

CAIRS USER GROUP CONFERENCE 1998

The Design of User Interfaces

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Outline of Session

1. Introduction
2. Definition of User Interfaces
3. Points to consider when designing a user interface
4. Tailoring CAIRS LMS/IMS User Interfaces to meet your needs
 - Windows
 - Retriever
 - GUI(Demonstration)

1. Introduction

Designing user interfaces has increasingly become a topic of interest as more and more users of computer software are no longer computer specialists. They could come from any background but what they all have in common is that they want to be able to use their system quickly, easily and with confidence to achieve the tasks they are required to do in their work.

2. Definition of Interfaces

An interface is the point of contact between 2 programs or pieces of equipment. What we are looking at today is user interfaces – that is the procedures and methods through which a user will operate their software program.

What we are striving to achieve is to create interfaces that are easy and pleasant to use. To be an effective tool the user must be able to interact with the interface without any frustration, boredom or confusion.

Over the last few years we at CAIRS have realised the interest in this aspect of the software systems and have been working towards improving our interfaces and giving the users more flexibility in being able to tailor their systems to their own needs. We recognise the fact that the way in which a system achieves its function is just as important to the user as what it achieves. Systems that are cumbersome to use will offer few benefits to the operator, since their whole attitude to the system will become negative.

The most popular interface today is the graphical user interface or GUI for short. Basically this is a windows format screen which may entail the use of pull down menus, toolbars, status bars, line or block cursors, scroll bars, buttons, dialogue boxes, check boxes and radio buttons, cut and paste facility and on-line help. Recently it has also become a lot more desirable to provide graphical symbols, icons and bitmap pictures. The 'point and click' method of using a mouse and clicking on icons is now universally accepted with the wide use of Windows 95, which is the most commonly used GUI.

The advantages of using graphical symbols are that:

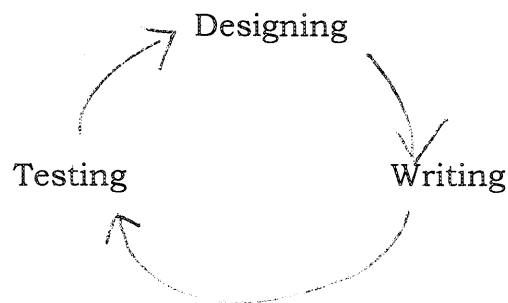
- they are visually more distinctive than a set of words
- they represent a lot of information in a small space
- they may be subjectively more desirable than text
- they are easy to use and eliminate the need to memorise commands
- less typing is required, the mouse is used instead
- it is easier for new or casual users to find their way around the system

However no matter how general or powerful a system is it will never satisfy all its potential users. This is because the interface has been designed for the majority of users of a certain type. However types of users and the tasks they wish to achieve change over time. The solution to this is to buy software that has adaptability and flexibility built into it.

In all our CAIRS systems we have provided the user with the ability to tailor or design user interfaces. Most commonly a default menu would be provided but 'hidden' behind this is a command driven interface which expert users may prefer to use if they feel they can work more efficiently this way.

3. Points to Consider When Designing a User Interface

The design process is an evolving cycle, preferably involving more than 1 person. You will never get it right first time, but the following points may help get you going in the right direction.



1. Design Stage

The very first things you should consider before designing your interface are:

- Who are the users?
- What tasks do they want to do?
- What is the best way to do them?

Who are the users?

In broad terms you can usually categorise the type of user of your system as follows

- Naïve – little or no knowledge of system e.g. public using an OPAC
- Experienced – they understand the principles of the tasks and systems but have no knowledge of this system e.g. new staff
- Expert – they are skilled in using the system and performing the tasks e.g. yourself

The design of the system will then be tailored to the predominate users. However in CAIRS you also have the option to design menus for each type of user if you wish.

What tasks do they want to do?

Once you know your target audience you will be able to make decisions about the functionality of the system. E.g. types of searching offered – simple, advanced. Do you want input and output data. The answers to these questions will give you a good idea about what the first menu interface content will be. Remember the tasks offered should be the ones they need. If there are lots prioritise them by frequency of task.

What is the best way to do the tasks?

Once the target audience and functionality has been decided you can then think about physical layout and appearance of the screen. Should you use graphical icons or would text boxes do?, in what order should the contents be?, can you fit it all onto 1 screen or would it be better on several?, which are the most important tasks?

Functions of the Screen

The screen has 3 functions:

- to display information
- to show system status (where you are in system)
- to show potential inputs (what info goes where and what you do next)

The design and layout of the screen will affect the ease and speed with which these functions are fulfilled. There are some pointers that should be followed.

Golden Rules of Screen Design

Consistency of information (headings should be uniform when moving between screens)
of layout (dialogue boxes, accept buttons, command boxes should always appear in same place on screen)

Relevancy Information appearing should be relevant to user

Simplicity Screen should be uncluttered and laid out in a logical order.

Clarity Screen should be visually pleasing, and layout balanced, easily read colours green and yellow the best, graphical images clearly understood.

2. and 3. Writing and Testing the System

Once you have the basics of your design you can begin to write the interface, building in the functions you need.

Following this the system needs to be tested for 2 things

Functionality – Does it do what you want it to? Are all the tasks you Need included.

Usability – Does it meet the needs of users?, How easy is it to learn?, how easy is it to use?, what is your overall attitude to it – look And feel, does it flow and fit together?

After gaining feedback and evaluating the system you are now in a position to implement your user interface.

TAILORING CAIRS LMS/IMS USER INTERFACES TO MEET YOUR NEEDS

There are 4 main areas of which the LMS/IMS interfaces can be changed

Appearance of the screen – Colour, backgrounds, fonts, size of screen.

Menus – Search and Task menus. Customising default menus, creating
Your own menus (Windows buttons and Pull down
menus)

Defaults – Changing System and Database defaults.

Outputs – Designing your own outputs

1. LMS/IMS WINDOWS

Firstly we will look at the standard Windows package. This was designed to improve the look and feel of the system. The functionality remains exactly the same as the DOS system.

This is the first menu page you see when you are logged on. As you can see all the standard Windows features are here – the toolbar, pull down menus, minimise and maximise buttons, and also cut and paste feature, dialogue boxes. However it looks rather boring and is not offering you a welcoming page, or telling you clearly where you are in the system. To rectify this we sent out some bitmap images that can be used as backgrounds.

The standard first page one is this, but you could add your own bitmap image for example your company logo to customise your system and make it immediately feel as if it is yours.

You also have the facility to change the font size and type, background colours, and size of the interface on your Windows desktop.

When you buy the system you are provided with some default menus. These can be edited or new ones created.

There are 2 types of menu – task menus and search menus.

Firstly we shall look at the search menus.

Here we have the standard DOS search menus for OPAC, SCAT, and BROW. Although they all function well they do not look particularly appealing. Selection is by means of a cursor bar or by typing in a number. The mouse is not used.

We decided to offer the remaining menu driven search package LOOK as a Windows menu. Notice how much better this looks even though the basic functions it is doing is the same. The main difference here is that the menu choices are click on mouse buttons and you again have the ability to put a bitmap image in the background. You are provided with blank buttons and help boxes and it is entirely up to you to put whatever information you think is suitable in the boxes.

The next development for us was therefore to provide you with the ability to create task button menus. These are some of the standard task button menus that we provide, and here is one that has been tailored. It is possible to automate the logon process and ensure that different people logging on at different levels see different menus. You could therefore design a top menu for each of your members of staff that would have on it the tasks they do most frequently. (Assuming they are logging on at different levels).

We then realised that people who were very happy using the Windows menu bar drop down menus may also want to operate CAIRS in this way. We have therefore made it possible for you to create custom commands. The advantage of these menus are that they take up minimal space, and are very easy to create.

One of the most flexible aspects of the Windows system is the options for outputs. Up to 240 different can be user defined, so you can design them exactly to meet your needs. Here are some sample outputs.

2. RETRIEVER

The next product we shall look at is Retriever. This has been around for quite a while now, because it was originally designed as a Windows Search Interface to act as a front end over a DOS LMS/IMS system. It also has the added advantage that customers are able to copy their data and a copy of Retriever onto a CD-ROM and then sell this to interested parties. (These people need no knowledge of how CAIRS works)

Whereas the Windows LMS has a lot of scope for customisation, the Retriever does not. However this is because we feel we have designed the interface quite well to meet the needs of our users. Retriever interface has the ~~added~~ Windows features of check boxes, radio buttons, use of hypertext and object linking. It also has a Search Tutorial and Help icon.

Because the scope of the interface is very specific in that its aim is only to search, there are fewer items that need to be altered. By using the Retriever as a front end the whole feel and look of the system is changed. It achieves its objective of making the system easy and comfortable to use, without users having to memorise task commands.

On Retriever these are the areas that can be tailored to meet your needs.

We are now looking at the system setup box

Appearance – colour, size, fonts

Which is the default database

What is its name?

Hiding unused databases

Restricting search type

Showing field headings or not

Outputting search results in what order?

Truncation, Boolean options

Highlighting of search terms

Restricting searching over accession number ranges

Although Retriever is an excellent search interface it does have limited ability to define outputs. You can only decide which fields to output not their layout on the screen, whereas in the windows interface we would have everything exactly as we wanted it. Also this is a separate product which must be bought as an extra – though it is well worth the money.

3. GUI

Our latest product is the GUI. This follows on from the Windows Interface and has been designed with casual users and new users in mind. The ability to still operate the system from task commands has been retained for our expert users. This is handy since on the same machine it is easy to flip from one interface to the other.

The main improvements are that the menus are now more colourful appealing and graphical, on-line help is available, it is no longer necessary to remember any task commands. New features include a bitmap image of the library floorplan and a help and news page on the search only interface.

Two interfaces are available – the search only and the read/write. There is a consistency between the two; for example the search screens are the same. As with the Windows interface the functionality of the system is similar with the exception of the search and circulation screens that have more flexibility.

This is the front screen for the search only GUI and this is the front screen for the read/write GUI.

As you can see they look very different from earlier interfaces.

In the search GUI this is the library bitmap floorplan which can be replaced with your own.

This is the library news and help pages that appear on the front page and can be edited as frequently as you want.

On both the search only GUI and Read/write we provide you with 9 different background images, these can be replaced with your own bitmaps or alternatively left blank. Here is a small selection.

On the top menu it is possible to remove some of the buttons for options you do not have if you wish. Like this. Alternatively if you leave them on you will get a message dialogue box which pops up telling you that module is unavailable.

Because the whole system is in effect offered to users on a plate we have given you the ability to password protect certain tasks such as updating and deleting libraries! This is so that beginners cannot accidentally click on powerful tasks and unwittingly do damage. Security levels and login on remain the same.

Originally the GUI was designed with the Book catalogue in mind, so the system defaults to searching the book catalogue and loaning from the book catalogue. However the defaults can be altered to suit your own database.

This is the novice search interface for a book catalogue

This is the experienced search interface

This is the expert search interface – similar to SINV command

As you can see it is an improvement on the Retriever

The outputs result of search screen is also a lot more user friendly, allowing expansion or shrinking of display and mouse selection of items.

The book cat has 4 default outputs brief, medium, full and zoom. Other databases can have outputs user defined.

The area that has been most radically changed is the Circulation function, or the Loans desk as we call it.

Compare the LIRN interface with the Loans Desk.

The desk remains looking the same for the functions returns, issue, renew, and reservation tasks, thus maintaining consistency.

You have the option to use the pull down menu bar or click on the icons.

The on-line help is very good.

As you can see a lot of thought has been put into designing this interface. We are striving to provide an easy and comfortable interface for our users while at the same time offering users the flexibility to alter screens to suit their requirements.

SUMMARY

As you have seen the user interfaces on our LMS/IMS systems are constantly evolving to meet the needs of our users. We are constantly striving to improve the usability and overall impact of our systems. We hope that by giving you the customers some flexibility in the creation of the interfaces our systems will be used to their full ability.

Thank you very much. I will now pass you over to Graham Cline.

RJLH 29.10.98cugconf