Guidelines for developing interactive learning designs with *Investigate eShell*[1]

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Using "Investigate eShell" as an instructor

Purpose of these guidelines

The purpose of these guidelines is to enable you to create a learning environment and learning activities to support your students in decision-making, problem solving and case-based reasoning. "Investigate e-Shell" is designed to support the exploration of your students in one of two major learning environments. Investigate E-Shell is a tool created in DreamWeaver with video illustrations and can be viewed with your normal browser.

How the guidelines should be used

The guidelines should be used when you have decided on the learning outcomes that you want students to develop and when you need to decide on how to create appropriate tasks and learning activities to support learning. Prior to using the guidelines, you should ensure that you follow the **readiness checklist** below. You also need to look carefully at the two examples that have been built into the tool.

Assumptions or limitations of the content

The content in each of the illustrations is used to provide examples of a Web–Based simulation environment. The example "Assessment in Mathematics" is a resource-based scenario that has access to several forms of information which the student must collate in response to a scenario task, while "Virtual Office" is a case or challenge presented as a series of episodes with access to varying resources as appropriate.

Target Audience

If you are teaching in higher education, in an academic or vocational area, you will find this tool useful, as it can be adapted for use in a variety of disciplinary areas. The planned learning outcomes of this learning design are best practiced within a realistic work environment.

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[1] **Please cite as:** <Hedberg, J., &McLoughlin, C., (2002). Guideline for the design and implementation of: <Scenarios, decision challenges and cases>. Retrieved <November 28th, 2002>, from <NameOfWebSite: URL>.

Readiness Checklist and Advice: For designers of scenarios, decision challenges and cases

For designers and teachers, the following questions need to be addressed if you wish to use the structure and/or create a simulation. They contain hyperlinks to relevant aspects in the two examples which have been built in the tool.

Checklist 1: For teachers seeking to use cases and scenarios in teaching

1. Is your teaching topic suitable for a case study?

2. What do you want the student to achieve as learning outcomes from their case or simulation?

3. How can you to prepare your students? What can be done online and what needs to be done face-to-face if anything? (In the examples, the tasks are set-up within the website).

4. How should you create e-tivities (learning activities) for scenarios, decision-making and cases?

5. What forms of support are your learners going to need?

6. What would be a useful length of time on each e-tivity?

7. What assessment options are possible?

Checklist 2: For designers of cases

1. *Collect resources*: Ensure that you have collected the range of resources necessary to show the range of issues to the students. Examine the *Assessment Strategies in Mathematics* example to review the descriptions, samples, novice and expert views about the strategy and finally the video illustrations. From these pieces of evidence, the student can construct a view of each strategy.

2. *Create a number of cases*: Make sure that you show the variation from simple to complex and match them with learning outcomes.

3. *Support students:* Give them frameworks for analysis. Often students do not have the skills to identify the key attributes or strategies to solve the problems set. Suggesting a framework can save time and enable them to take their first steps with more certainty. In the examples, the questions and investigations will drive the students actions and provide a supports for learning.

Getting Started

To use the **Investigate e-Shell** tool there are a number of decisions that need to be made about the structure of materials and then resources need to be collected to fit within the Dreamweaver templates provided in the download site.

Decisions to begin the process:

1) What is the basic structure of the information, which is being used by the students to complete their task?

In the two examples attached to this guideline, one is organised by task and concept and the other is organised by chronology and space. In the learning design *Assessment Strategies in Mathematics* (LD2), the presentation of information is organised by the type of problem (either Problem or Investigation) and the strategy

which is being used. Thus, the left hand menu offers Problems, Investigations and Strategies.

So if you are interested in designing a scenario or decision challenge using **Investigate e-Shell,** you need to identify how you are asking students to review information which could be located either spatially or temporally or conceptually. In Virtual Records, the structure of the simulation is based on a series of daily experiences, which must be engaged with and completed before moving into the next days activities. Over the period of the two weeks the students complete several writing tasks which build to a final assignment.

In other learning designs, the instructor might deem it more important to organise the resources by spatial position or task. For instance if you were asking students to solve a problem based on data collected from different part of a environmental site then the data can be embedded in a numbers of different physical locations across the site. The student would then collect, question and hypothesise about the phenomena to arrive at an explanation.

2) How should my materials be placed into the structure?

In the following figure, the basic file structure is presented. The structure is a simple hierarchy with the index file being the starting point. The top simulation window is the file "top.html" which has two parts (top_menu.html which is the left hand frame and top_main.html which is the right hand frame). The next level down are the areas, and within each area are activities. All graphics are placed in the images folder and the media folder contains the movies.

The following file structure is the file structure for the Assessment website. (The Virtual Records website is similarly constructed except as the links are between areas which have pass codes they are called area1, area2 etc)
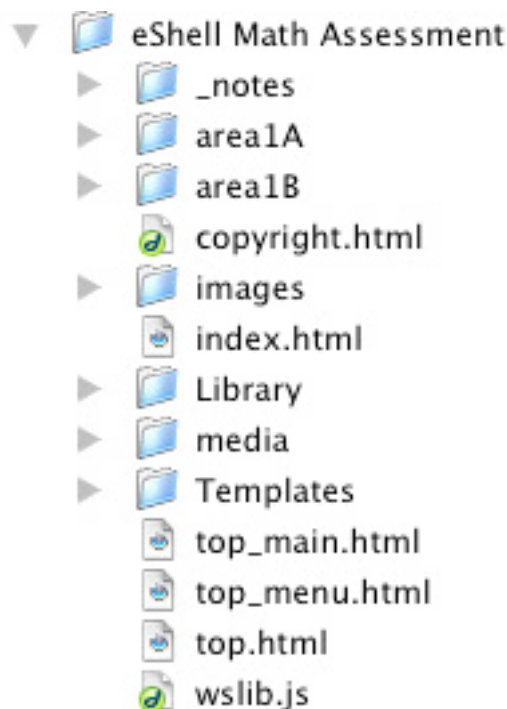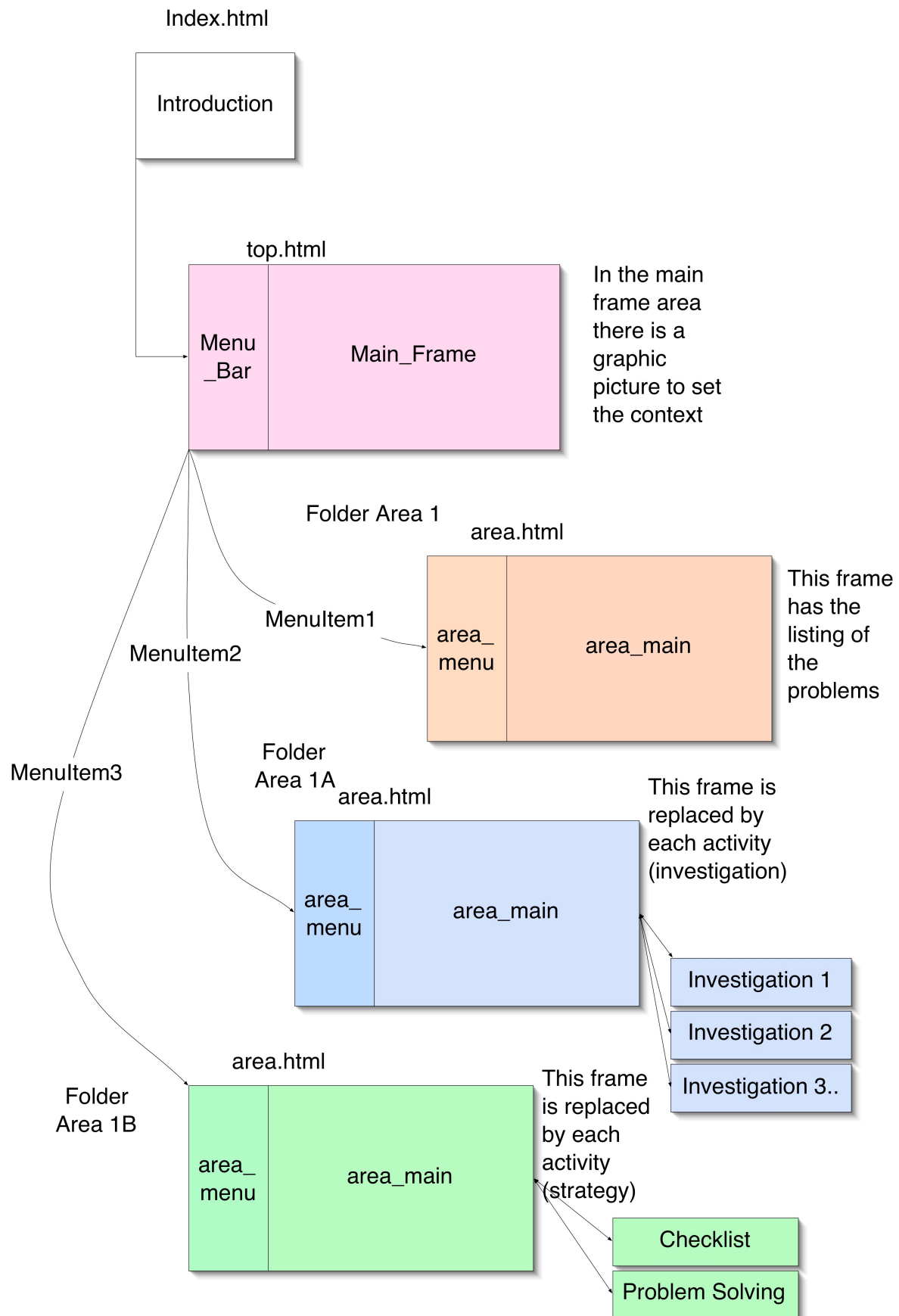

The structure within each area is shown in the next figure. Area 1B is the strategies section when entering the section the starting file is area.html and this is composed of two other files which fill the two frames (area_menu.html for the left hand frame and area_main.html for the right hand frame). In the Assessment

example, two of the components from the original source are provided to these illustrate the use of the structure. Activity 1 (Problem Solving) and Activity 2 (Reflective Prompts) are the two examples. These files replace the contents of the area_main.html by their own pages.
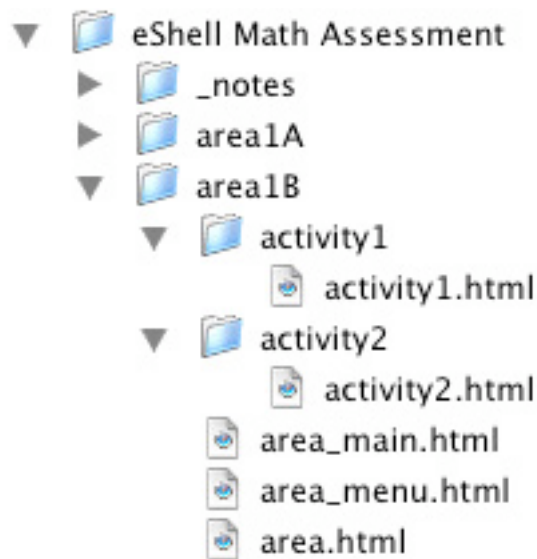
Each of the activity files has the same structure and it contains the four elements found in the filing cabinet of the original design. In addition, the video Illustrations are included at the end of the file. Note that they are presented using the QuickTime capability of the browser and do not require any special windows. However, they are not placed in the activity file directly as they would take too much time to load. A key frame has been copied from the movie and used as a placeholder and button.

The file and hierarchy structure is shown in the next figure which represents the way the information is presented to the user.

Index.html

Introduction

top.html

Menu_Bar	Main_Frame

In the main frame area there is a graphic picture to set the context

MenuItem1

MenuItem2

MenuItem3

Folder Area 1

area.html

area_menu	area_main

This frame has the listing of the problems

Folder Area 1A

area.html

area_menu	area_main

This frame is replaced by each activity (investigation)

Investigation 1

Investigation 2

Investigation 3..

Folder Area 1B

area.html

area_menu	area_main

This frame is replaced by each activity (strategy)

Checklist

Problem Solving

Credits

Software tool and guidelines for use were derived from LD2 and LD15: Web-based simulation environment. It was envisaged to have two forms: one a resource based scenario which has access to several different forms of information with which the student must collate a response to the scenario task; and a second version where the case or challenge is presented as a series of episodes with access to varying resources as appropriate.

Virtual Records example

The design is characterised:

    (a) by its **tasks**, which essentially consists of structured pieces of writing

    (b) by its **context,** which is a scenario that incorporates a technology-based simulation of a workplace placement. The resources that characterise the learning design are

        a.   the simulated work environment

        b.   the scenario

        c.   the assessment tasks

        d.   the use of mentors.

    (c) by the **support mechanisms** that characterise the learning design

        a.   chronological task design

        b.   the simulation/scenario

        c.   mentors

After reading the introduction file index.html the main simulation will have a starting screen with an introduction.

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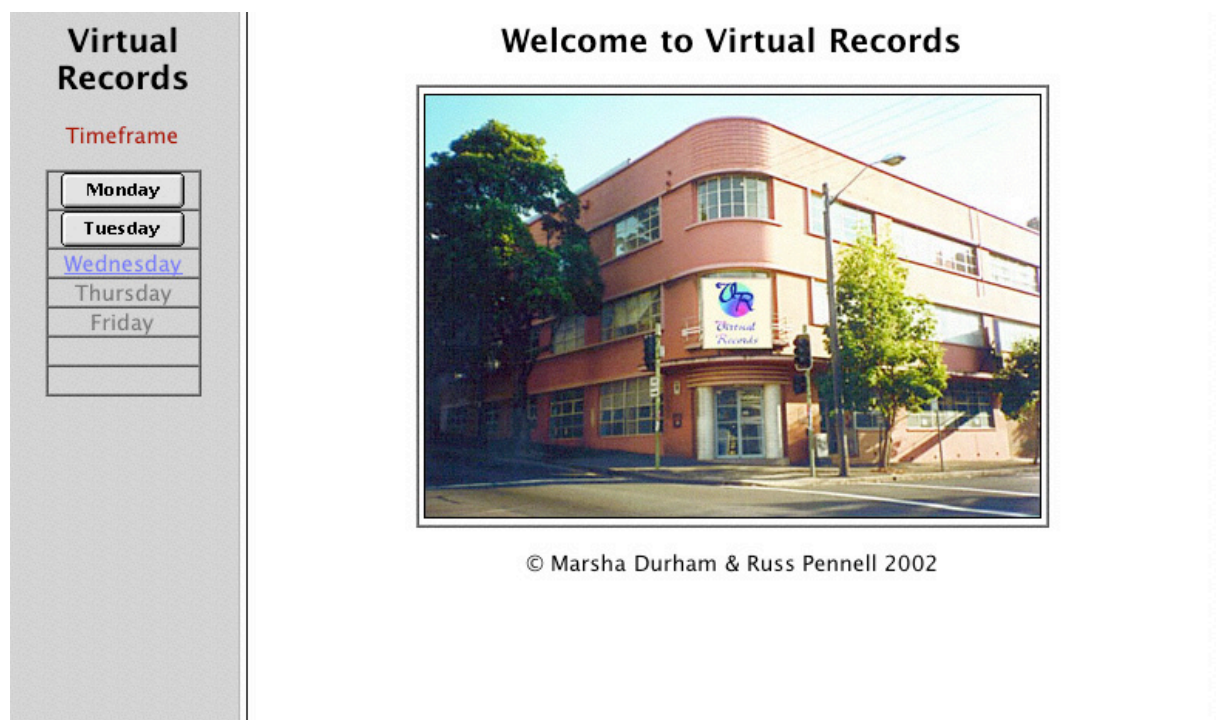
Starting on the first Monday, the student collects information about their learning task and proceeds to work through the materials.
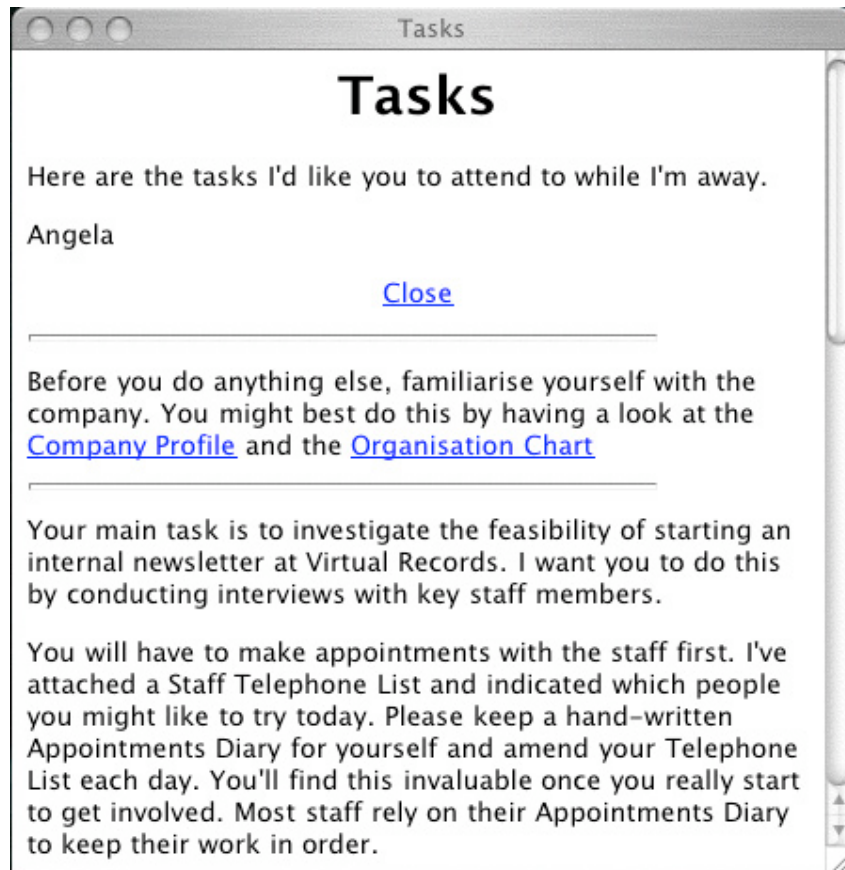
Then the resources can be accessed using a simple metaphor such as the office desk.
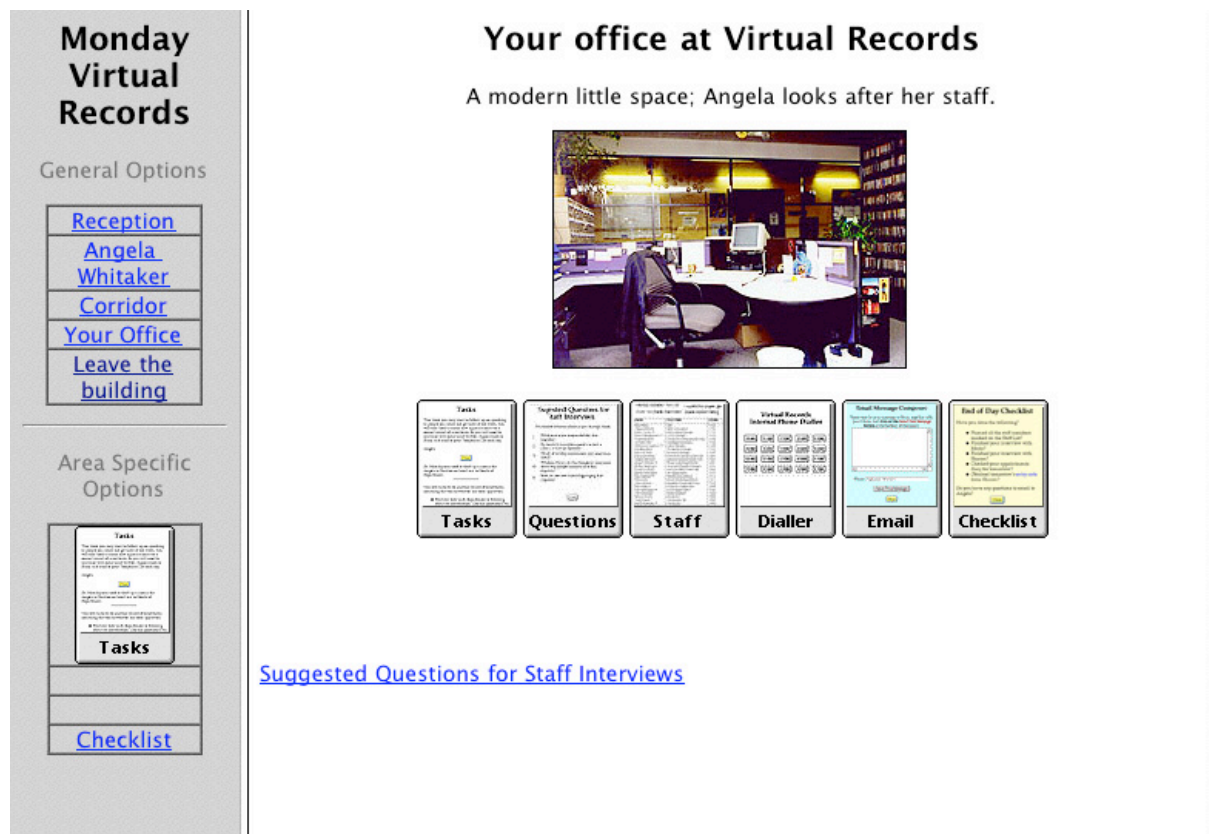
Clicking on each of the resources will produce it in a window that floats over the basic window. Each would pop up a new window viz:

Suggested Questions for Staff Interviews

You may think of some others as you go through these.

1. What are your main responsibilities in this organisation?
2. Do you think it would be a good idea to start a newsletter at Virtual Records?
3. What sort of written information do you receive and distribute?
4. What do you think are the strengths and weaknesses about the way people communicate in this organisation?
5. How do you see new technology changing this organisation?

Close

Phone List

VIRTUAL RECORDS PTY LTD *marks the people
STAFF TELEPHONE DIRECTORY to contact today

NAME	POSITION	PHONE
Bob Fulton	CEO	1100
Janine O'Reilly	CEO's Secretary	1101
Steve Tyson * *	Advertising Manager	1110
Chris Papadopoulos	A & R Manager	1120
Frank Edwards	Corporate Comm. Mgr	1130
Justine Chin * *	Company Secretary	1109
Vanessa Lovegrove	Sales Manager	1140
Lee Bing Huat *	Production Manager	1150
Merwan Irani *	Accounts Manager	1160
Mario de Palma*	External Comm. Mgr	1231
Angela Whitaker	Internal Comm. Mgr	1232
Louise Fletcher *	Phone Sales Department	1241
Betty MacIntyre	Accounts Payable Mgr	1261
Francis Lehman	Accounts Receivable Mgr	1262
Bernie O'Donahue	Art Department	1215
Ray Manning *	Printing Department	1212
Milo Koch	Advertising Department	1217
John Knutsen	Royalties/Copyright Dept	1205
Ron Selby *	Computer Department	1208
Carl Rodrigues*	A & R Department	1220
Jim McDonald *	Studio Engineer	1225
Sharon Young	Reception	1000
Tony Penna	Warehouse Mgr	1900
Maria Gonzalez *	Warehouse Leading Hand	1900

Close

A structured guide that helps in information collection or a listing of the staff.

If the appropriate button in the left hand frame is chosen then a new place is available from which additional resources can be collected. For example in keeping with the office metaphor, the logical link would be a corridor with access to other staff offices.
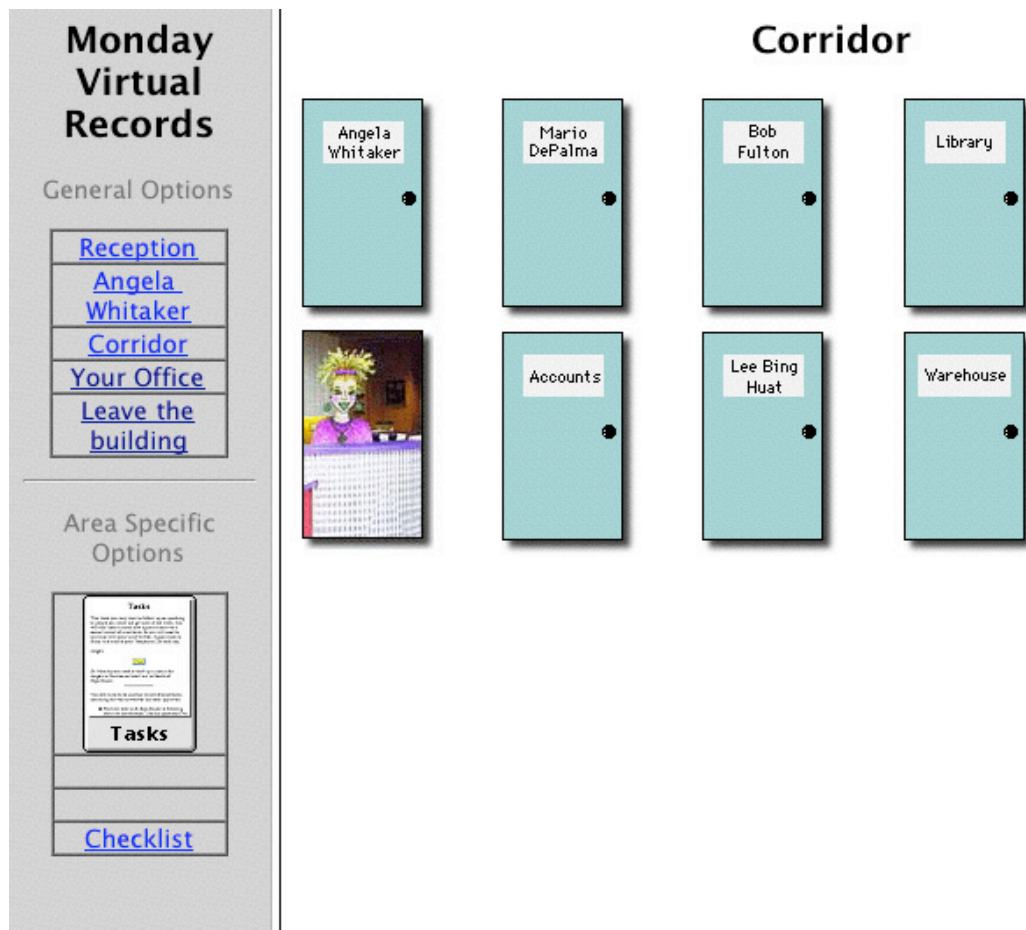
Such a corridor metaphor can lead into many other spaces, to offices such as Mario's where additional information is obtained.