Interaction and Usability (MOD002591)

FUND My Studies

Due Date: Turnitin, 2pm, Friday 06 May, 2016

Module Code: MOD002591

Academic Year: 2015/2016
Semester: 2

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Content

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2. Critical Exploration – Interaction, Information and Navigation

Finding information can be one of the major user goals for using a website. Building an effective navigation structure helps users to achieve their goals for using the website, and thus makes for better usability. There are several theories on how people find information, two of which are discussed below. Discussed is also the human cognitive load, and how to design so as not to overload it.

Elaine Toms in Information Interaction- Providing a Framework for Information Architecture also proposes a model for browsing, which models how people retrieve information, as a base for effective information architecture. (Toms, 2002).

She proposes that people go through 7 steps when retrieving information: Formulating Goal, Selecting Category, Noting Cues, Extracting Information, Integrating Information and Evaluating. (Toms, 2002)

In Designing Web Navigation James Kallbach describes 7 ways on how people retrieve information specifically from the web. From Directed Browsing (systematic, focused on specific target or object) to Exploratory Seeking, he describes how people seek information and concludes that any website can be used with any one of these methods any time (Kallbach, 2007).

Fred Pass, Alexander Renkl, John Sweller in Cognitive Load Theory: Instructional Implications of the Interaction between Information Structures and Cognitive Architecture (Pass, Renkl, Sweller, 2004) write about the human cognitive load.

It is accepted that human cognition works best not under-or overloaded. The task of finding information from a website is a load to human cognition, and web application are most usable when using them does not overload user's cognitive load.

Pass et al also propose that humans learn information by categorizing it into schemas – information categorized in our minds according to the way they will be used. This information can be used to better organize information to be learned. (Pass, Renkl, Sweller, 2004).

Cooper, Cronin and Reimann also write about navigation and cognitive load in About Face- The Essentials of Interaction Design. They go as far as to say that navigation is largely an exercise task, burdening user's cognitive load without helping them accomplish their goals. They recommend eliminating unnecessary navigation to lessen user's cognitive load. (Cooper, Cronin, Reimann, 2007).

Janet Webster and Jaspreet Ahuja write about other problems in web navigation in Enhancing the Design of Web Navigation Systems: The Influence of perceived disorientation on engagement and performance. (Ahooj, Webster, 2006).

They argue that one of the main problems in web navigation is perceived disorientation, or the sense of being lost in a nonlinear information structure. They propose global navigation systems, or systems visually representing the whole system at once instead of simple, smaller scale navigation systems. (Ahooj, Webster, 2006.)

For testing whether a navigation system is effective, Min Chen and Ruy Y.U in Facilitating Effective User Navigation through Website Structure Improvement propose a metric to evaluate how consistently information is organized with respect to the user's expectations (Chen, Ruy, 2013). Their model uses mathematical calculations as a base for defining the navigation structure.

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3.   User Needs Analysis

3.1   Persona

When creating this persona, Fluid Persona template from fluid project (Bloodworth, 2009) was used as inspiration. David Hruska's example persona "Mark Stevenson" has been used as an inspiration (Hruska, n.d).

Photo used is Frederikke, *Sos, My and Caesar*, 11 August 2007 via Flicker.

Creative Commons Attribution. Template is xtensio.com.

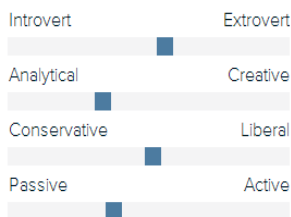## Anna Johansson
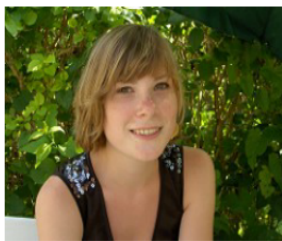
"I am ready to start my real life at uni."

Age: 18
Work: Student, A-levels: Biology, Math and Business
Family: Lives at home with mom, stepdad and a little brother.
Location: Hull, Yorkshire

Personality

Introvert	Extrovert
Analytical	Creative
Conservative	Liberal
Passive	Active

Social   Driven   Focused   Adventurous

Goals

- To finish A-levels with good grades in order to fill the entry requirements to her chosen university.
  To start her own new life as a freshman in a new city.
- To have a good and fun student experience at university.
- To be able to manage on her own when it comes to big decisions such as finding housing and applying for student loans.

Frustrations

- Confusing websites
- When finding the necessary information is difficult
- When there is too many difficult tasks to juggle at once
- When needed information is not available online.

Bio

Anna is about to finish her A-levels, and is exited to start her own, new life at university at a new city in the fall.
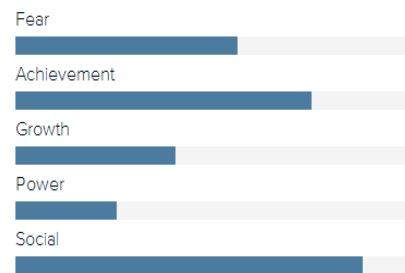She has a conditional offer to study biochemistry in Cardiff.
She is exited about the big change, but also nervous about having to say goodbye to her friends at home.
Anna leads a busy life: she is in her college's competitive swimming team, and is often away at swimming meets during weekends. She also volunteers at a charity shop to gain work experience.
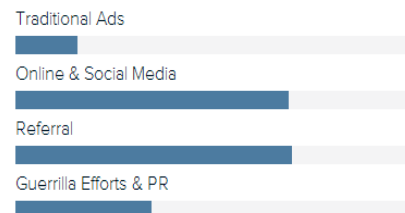Anna's mom works as a teaching assistant, and her stepdad is a builder, so they cannot pay her way trough university.

Anna's mom has previously managed her money decisions, so applying for a student loan is the first time she has to manage bank decisions on her own.

Motivations

Fear

Achievement

Growth

Power

Social

Preferred Channels

Traditional Ads

Online & Social Media

Referral

Guerrilla Efforts & PR

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3.2 Scenario

When writing the scenario, guidelines and provided example of an Elaborated Scenario from government publication Scenarios where used as a guide.

Anna needs to apply for student accommodation in her first choice of university.
As the application deadline approaches, she needs to know how much maintenance loan she can get from student finance England in order to determine which of the halls of residence is in her budget.
Anna has studied a whole day at college, and after homework she sits down in the living room, where her mom is watching television, and opens her laptop to find information on the loans she can get.
She occasionally chats with her mom while she is working.

She types into google "How much student loan can I get".
The first hit is a loan calculator offered by the government. Government sounds like a reliable source, so she clicks the link.
A page opens explaining about the calculator and that it is meant for England and EU residents. Anna lives in England, so she clicks "Start" at the bottom of the page.

A new page opens asking her when she will start her course.
She selects the right radio button for "Between September 2016 and August 2017" and clicks "Next step".

A new page opens asking her to select if she is England or EU national, and whether she will be studying full- or part time.
She selects the "UK student Full time" option and clicks "Next step".

A new page opens asking her how much her tuition fees will be.
She is not quite sure, so she opens the homepage of the university on a second tab, and after a bit of searching finds the tuition fees information.
She fills in the tuition fee amount, and clicks "Next step".

A new page opens asking her if she will be living with her parents during her studies, and whether she will be living in London or not.
She selects "Not living with parents and studying outside of London" and clicks "next step."

A new page opens asking her to fill in her annual household income.
She does not know exactly how much her parents earn, so she asks her mom.
Her mom thinks for a while, and asks her stepdad, and together they give Anna an estimate of their income.
Anna fills this in, and clicks "Next step".

A new page opens asking her to tick boxes next to special circumstances that apply to her. Anna does not have any children, nor is she disabled, so she selects "None of these" and clicks "next step".

A new page opens asking her if she is studying teacher training, medical or dental care or social work. Anna will be studying biochemistry, so she selects "None of these", and clicks "Next step."

A new page opens informing her that she is qualified for aproccimately 7000£ of maintenance loan.
She is happy with the estimate, and goes to read through the brochure of available student accommodation in her university to find a suitable one in that budget.

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3.3   Task Analysis

Information from Peter Hornsby's article *Hierarchical Task Analysis* (Hornsby, 2010)
Has been used as a guideline for this hierarchical task analysis.
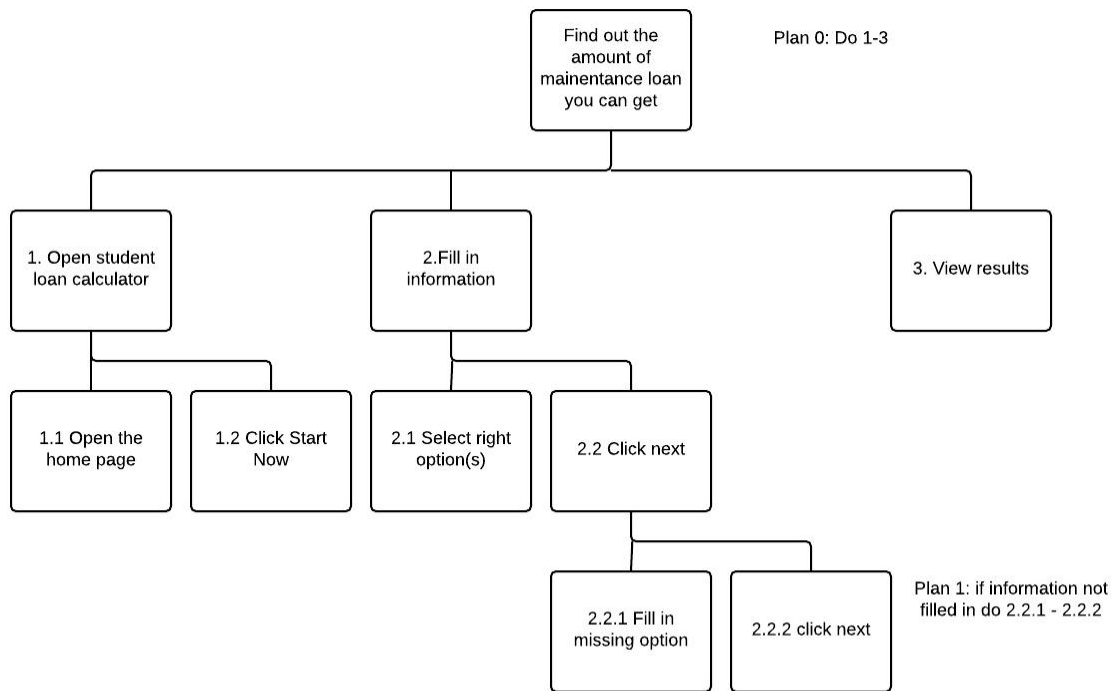
3.4   Environmental Analysis

As stated by the scenario, it can be assumed that the application is used in places with distractions, and user may not be concentrating fully on the task on hand. Also having to retrieve information from other sources (Asking for household income for example) distracts the work flow.

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4. Preliminary Design

1. Open Fund My Studies homepage

2. Follow the link to the loan calculator

3. Loan calculator opens

4. Fill in personal details and Click next

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* living in London? o yes
                    o no
    ☑ PLEASE ANSWER QUESTION

* household income? [35000] £

[NEXT]

5. Error message is shown if information not filled in

FUND My Studies   [S|Search]

home | loan calculator | app walkthrough | FAQ | about | Contact

Home > loan calculator

STUDENT LOAN CALCULATOR - COURSE

Links
Student finance
Gov.uk

* Course start time [   ] mm\yyyy
* Studying o full-time
           o Part-time
* tuition fees [   ] £
* Special courses o Teacher
                  o Medical
                  o Dental
                  o Social work
                  o none

[NEXT]

6. Course Details Page Opens

* corse start time [09/2016] mm\yyyy
* Studying ⊙ full-time
           o part-time
* tuition fees [8500] £
* Special courses o teacher
                  o medical
                  o Dental
                  o Social work
                  ⊙ none

[NEXT]

7. Fill in course details and click next

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* Studying   o full-time
         o Part-time

* tuition fees [_____] £
         ❗ PLEASE ANSWER QUESTION
* Special courses o teacher
              o medical
              o Dental
              o Social work
              o none
_____
                    [NEXT]

8. If information
   is not filled in,
   an error message is
   shown

FUND My Studies   [🔍 Search]

| home | loan calculator | app walkthrough | FAQ | about | contact |

Home > loan calculator > Results
STUDENT LOAN CALCULATOR - RESULTS
_____

according to our calculations
you are entitled to :
    Tuition fee loan: 8500£
    Maintenance loan: 8600 £

You can use our application
walktragh to fill in
your forms
                    [Home]

Links
student
finance

Gov.uk

9. Display Results

5.   Detailed Design

5.1   Decisions Relating to User Needs Analysis

In user needs analysis the goals of understanding and feelings of competence were found.
Part of this competence comes from understanding the terminology and language used.
The language used throughout the application is normal English, resembling everyday spoken English, and thus the terminology is easy to understand.
If there is any ambiguity on why certain questions are asked on the calculator forms, extra information is provided.

Based on the persona user wants to enjoy the experience and have fun. This led to use of bright, happy colours and a funny picture on the main page.

Based on the persona our one of our users' frustrations is when necessary information is difficult to find. For this it has been made clear on the home page what information is available and where it is located.
Navigation structure is clear, and links to the necessary information with introductions on what is behind the links are provided in two places on the main page, throughout the loan calculators and again on the result page.

It was also considered that the application might be used in busy environments with distractions, and user might have to disturb the work flow for retrieving information from other sources.
Because of this the forms are kept simple, and no scrolling is necessary, so it is easy to return to the task after being distracted from it, and no time has to be used for finding the right place on the form again.

Based on the scenario, it was considered that user might want to search just for maintenance loan or just for the fee loan. However, this would add extra dialogue and complicate the website further, so for an application aiming for ease of use and uncomplicatedness, it was decided that one simple calculator would be sufficient.

5.2   Decisions Relating to Usability

5.2.1 Home Page

 "The sites goal and functionality should be clearly marked and visible on the site's home page" (Badre,2002) Writes Badre in Shaping web usability- Interaction Design in context, about home page design.
The site logo – big and bold FUND My Studies clearly communicates that the site is about funding studies.
Text further down narrows it down declaring that: "Having problems with student finance England?" declaring that the site is about getting student finance from Student Finance England.
Steve Krug in Don't make me think, Revisited: A common Sense Approach to Web Usability writes:
."…when I look at a web page, it should be self-evident. Obvious. Self-Explanatory." (Krug, 2014).
The two main functionalities – student loan calculator and an application walkthrough are explained and linked to on two places on the main page: on the text on the middle and on the top navigation bar, making it evident from the first glance what the site is about and what user can do with it.

5.2.2 Colour and font

Text is made easy to read by paying attention to the colours. Black text on the light yellow background provides good contrast and makes the text easy to read.

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Colour palette and colour coding was carefully chosen. Colour coding of navigation aids, links and main body were kept consistent throughout (Badre, 2002). Colour palette was also chosen to support user goal of enjoyment and fund, as stated above.

Paul Duran in Web Usability Bible recommends "It is recommended to use the same font throughout a page". (Duran, 2015) This has been done on the main content areas of all pages, adding colour and bolding subheadings to break up monotony and bring attention to certain details.

5.2.4 Navigation

Nielsen and Loranger in Prioritizing Web Usability write: "Users strongly expect standard elements to work a certain way when they visit a certain site, because that's the way things almost always work." (Nielsen, Loranger, 2006).
The chosen navigation structure – Navigation bar on the top, external links on the side bar and less often needed information such as copyright details on the footer, are a traditional way of organizing a web page. As is extinguishing links from the other text by underlining them.
Using these elements makes it easy for new users to understand how to navigate the website.

It can be assumed, that a person using a search engine to access the site could enter the site not trough the main page, but straight to the student loan calculator.
In these cases, Jakob Nielsen and Hoa Loranger recommend providing link to the home page on every page, adding company logo to the upper left corner of the site, and adding a "Breadcrumb trail" on where the user is in the website structure. (Nielsen, Loranger, 2006).
All these are present on every page of the site.

As it is understood that the larger scale user goal for using this website is getting help with applying for student loans, it is assumed that after finishing the loan calculator, user would be interested in applying for the loan. For this reason, the links to the application walkthrough, student Finance England and Gov.UK student finance are provided on the results page. (Cooper et al, 2014. Pp.182).

5.3   Decisions relating to Cognitive Issues

Fund My Studies is by its nature a one use website. It can be assumed that the users use it for one specific purpose accessing it a few times through the loan application process, and then stop using it. So it can be assumed that the website is accessed mostly by beginners (for this website).
For this reason, it is important to keep the navigation particularly clear and easy to learn. (Cooper et al, 2013. Pp.220).
It can also be assumed that a competent internet user has developed a mental model on how a website works and behaves. (Cooper et al. 2013).
After considering possible information structures for the website, it was decided to use traditional top navigation bar – sidebar – footer structure. This type of navigational structure is prevalent in websites aimed for the age group targeted by Fund My Studies, and it can be assumed that the user would be familiar with this design.

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As Badre writes: "The user can reconstruct the necessary elements for successful performance from memory when presented with the task statement" (Badre,2002)
For an experienced web user, this means being able to retrieve familiar navigation tools from memory.
As stated above, the used navigation structure is commonly used in web applications, and for a competent user this type of navigation is easy to learn to use using mental maps from other websites.

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6. Implementation

Interface 1: Fund My Studies home page

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FUND My Studies

| HOME | STUDENT LOAN CALCULATOR | APPLICATION WALKTROUGH | ABOUT | FAQ | CONTACT US |

HOME > STUDENT LOAN CALCULATOR

Student Loan Calculator: Personal Details

* Are you UK national? ○ Yes
                        ○ No

* Will you be living at home while studying? ○ Yes
                                             ○ No

* Will you be living in London while studying? ○ Yes
                                               ○ No

* What is your annual household income? [0,0£]
The annual income of your household may
affect the amount of maintenance loan you can get

This student loan calculator
is for UK students only.
If you are EU or
international
student, follow one of the
Links in the side bar.

* marks an compulsory field

Links:

Student Finance
England

Gov.UK
Student Finance

Search

[NEXT]

Interface 2: Student loan calculator – Personal Details

FUND My Studies

| HOME | STUDENT LOAN CALCULATOR | APPLICATION WALKTROUGH | ABOUT | FAQ | CONTACT US |

HOME>STUDENT LOAN CALCULATOR > COURSE DETAILS

Student Loan Calculator: Course Details

* When will you be starting your course? [   ]/[   ] MM/YYYY

* Will you be studying: ○ Full-Time
                         ○ Part-Time

* How much are your tuition fees in a year? [0,0£]

* Will you be studying one of the following: ○ Teacher Training
                                              ○ Dental, Medical or Healthcare
                                              ○ Social Work
                                              ○ None of these
Students studying one of these courses
may be eligible for extra funding from
bodies such as NHS

This student loan calculator
is for UK students only.
If you are EU or
international
student, follow one of the
Links in the side bar.

* marks an compulsory field

Links:

Student Finance
England

Gov.UK
Student Finance

Search

[NEXT]

Interface 3: Student loan calculator – Course Details

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FUND My Studies

🔍 Search

HOME	STUDENT LOAN CALCULATOR	APPLICATION WALKTROUGH	ABOUT	FAQ	CONTACT US

HOME>STUDENT LOAN CALCULATOR > COURSE DETAILS

Student Loan Calculator: Course Details

Plese enter the month!

* When will you be starting your course? [   ] / [2016] MM/YYYY

* Will you be studying: ⊙ Full-Time
                        ○ Part-Time

* How much are your tuition fees in a year? [8500,0£]

* Will you be studying one of the following: ○ Teacher Training
Students studying one of these courses ○ Dental, Medical or Healthcare
may be eligible for extra funding from ○ Social Work
bodies such as NHS ⊙ None of these

This student loan calculator is for UK students only.
If you are EU or international student, follow one of the Links in the side bar.

* marks an compulsory field

[NEXT]

Links:

Student Finance Enland

Gov.UK Student Finance

Interface 4: Student loan calculator – course details- Alert Message

FUND My Studies

🔍 Search

HOME	STUDENT LOAN CALCULATOR	APPLICATION WALKTROUGH	ABOUT	FAQ	CONTACT US

HOME>STUDENT LOAN CALCULATOR > COURSE DETAILS > RESULTS

Student Loan Calculator: Your Results

According to our calculations you should be eligible to:

Tuition Fee Loan: **8500£**

Maintenance Loan: **7023£**

To apply for these loans, follow a link on the sidebar
to Student Finance England
You can use our Application Walktrough to get help with
filling in the forms.

This student loan calculator is for UK students only.
If you are EU or international student, follow one of the Links in the side bar.

[HOME]

Links:

Student Finance Enland

Gov.UK Student Finance

Interface 5: Student loan calculator: Results

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7   Evaluation

7.1   Cognitive Walkthrough

Task: User wants to know how much maintenance loan she can get from student finance England
User profile: User has an advanced skill level on using web applications.

USER ACTION	SYSTEM RESPONSE	IS THE EFFECT OF THE ACTION THE SAME AS USERS GOAL AT THAT POINT?	WILL USER SEE THAT THE ACTION IS AVAILABLE	ONCE USERS HAVE FOUND THE CORRECT ACTION, WILL THEY KNOW WHICH ONE IT IS?	AFTER THE ACTION HAS BEEN TAKEN, WILL USERS UNDERSTAND THE FEEDBACK THEY GET?
USER OPENS THE WEB APPLICATION BY LAUNCHING URL IN THE BROWSER	FUND My Studies home page opens.	No. Home page is only a way to get to the loan calculator	Yes. The link with supporting text is provided in two points on the page.	Yes.	Yes. Prompts on where they are on the navigation structure and information is provided.
USER ENTERS PERSONAL DETAILS	Text boxes display the text entered, and radio buttons display the selected options.	Yes.	No. User is assumed to know from the information on the home page that filling in the forms will show her the loan amount.	Yes.	Yes. Text changes and radio buttons look selected to display filled in fields.
USER CLICS NEXT	Course details page (next page of the loan calculator) opens	Yes	No.	Yes.	Yes, a new page with prompts on where the user is on the navigation structure.
USER FILLS IN COURSE DETAIL	Fields on course details form show the filled in information	Yes	No	Yes	Yes. Text fields fill in and radio buttons display selected options.
USER CLICKS NEXT	Results page opens	Yes	Yes	Yes	Yes

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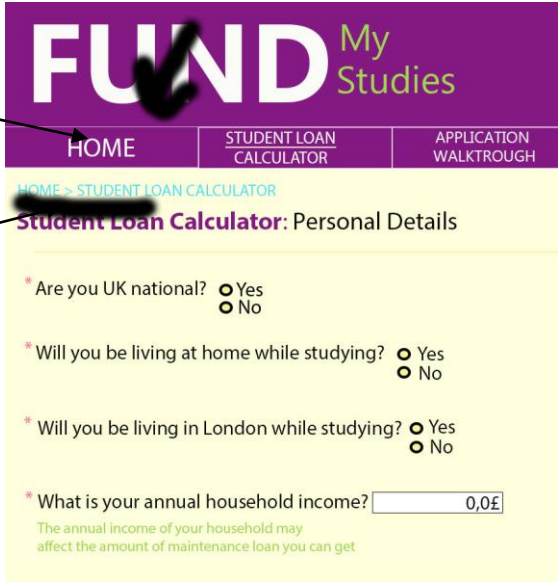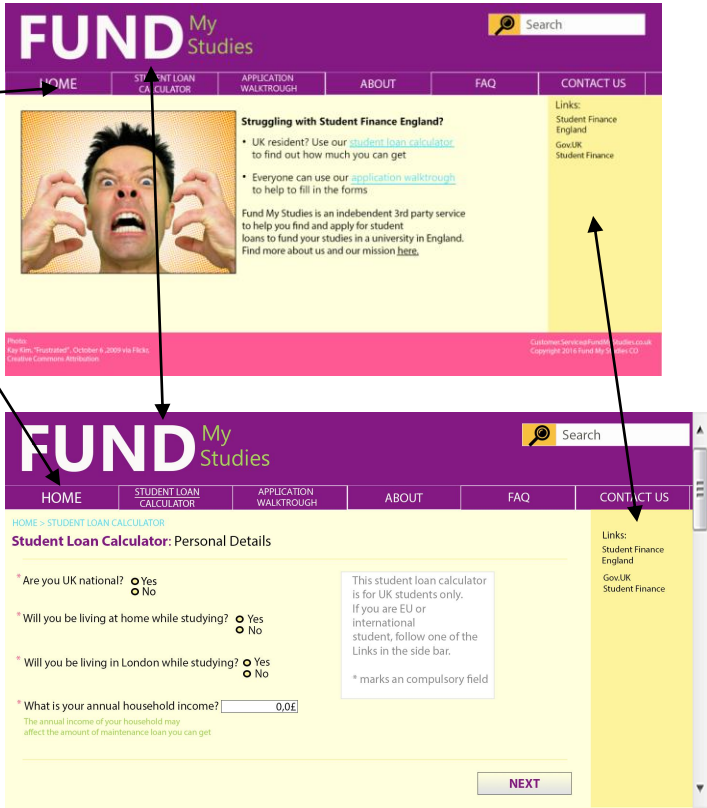# MOD002591

7.2   Heuristic Evaluation

The ten Usability Heuristics used for this evaluation are taken from an article 10 Usability Heuristics for User Interface Design by Jakob Nielsen. (Nielsen, 1995).

Heuristic Principles   How have they been met?

1.Visibility and system feedback	**Navigation aid is provided on the top of the page to keep users informed on where they are in the website structure. It is also visually shown on which tab user currently is.** *Feedback on how much more form is left to do would be ideal and an idea for future work.*	
2.Match between system and real world	Language used is natural language familiar to the user. More difficult/possibly confusing questions are explained to the user. Questions are grouped logically together into two forms.	

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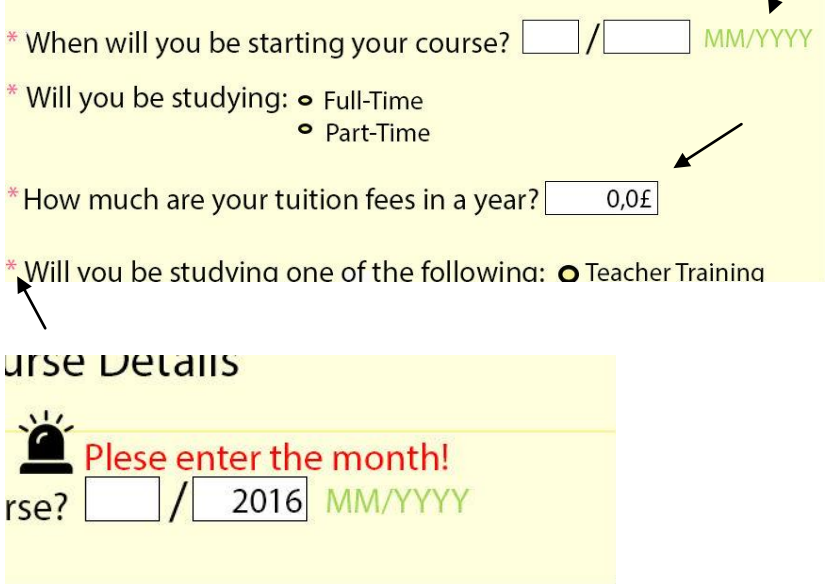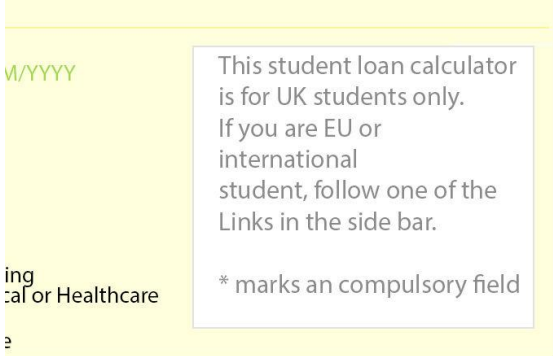|		
3. User control & feedback	It is assumed that back and forward buttons are provided by the browser, but navigation options back to the home page and to previously visited pages are available on every page.	
4.Concistency and standards	Buttons and links are consistent and prompt the same action every time used.	

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5. Error prevention	Aid is provided to show user in which format information is expected to be filled in. If needed information is not provided, an error message is shown. Compulsory fields are clearly marked. *Unfilled fields could show an error message, such as turning red, to show that there is a mistake before clicking next.*	* When will you be starting your course? ☐ / ☐ MM/YYYY * Will you be studying: ○ Full-Time / ○ Part-Time * How much are your tuition fees in a year? ☐ 0,0£ * Will you be studying one of the following: ○ Teacher Training urse Details ⚠ Plese enter the month! rse? ☐ / 2016 MM/YYYY
6.Regocnition rather than recall	All navigational objects and possible actions are available on every page.	See picture on question 4, which displays navigation options available on every page.
7.Flexibility and effective to use	In a simple web application, which is assumedly used only once, such as this, user personalisation is not seen necessary.	
8. Aesthetic and minimal design	Any unnecessary text and features have been eliminated. This has been demonstrated on picture 2 which displays the design and text on home page.	Any unnecessary features and texts have been removed to preserve white space. Form is split into two pages to keep single pages simple and minimal. See picture at question 4, which displays the design of the home page and one the form pages.
9.Help users to recognize, diagnose and recover from errors	Error messages are shown connected to the missing information fields, so it is clear which information is missing. Error messages are in clear text, and tailored to the missing information so it is clear what the error is. Compulsory fields are clearly marked.	See picture on question 5, which displays an example of the error messages provided. Example of the support documentation provided is below (Helping users to distinguish compulsory fields)

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<table>
<tr>
<td></td>
<td></td>
<td>
M/YYYY

This student loan calculator is for UK students only. If you are EU or international student, follow one of the Links in the side bar.

* marks an compulsory field

ing
cal or Healthcare
e
</td>
<td></td>
</tr>
<tr>
<td>10. Help and documentation</td>
<td>Information regarding the form being filled is available on the form pages. FAQ is available if needed.</td>
<td colspan="2">Links to FAQ are available on every page.
Support documentation is available on the form (Picture above).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</table>

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