

Appendix F Example Think-Aloud - User A

User A attempted to login using a user name and password that was used by applications on their own computer. An error message was returned, so User A then re-read the login screen, selected the hypertext link to the registration screen, and registered as a new user. When the case selection screen was reached, User A did not initially see the professional background drop down selection list, and suggested that this should be placed on a separate page or be part of the login screen.

When the main case screen was displayed, User A read each of the navigation links and selected “help”, which displayed a page indicating that no help was available at the current time. The user then clicked on the “history” link and was presented the screen for history taking. Questions were initially asked using free text but after the first four questions, the remaining 35 questions were asked by looking up the questions by category. User A suggested that when a question was asked from a particular category, those questions within that category should remain visible, so that questions within the same category can be asked more easily. User A did not state why he changed from free form questions to using the categorized lists.

On selecting the examination link the hypothesis entry screen was displayed, and User A hypothesized, verbally, that this was a recessive disorder based on the childhood presentation, and absence of disease in the patient’s parents. The hypothesis, probability and reason were entered and User A then clicked the “Add” button to add the hypothesis. It was not immediately obvious to User A, that he had to click the “Examination” link again to see the examination screen. He indicated that he would prefer a “Save” or “Submit” button to be present, which when clicked, would save any

new hypotheses and redirect the user to the screen that had been selected before being redirected to the hypothesis screen.

During the physical examination process, User A was able to select tools and regions for examination without difficulty, although some combinations of tools and region did not produce an appropriate response, reflecting the incomplete nature of the case database. Examples included speculum examination of the genital region, and stethoscope examination of the abdomen for bowel sounds and bruit. User A also indicated that he would like the sound applet modified so that clicking the play button would loop the sound file until the stop button was clicked. In contrast to the current functionality where clicking “Play” will play the sound file once, and clicking, “Loop” loops the sound file until “Stop” is pressed. He also suggested that a text interpretation should only be available if the user has submitted (and logged) their own interpretation.

The “Investigations” link was then clicked and the hypothesis screen displayed. No changes were made and User A clicked “Investigations” again to be displayed the investigations screen. The blood category was selected, and the list of blood tests displayed. User A had some difficulty finding the tests he was after due to the length of the list. On finding the tests, User A asked if it was possible to select more than one. The instructions on how to select more than one test, located next to the list box, were pointed out to him. The reason these instructions had not been read was not alluded to. A series of fatty acid requests were made, including; free fatty acids, total fatty acids, long chain fatty acids and very long chain fatty acids. User A expressed the desire to request a plasma glucose but difficulty was experienced in finding the test, as a result of the length of the test list. At this point, the observer pointed out that it was possible to

search for a test using the search field on the right of the screen. The remaining four tests were found this way. User A also took time to explore the other test categories. Unfortunately, not all categories had tests available, again reflecting the incomplete nature of the case database.

User A selected the “Management” link. Again, on being displayed the hypothesis screen, he did not make any updates and immediately re-clicked the management link to be shown the management screen. A decision was made to use regular cornstarch as the initial treatment modality, and the keyword cornstarch was entered in the management search field. User A was then unsure of how to proceed, and indicated he would like more on-screen instruction on how to use the various functions. User A was advised that the list of check box items were those items that matched his free text search and that he should tick those items he wanted selected, and then click over the “Select” button to add these to his management list. This was done, and User A clicked “Save”, but was surprised when the “End of case” screen was displayed. The observer indicated that this was an error, and that this should have read “End of consultation”. Furthermore, the link to the next consultation should have been active.

The “Review” link on the end of consultation screen was clicked. This then displayed the review applet screen. The user indicated that a second click to open the Applet frame should not be required, and that this should open automatically. On opening the review window, the user asked if the personal details on the main screen could be changed because the screen states, “Please check details are correct”, implying that they can be changed. A line-chart was selected followed by a pie-chart. The user indicated that he liked the tabs for each of the chart, but the observer noted that he never deleted

any of the tabs. A design flaw was noted in that, if a particular stage - chart pair was selected, a new chart was always created, irrespective of whether it was already available on a separate tab. User A also suggested, that if a chart was being displayed (e.g. a bar graph), and a new diagnostic or management stage was selected, then the chart should update to display the appropriate data. For example, when changing from history to examination, a graph of this type (bar graph) should be displayed for the selected stage. It was noted that the major omission was, that it was not possible to know which critical or relevant question, examinations, investigations or management options had not been selected. User A described this as the major failing, as he considered this was essential information.

As a result of the problem with the end of consultation screen, the user had to logout and log back in to move to the second consultation. One question was asked by free text. The other three questions were asked by using the question categories. User A noted that there had been no significant change to the patient, and that there was no need to undertake a physical examination. He indicated that he wanted to view the results of the previously ordered investigations but were not sure where these could be found. The observer explained that the medical notes could be found under the "Notes" link. User A was then able to find the information he were after but suggested that a more descriptive label than "Notes" should be used. User A was disappointed that all the pathology results were normal. As the user had no previous experience with the management of hyperlipidaemia and Glycogen Storage Disease s, the observer and case author provided suggestions on what were appropriate investigations. These were then requested and the results viewed. The user then moved to patient management, and again made no changes to the hypotheses when prompted for an update. User A decided

to use a statin, selected the option by checking the appropriate checkbox, and then saved his management options.

On moving to the third consultation, the user asked a single question that indicated there had been no problems since the last visit. Four investigations were requested after some prompting by the evaluator. The results of these investigations indicated that there had been an improvement, and there were no significant side effects from the medication. At this point the evaluation was ceased.