User Interface Evaluation of the CP's Website (Proposal)

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Abstract

This document proposes an usability evaluation for the website of the company *CP – Comboios de Portugal*. The company and the website are briefly described, as well as the users focused by the evaluation and the supported tasks. One analytical method and one empirical method are going to be applied in this evaluation: *Heuristic Evaluation* and the *Usability Test*, respectively, both described in this document.

1 Introduction

This project aims to evaluate the user interface of CP.pt[1] — the official website of *CP - Comboios de Portugal, E.P.E.*

CP is a public portuguese company responsible for rendering national and international passenger rail services. In the year 2012, CP had 4690 employees, transported 122 million passengers and almost 8713 thousand metric tons (CP - Comboios de Portugal, 2012). They provide 3 main kinds of rail transportation services: *urban* in the cities of Oporto and Lisbon; *National* with regional services and the fast lines of *Alfa Pendular* and *Intercidades*; and *International*.

Through the website, CP's customers can check the timetables, buy tickets, get information about the available lines and special offers and read some news related with CP services. In order to buy tickets, the website provides the *netTicket* service, which requires the customers to have an account in their *myCP* service and it is only available for the long distance trains *Intercidades* and *Alfa Pendular*.

According to the website the graphical interface was optimally designed for windows with 800×600 pixels of resolution. A view of the website is depicted in the figure 1, using a window with the same resolution.

2 Users and Context

CP customers vary according to the service provided. Many college students, workers and pensioners use the regional and urban services for small and medium distances. Long distance services are more used by college students that are away from home, tourists, and executive workers. Unfortunately, no official document stating the segmentation of the CP.pt website's users was found.

It is noticeable that CP services have a lot more passengers during school time, which means that students are an important segment of CP's customers. Besides, most of the students have good experience with the WEB, so the CP.pt website is expected to be a great tool to them. Therefore, this usability evaluation will focus in the segment of college students, which might be portuguese citizens as well as foreigners that study or want to study in Portugal and are able to speak English.

Many scenarios can apply for the use of the website by students. Some times they leave the classes earlier and need a way of quickly check if there are other alternative trains that can take them home earlier. Also sometimes there is no direct train to their destination, so they have to catch another in the the middle of the travelling. Another scenario is when the weekend is over and the student has to buy his/her ticket from home to his/her university city. Buying it from the website is more convenient since

[1]Available at: `http://www.cp.pt`

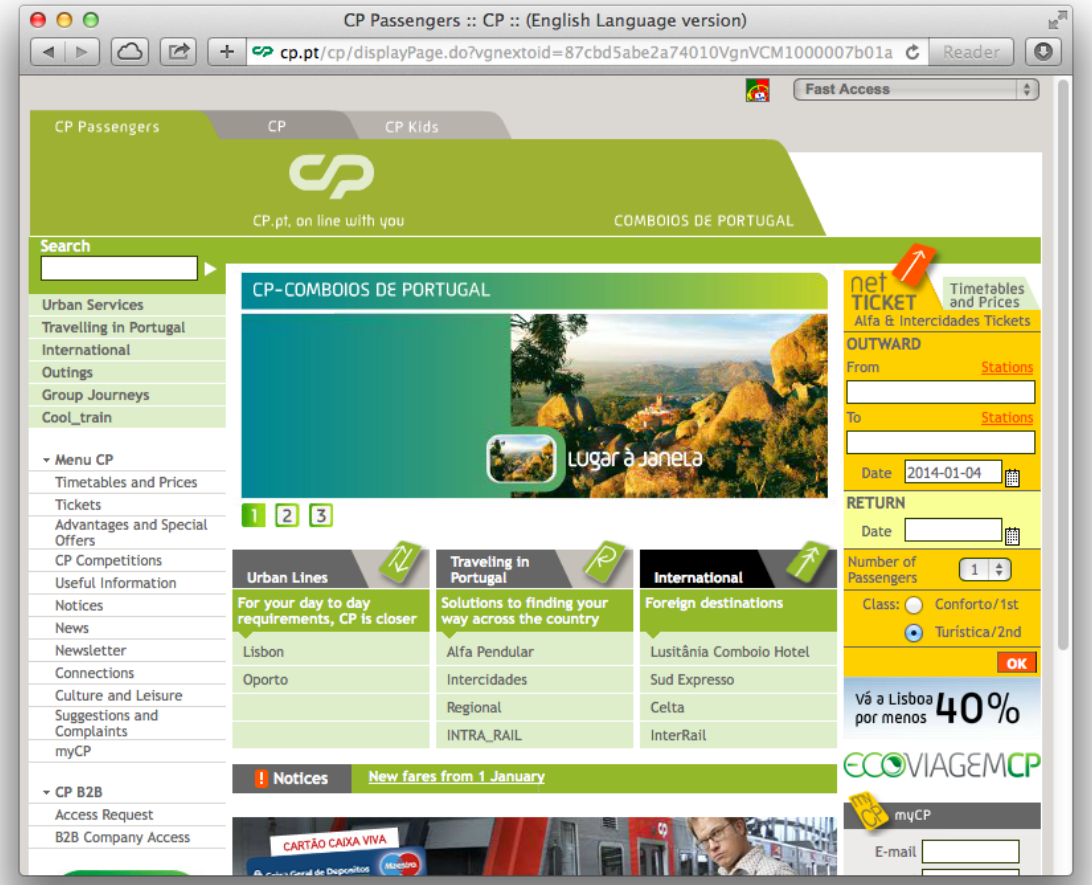

Figure 1: View of the main page of CP.pt website in a window with resolution 800 × 600 pixels, using the internet browser Safari Version 7.0.1.

the student can avoid wasting time in the ticket lines and can grant a seat for his/her trip. Therefore, the following two contexts are considered the most important in terms of usability:

- Check the timetable to find any suitable train for the trip and the respective prices.
- Buy a ticket for long distance trains with reserved seats.

3 Usability Evaluation Methodology

The evaluation will be taken using two paradigms: *Analytical* and *Empirical*.

Analytical methods do not need to involve users — they are based on inspection methods. Some well known analytical methods are the *Heuristic Evaluation* (HE) proposed by Nielsen and Molich (1990), the *Cognitive Walkthrough* (Wharton et al., 1994) and its variant *Streamlined Cognitive Walkthrough* (Spencer, 2000).

Empirical methods involve the user in the evaluation process through Usability tests, involving *observation* and *query* techniques, through *controlled experiments*, in a more scientific approach, or even *questionnaires*, *focus groups*, etc.

In this evaluation, the used analytical method will be the *Heuristical Evaluation* and the empirical method will be the *Usability Test*. These methods are described in the next sections.

4 Heuristic Evaluation

The elected analytical method for this evaluation was the *Heuristic Evaluation*, because it is cheap, intuitive, easy to motivate people to do it and provides that useful results can be obtained (Nielsen and Molich, 1990).

4.1 Methodology

This method proceeds by having a small set of evaluators judging the system according to some general principles of interaction design, *usability heuristics*. It has been shown that a number of evaluators between 3 and 5 provides good results and that there is no point in having more than 10 evaluators (Nielsen and Molich, 1990). Nielsen (1995) proposed the 10 most important usability heuristics for User Interface Design:

- Visibility of system status
- Match between system and the real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help users recognise, diagnose, and recover from errors
- Help and documentation.

Heuristic evaluation was originally developed for evaluators who had some knowledge in usability but who were not necessarily usability experts (Nielsen and Molich, 1990), however, it has been showed that the method is also very effective for expert evaluators (Nielsen, 1992).

In this evaluation, two experienced evaluators participated.

4.2 Results

Evaluator 1 Sth

Evaluator 2 Sth la la la la llaa

5 Usability Test

5.1 Participants

A careful selection of participants — it is important to have participants with the same experience level, demographics, and areas of interest, and that will eventually be the end users of the product — the Screener method is very useful in this phase (Mitchell, 2007);

6 Tasks

The tasks that the participant has to accomplish are the following:

1. Select the English Version of the application.
2. Find the schedule for a trip from Braga to Aveiro.
3. Find a cheap trip from Braga to Aveiro.
4. Buy a ticket from Braga to Porto.

These tasks are described in more detail in the *Usability Test Plan*, available in the appendix B.

6.1 Experimental Design

In order to guide the moderator during the experiment, a script was elaborated providing the moderator with a clear description of the all steps that that are necessary to efficiently accomplish all the tasks.

As suggested in (Mitchell, 2007) it is beneficial for the moderator to get the participant's opinion during the test session. The usability test combined both *observation* and *query*.

The participant will be asked to think aloud, describing every step he/she makes during the tasks. The moderator will be directly observing the participant and taking some notes using the Data Logging Form, provided in appendix **??**, and after each task the moderator makes a short interview focusing in the questions provided in the Usability Test Plan (see appendix B). The screen and the audio is also recorded for indirect observation.

independent and dependent variables and usability measures to be used.

After the completion of each task the participants answer a short questionnaire, as well as after the whole test they answer a post-test questionnaire. Also, they are interviewed by the moderator in an informal way, trying to answer some questions clearly stated in the Usability Test Plan document (see B).

6.2 Workplace

It is important to create a workplace regarding features that might affect the results.

According to (**?**), the most common resolution used in WEB is 1366×768, so in this experiment a screen with approximately the same resolution is used: 1440×990.

For accessing the application, the browser Safari 7.0.1 with default settings is used. The internet connection has an average download and upload speeds of $4Mbit/s$ and $1Mbit/s$, respectively. The screen and audio is recorded using the tool QuickTime Player 10.3. During the test, the moderator stands next to the participant which has free access to the laptop, taking in account that the participant feels comfortable.

7 Results

The reports of the usability test comply with the Common Industry Format (CIF) supporting a summative usability evaluation (Stanton, 2006).

A Consent and Recording Release Form

reference

I agree to participate in the study conducted and recorded by the MAP-i student Luís Cruz.

I understand and consent to the use and release of the recording by Luís Cruz. I understand that the information and recording is for research purposes only and that my name and image will not be used for any other purpose. I relinquish any rights to the recording and understand the recording may be copied and used by Luís Cruz without further permission.

I understand that participation in this usability study is voluntary and I agree to immediately raise any concerns or areas of discomfort during the session with the study administrator.

Please sign below to indicate that you have read and you understand the information on this form and that any questions you might have about the session have been answered.

Date: _____

Please print your name: _____

Please sign your name: _____

Thank you!

Your participation is kindly appreciated.

B Usability Test Plan

This document is a script for the moderator describing the sequence of activities and questions that each participant will experience.

B.1 Introductory Talk

The moderator introduces himself and explains to the participant what is his role and how the experiment will evolve.

It is important to make the participant feel comfortable to give his honest opinion and do not worry to say something that could hurt the developer's feelings. We want to listen to every comment the user might have about the website, and the "Thinking Aloud" technique should be explained to him for better results.

It is recommended before starting to ask if the user has any doubts about the consent form he just signed as well as about the experiment.

B.2 Tasks

The computer is set with an open browser to: `http://www.cp.pt/`

In this section the tasks are detailed with all the necessary steps in order to help the moderator to help the user. However, unless the user needs some help he/she is not supposed to read it.

After each task, the moderator reports if the user accomplished the task with the following taxonomy: *Yes / No / Yes with help.*

Task 1 - Select the English Version In this task the user has to change the language of the application to English:

i. Go to the CP.pt homepage (url: `http://www.cp.pt/`)

ii. Select the british flag on the top bar.

Completion Criteria: The website has to be in the English language.

Post-task Interview:

1.1. Is this the first time you visit this website?

1.2. Please give me your first impressions about the layout and design of the website.

1.3. How easy or difficult was it for you to accomplish this task?

1.4. Was there something specific that made this task easy or difficult?

Task 2 - Going from Braga to Aveiro In this task the user is asked to find when is the next train from Braga to Aveiro, how much is the ticket and where is it necessary to switch lines. In order to accomplish this task, the user has to:

i. Go to the CP.pt homepage

ii. Find the form through the tab "Timetables and Prices" of the right panel.

iii. Introduce the details of the trip, from Braga to Aveiro in the present day. Optionally, the time can be set, and it is not necessary to specify the return trip.

iv. Select one of the listed trips, by selecting "see" and/or "detail" links.

v. Report the time of departure, the price of the ticket, the duration and how long will the passenger have to wait in the station, and when is the departure of the second train.

Completion Criteria: The user is able to say when is the departure, when the train arrives to the destination and where is the train scale.

Post-task Interview:

2.1. How easy or difficult was it for you to accomplish this task?

2.2. Was it easy to find the form?

2.3. Did you like the way you had to input the trip details?

2.4. Did you clearly understand the results table?

2.5. Which part of the task you found more confusing?

2.6. When you clicked in the details of your trip, did you find it easy to check when you have to switch trains?

2.7. Do you feel that you need to ask some extra information to the ticket officer?

Task 3 - Find a cheap ticket from Braga to Aveiro This task is similar to the previous task 2 but this time, the passenger only has 10 euros to spend in the trip. The steps are the same, but in this case the user cannot select a fast train IC or AP, because they are more expensive.

Post-task Interview:

3.1. How easy or difficult was it for you to accomplish this task?

3.2. Which part of the task you found more confusing?

3.3. When you clicked in the details of your trip, did you find it easy to check when you have to switch trains.

3.4. What is your opinion of how price information is displayed?

Completion Criteria: The user chose a train from Inter-regional or Urban services and he/she is able to say when is the departure, when the train arrives to the destination, and how much is it going to cost.

Task 4 - Buy a ticket from Braga to Porto In this task the user will be using the netTicket feature to buy a ticket for the train *intercidades* (IC) from Braga to Porto. This will include the registration in myCP service and the task ends before the payment step in order to simplify the test setup. This task intends to analyse how an unregistered user manages to buy a ticket. This might be a difficult task.

The steps are the following:

i. Go to the CP.pt homepage.

ii. Find the form netTicket in the right panel.

iii. Insert in the *from* field, the value *Braga*, and in the field *To* the value *Porto - Campanhã*. Specify the dates for the trip, including return.

iv. Choose the two trains for the round trip and click “continue” to proceed to the next step.

v. Since the user is not registered yet, the user clicks on the link “Register”

vi. The user fills the registration form submits.

vii. A new form asking for Preferred/Most used Service appears. It is optional, the user can skip it.

viii. A new form asking if CP can use the email for newsletter. The user can now finish the registration.

ix. The user has to resubmit the trip information.

x. Now the user identifies the passenger with his/her name and ID Card number

xi. Select one seat different from the default when available. In the end click “Confirm”

Completion Criteria: The user is on stage 5 "Payment" of the buying process. In the description of the page, the details of a trip from *Braga* to *Porto - Campanhã* are summarized.

Post-task Questions:

4.1. How easy or difficult was it for you to accomplish this task?

4.2. Which part of the task you found more confusing?

4.3. What did you think about the registration process?

4.4. When you had to select the seat for your ticket, the interface was familiar? Did you have any trouble understanding how it works?

4.5. What is your about opinion how the price information is displayed?

4.6. In the whole task was there any steps that you found unnecessary? Which?

C Data Logging Form

The moderator of the usability test observes the behavior of the participant while taking notes in the Data Logging Form. Each task has one Data Logging Form.

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