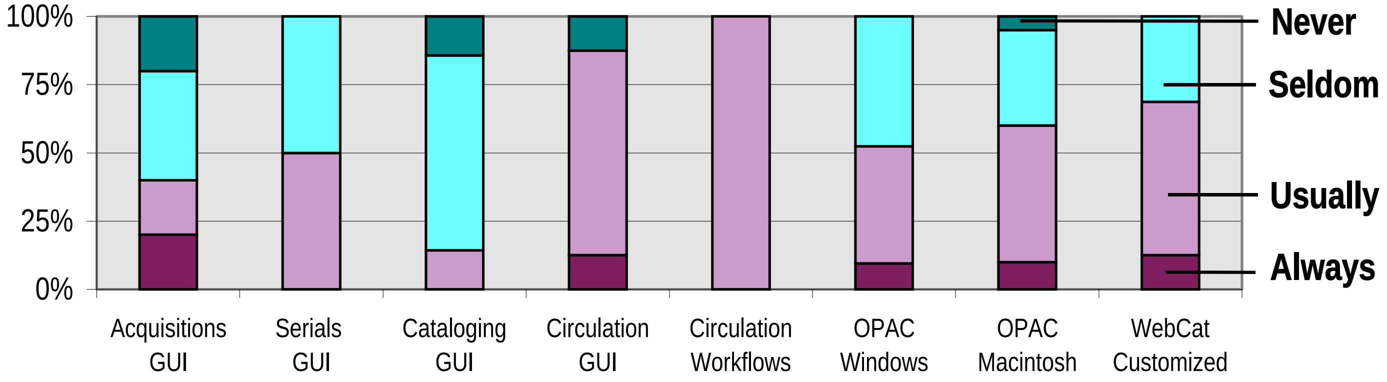


User Satisfaction

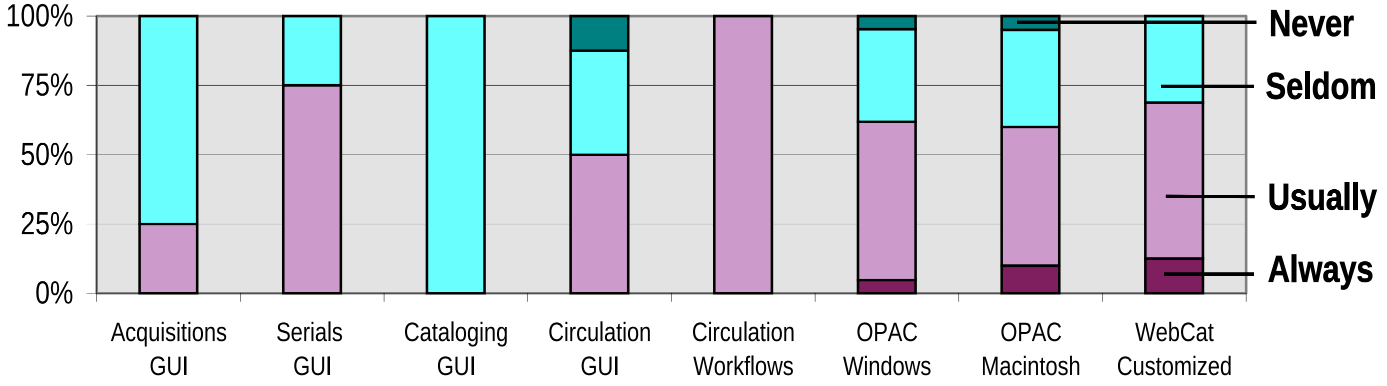
Compatibility with Expectations



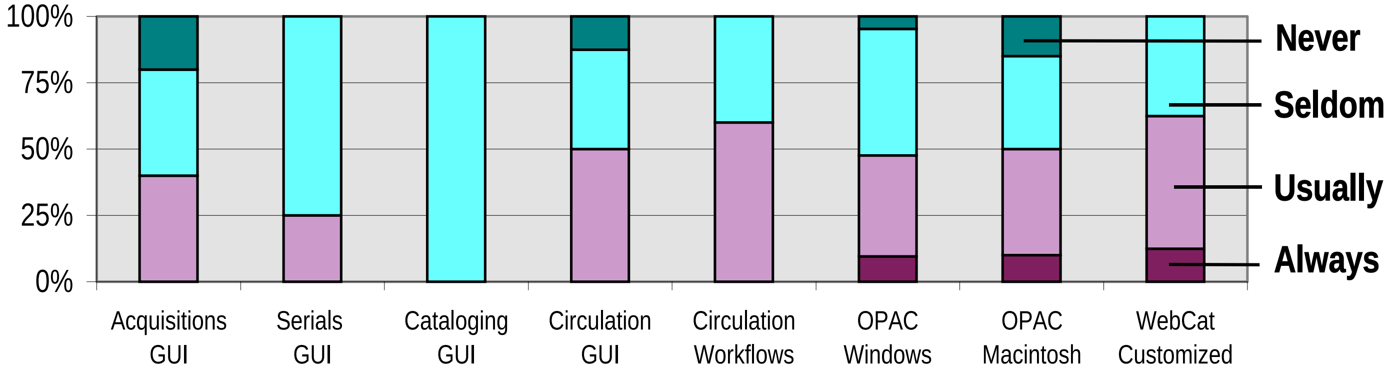
The presentation meets my expectations



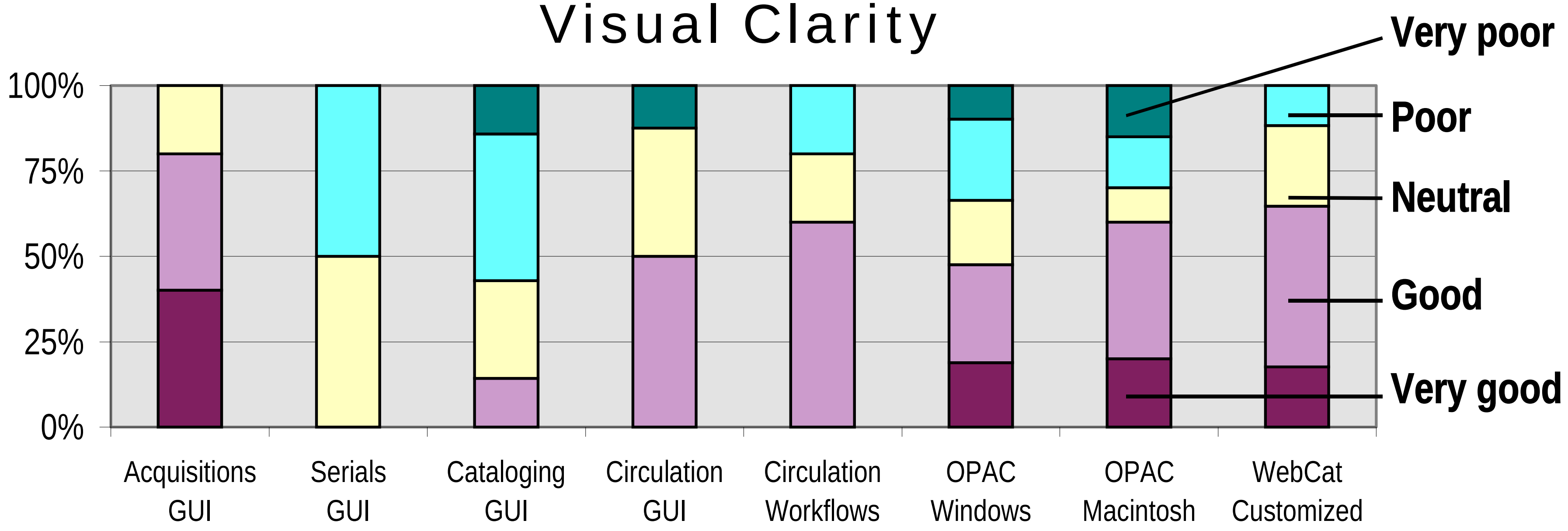
The sequence of steps matches my workflow

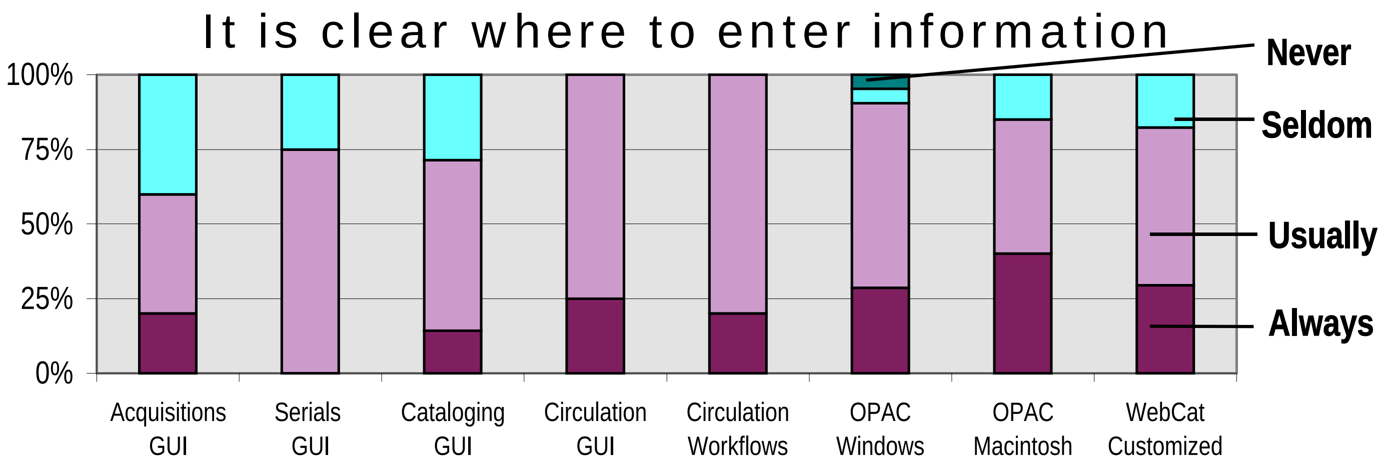


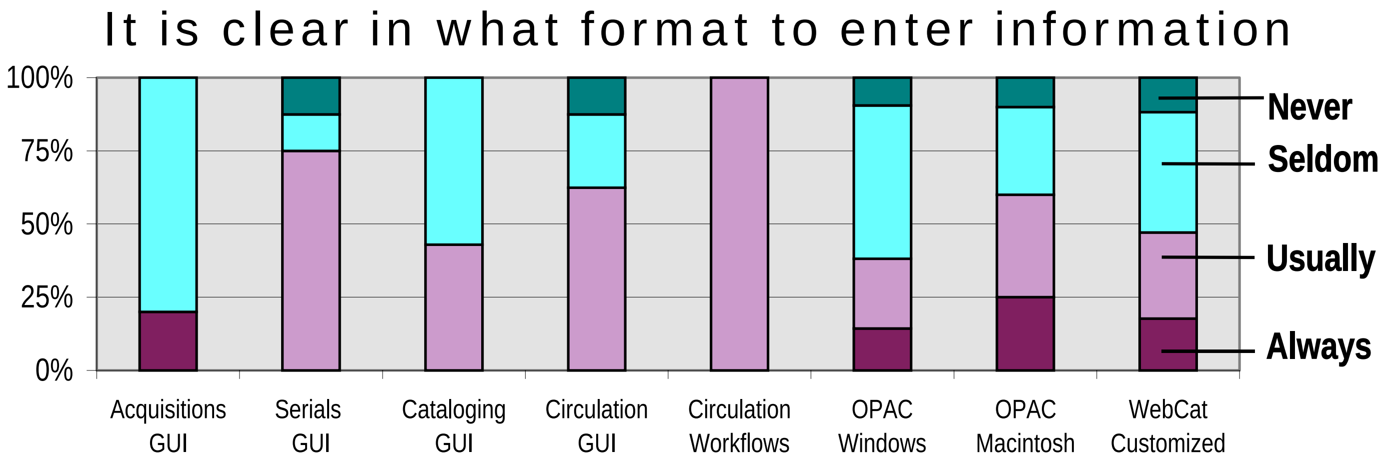
The system works as expected

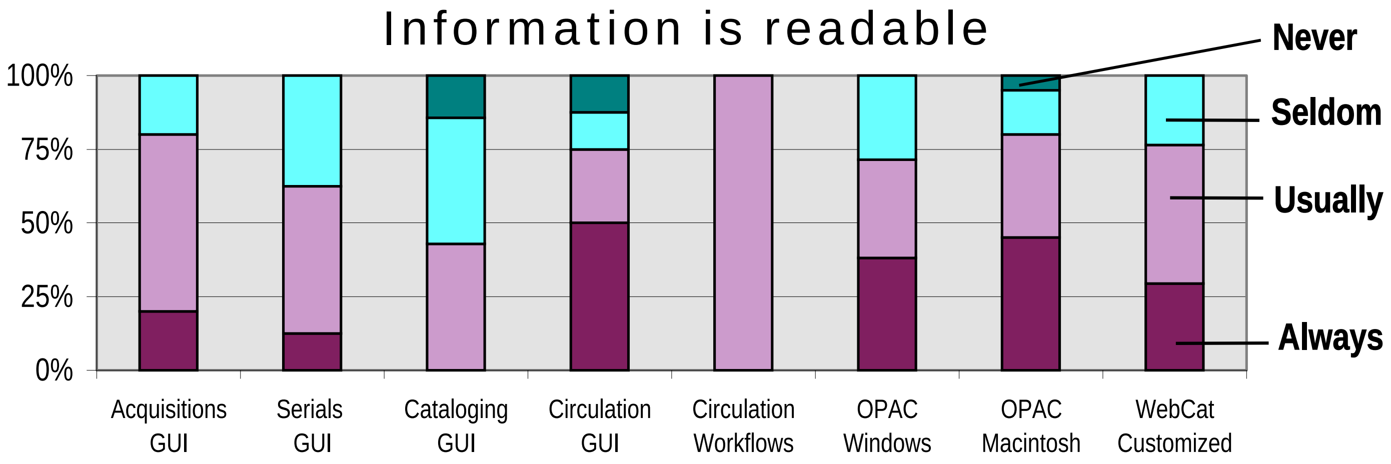


Visual Clarity

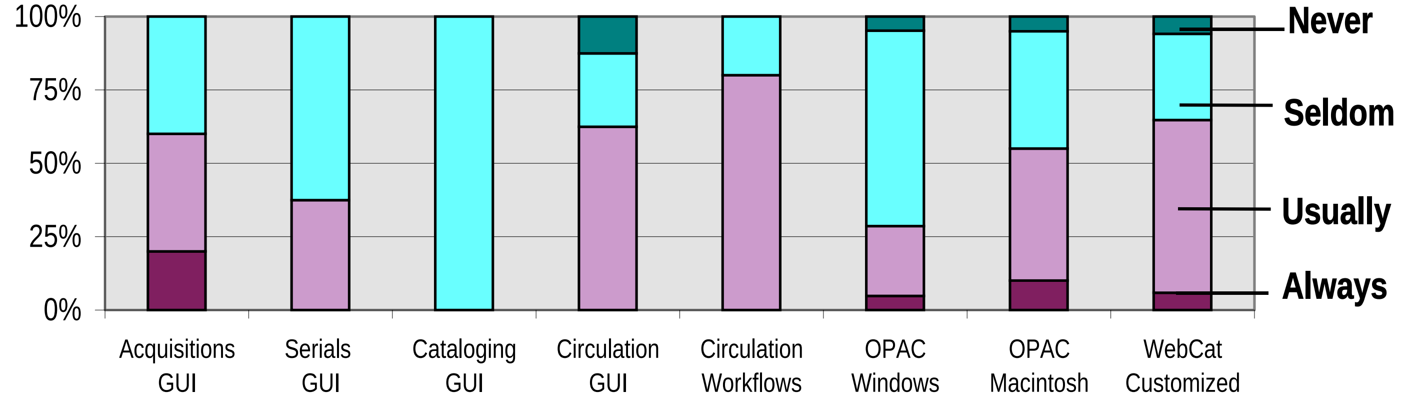



It is clear where to enter information

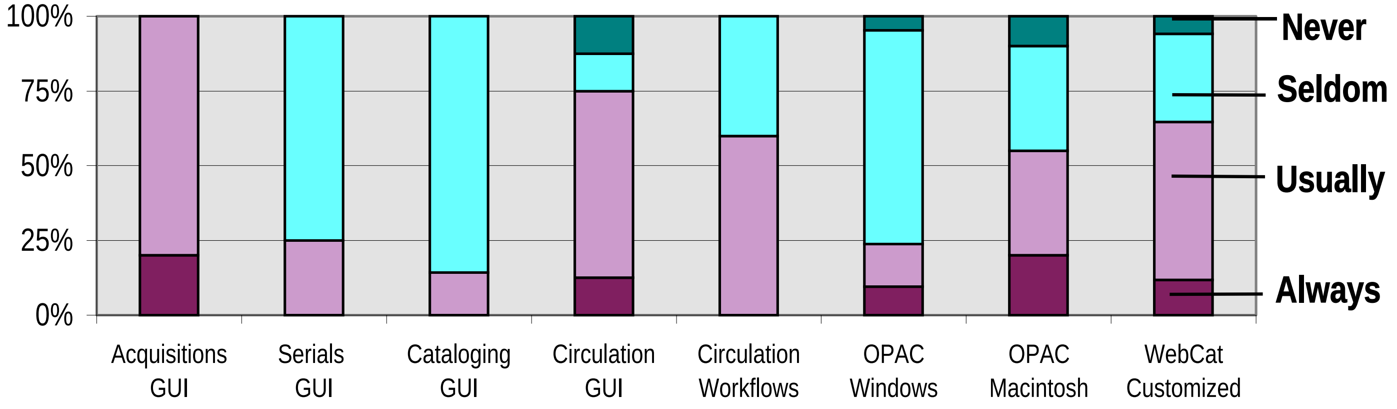

It is clear in what format to enter information


Information is readable

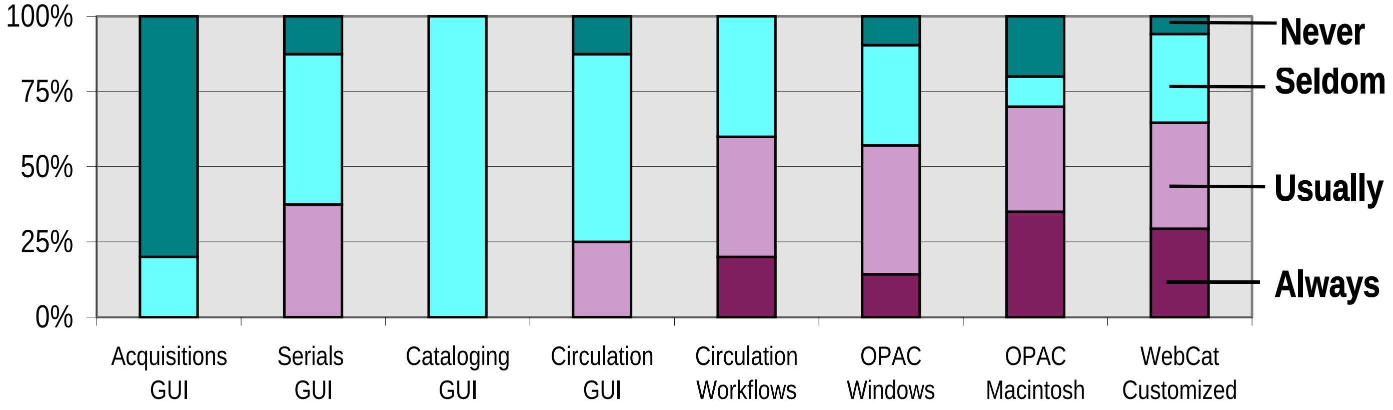
Information is visible



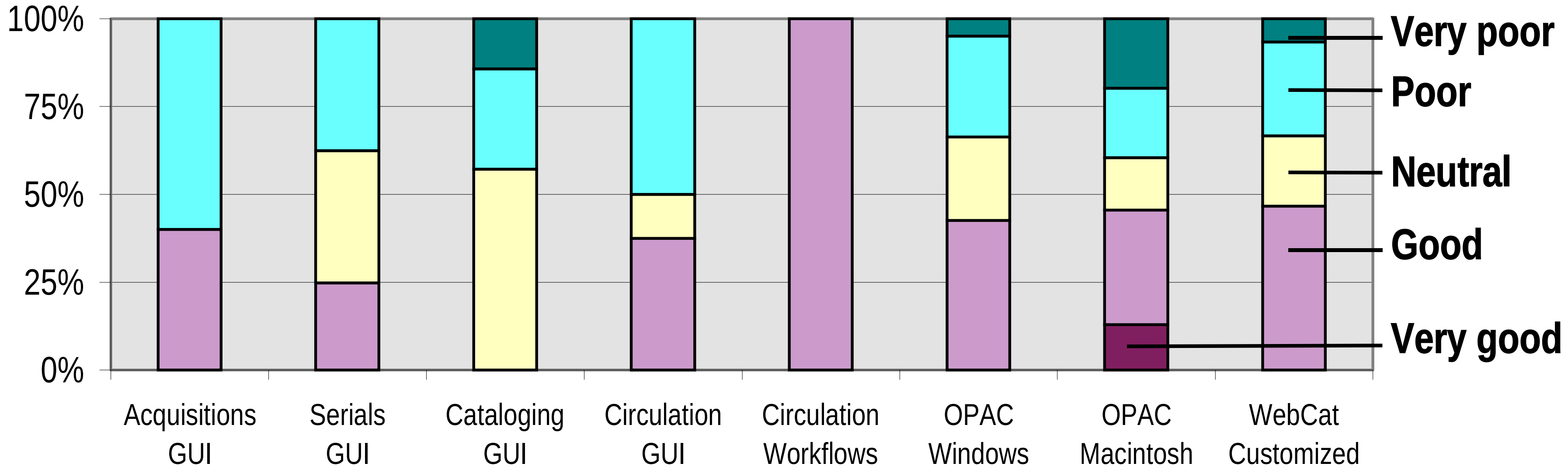
Information is presented in a logical sequence



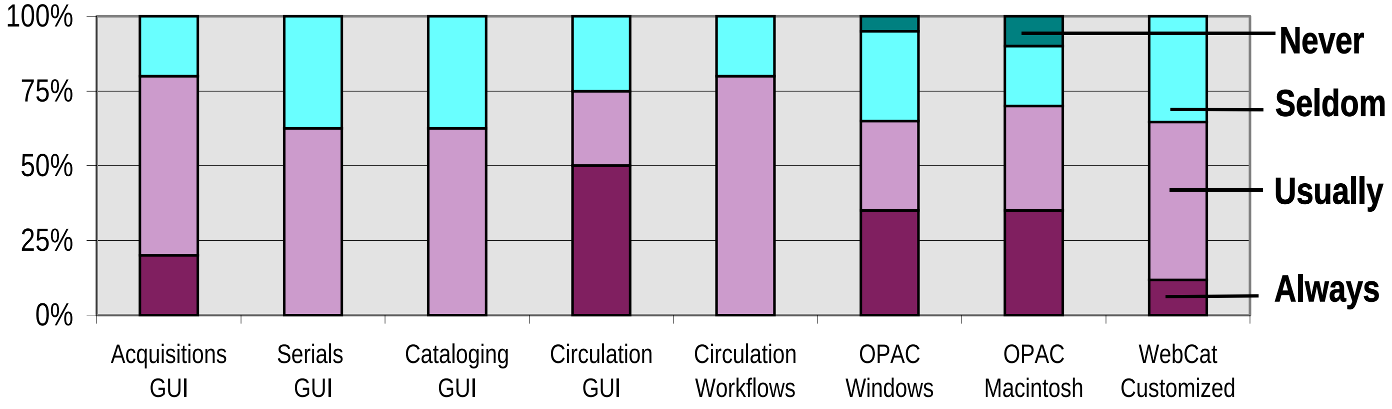
Screens are free of clutter



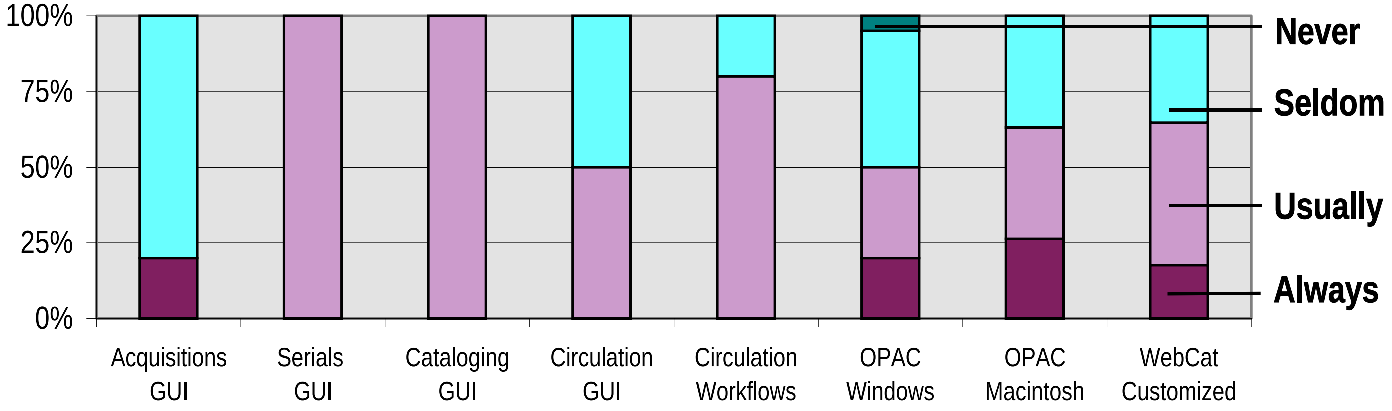
Feedback


100%
75%
50%
25%
0%
Acquisitions GUI
Serials GUI
Cataloging GUI
Circulation GUI
Circulation Workflows
OPAC Windows
OPAC Macintosh
WebCat Customized
Very poor
Poor
Neutral
Good
Very good

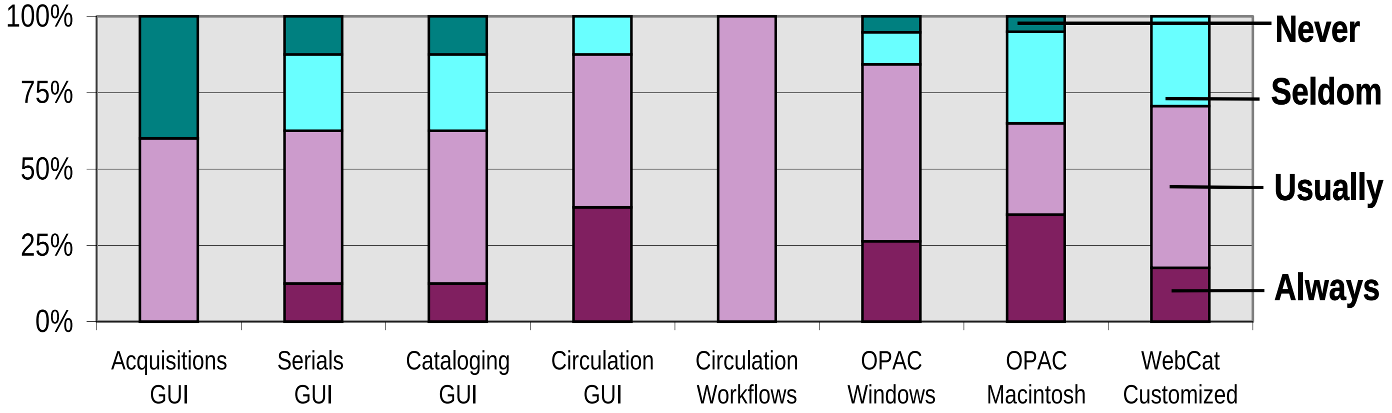
Responses are concise & not condescending



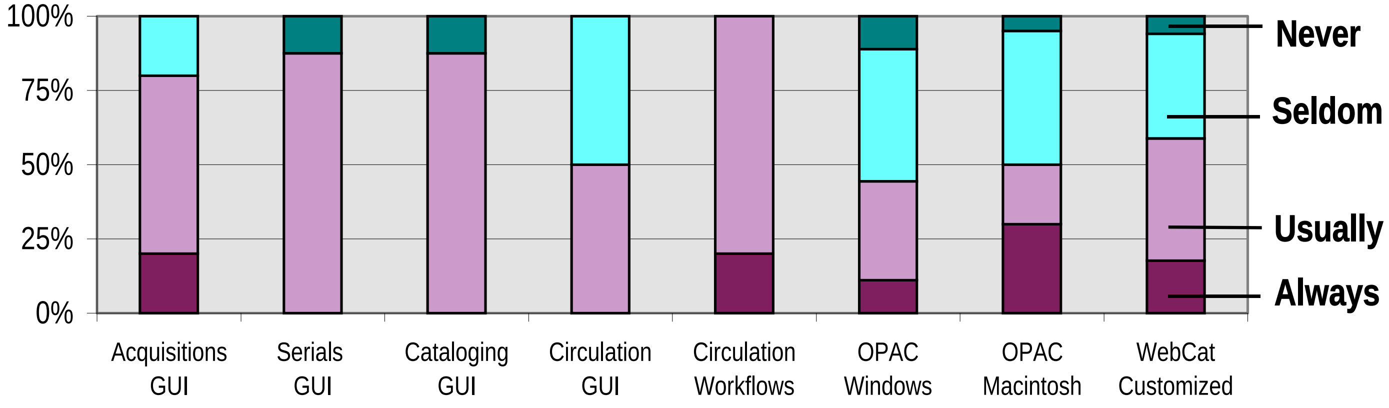
Responses are appropriate



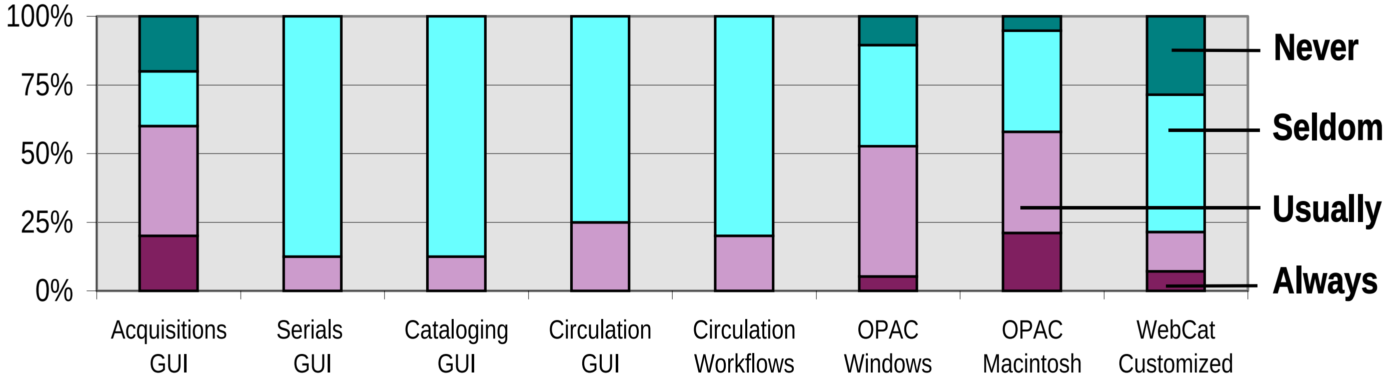
The system indicates when actions are completed



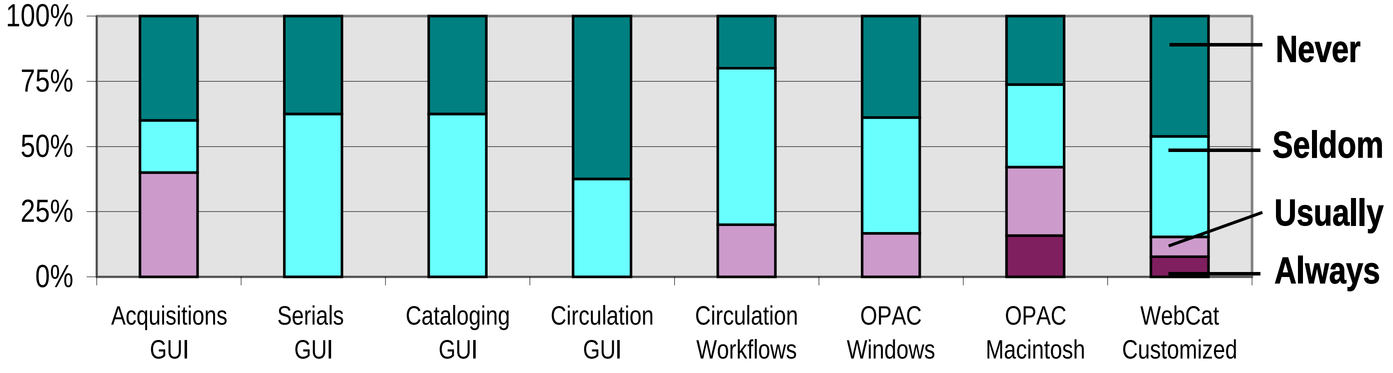
Responses are informative & accurate



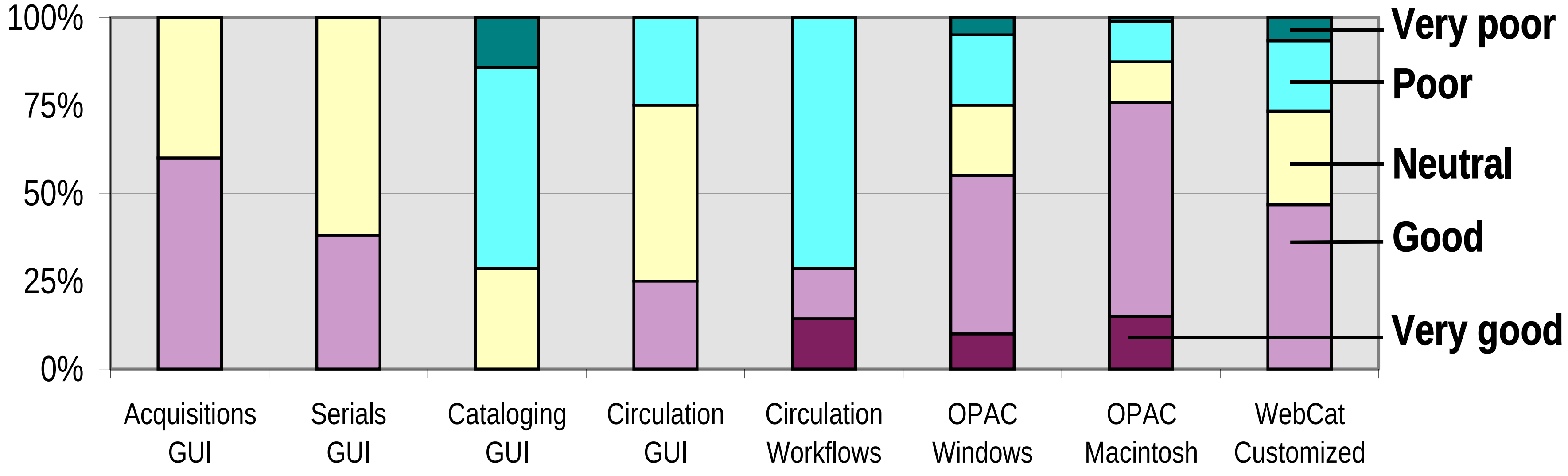
Messages explain what & where errors occurred

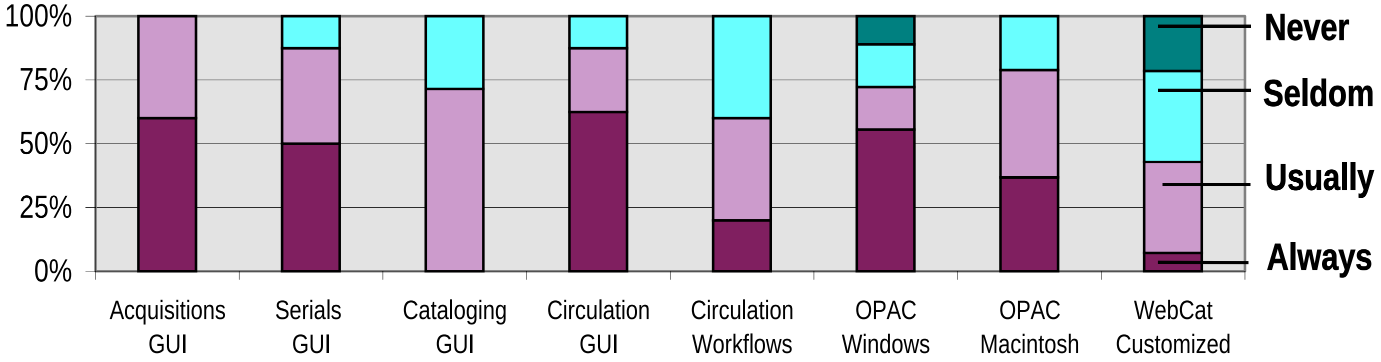


Messages explain how to correct errors

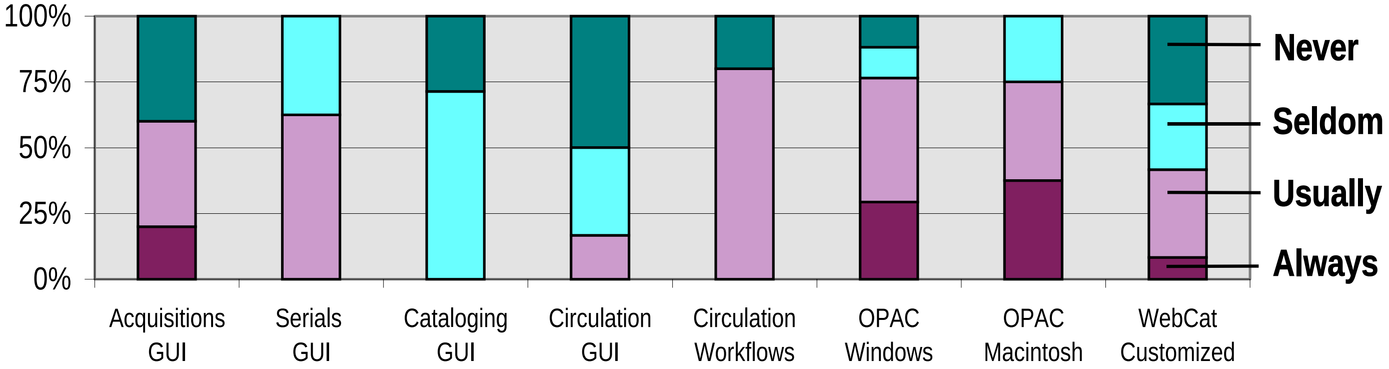


Error Handling

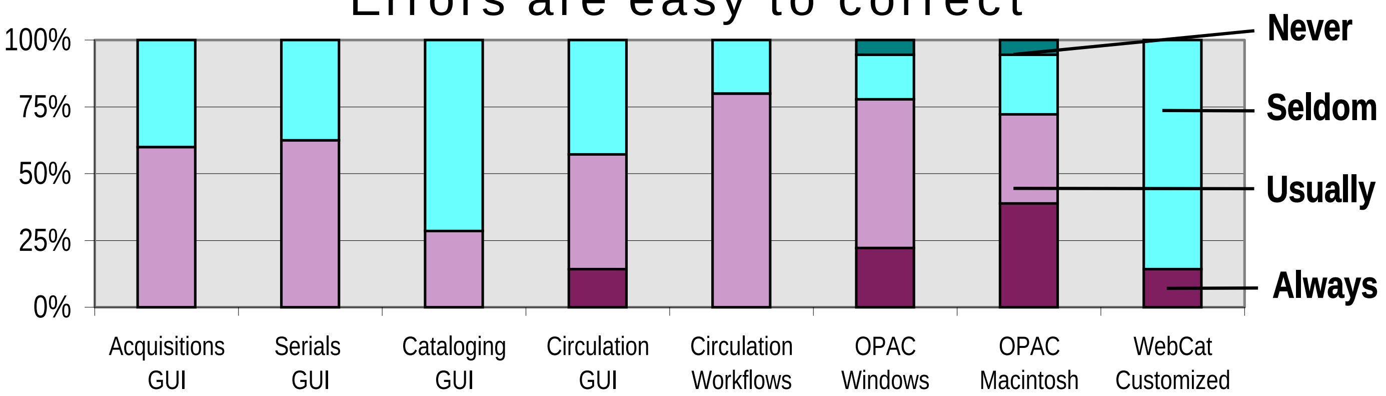




Error messages are clear & prompt

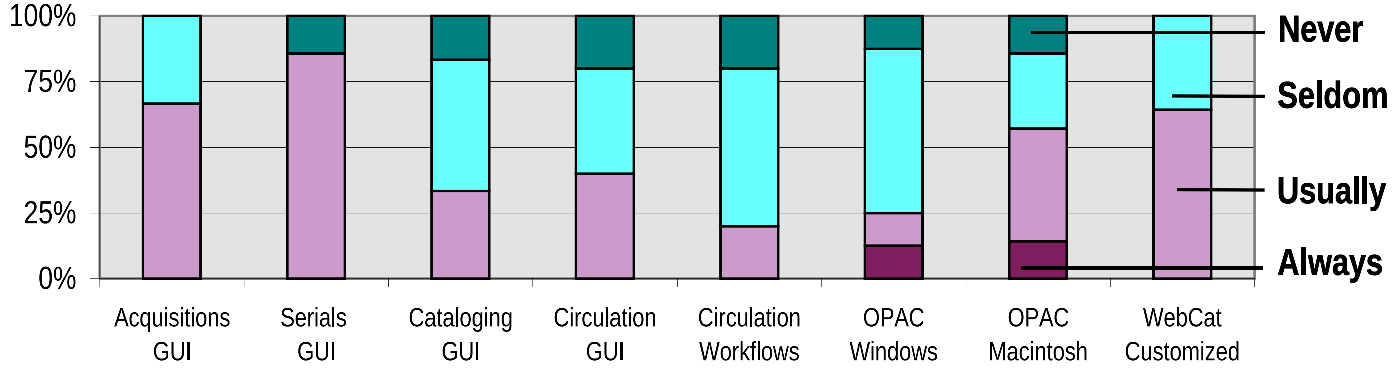


Errors can be reversed or canceled

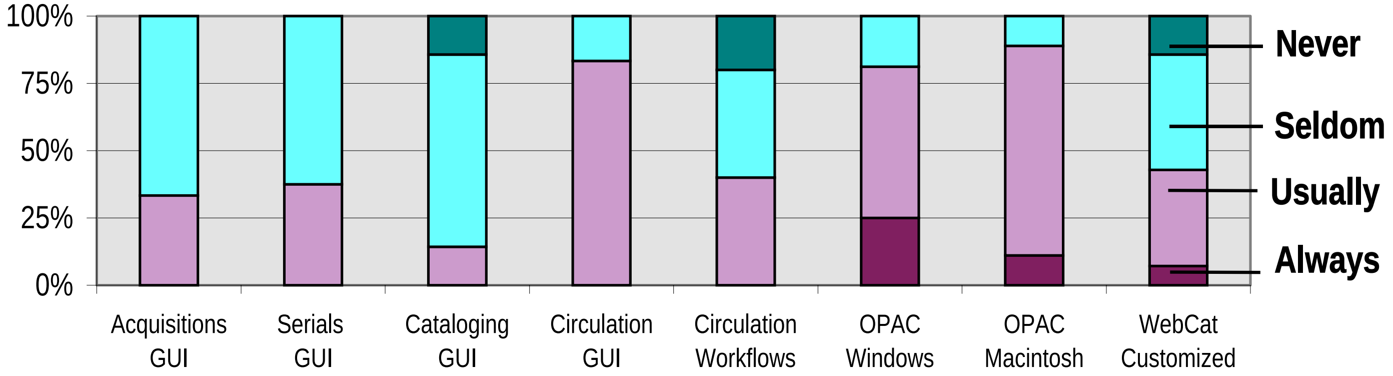


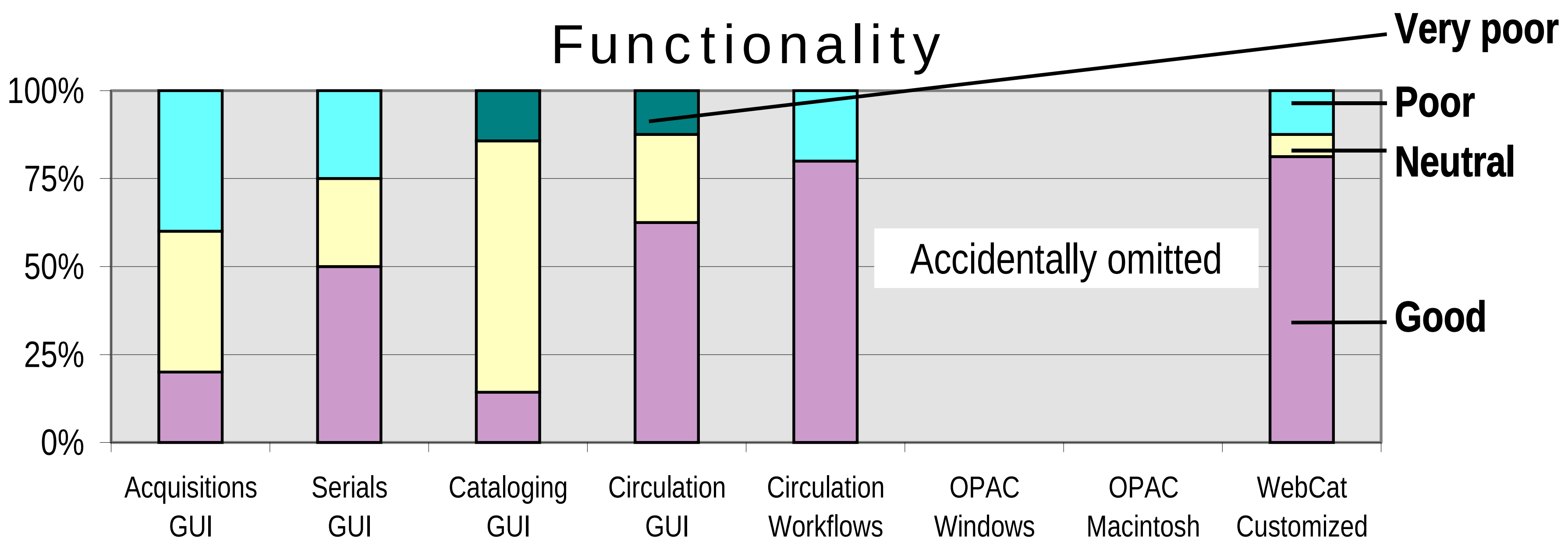
Errors are easy to correct

The system protects against trivial errors

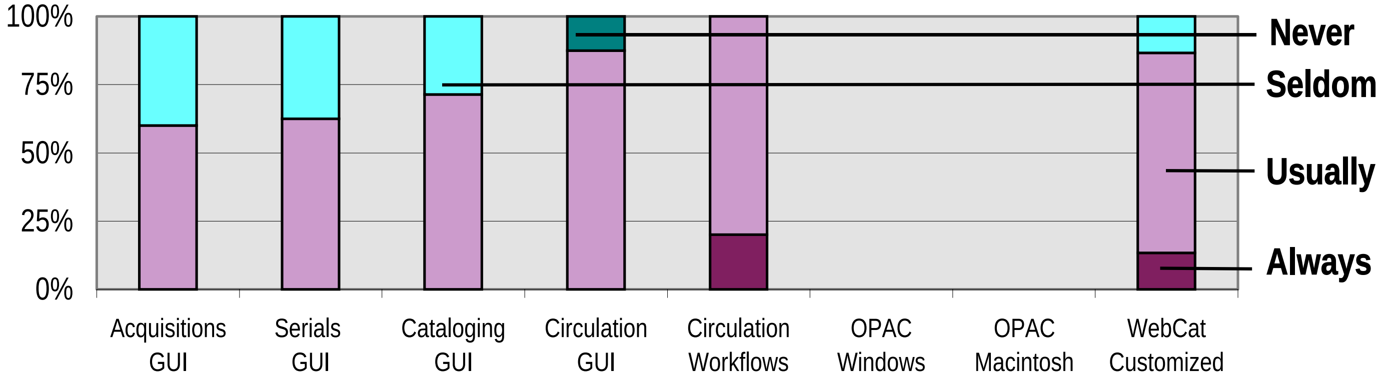


The system is free of errors & malfunctions

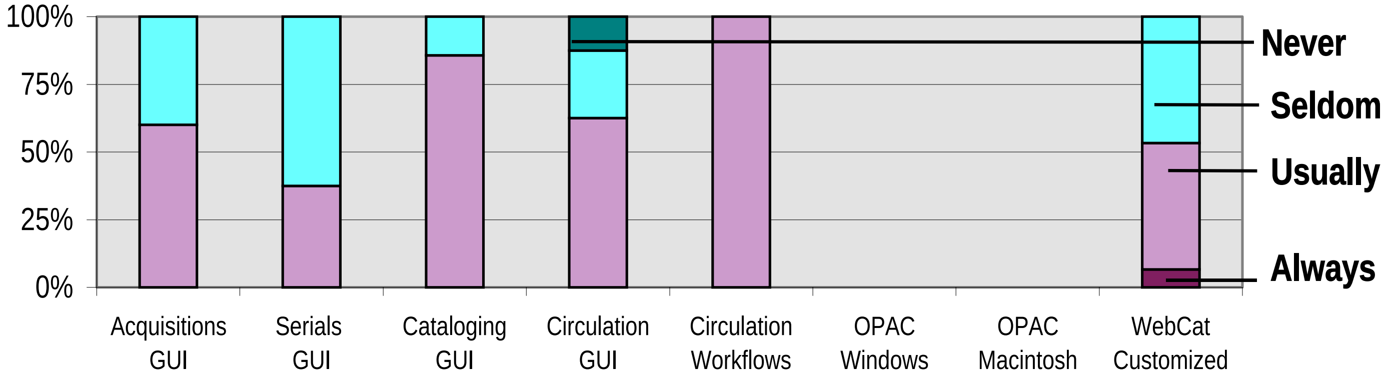



Functionality
Very poor
Poor
Neutral
Good
Accidentally omitted
100%
75%
50%
25%
0%
Acquisitions GUI
Serials GUI
Cataloging GUI
Circulation GUI
Circulation Workflows
OPAC Windows
OPAC Macintosh
WebCat Customized

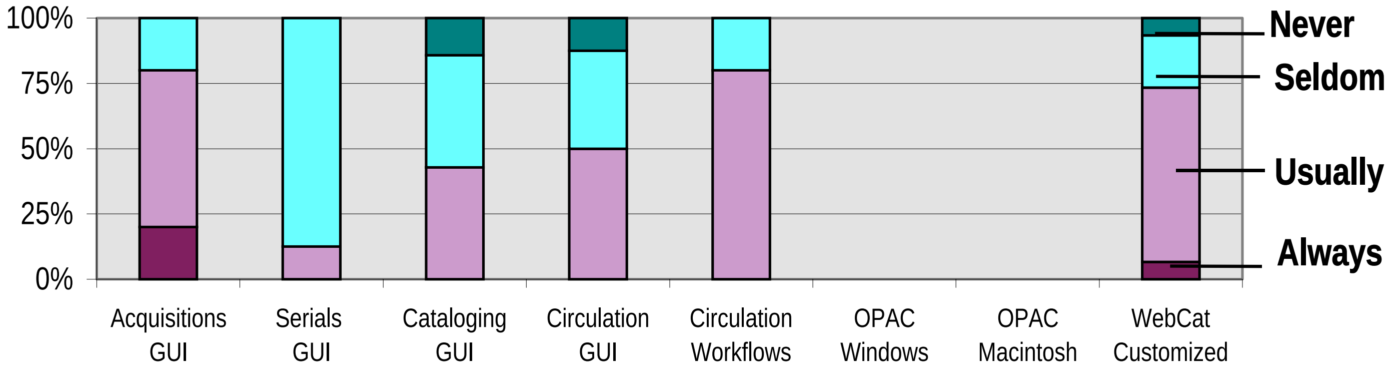
The presentation is appropriate for the tasks



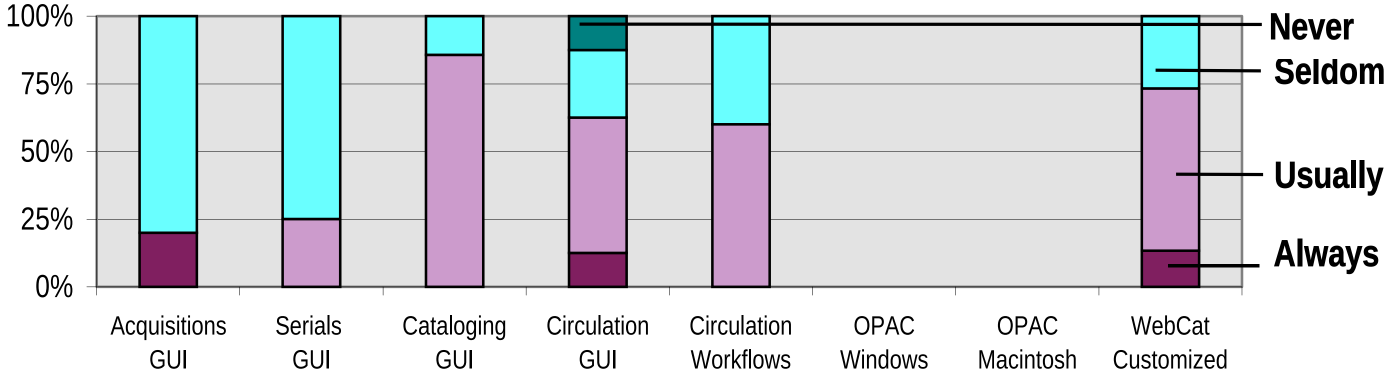
All relevant information is available for the tasks



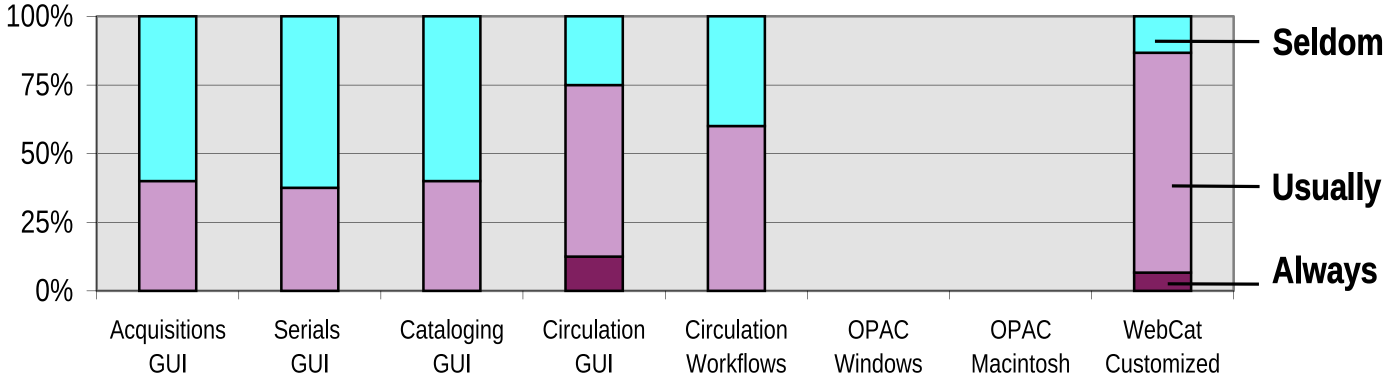
Screens provide all necessary options for the tasks



All necessary information is accessible for the tasks



System feedback is appropriate for the tasks


Acquisitions GUI
Serials GUI
Cataloging GUI
Circulation GUI
Circulation Workflows
OPAC Windows
OPAC Macintosh
WebCat Customized
Seldom
Usually
Always