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M.Sc. Computer Science and Engineering
Hypermedia Applications Project

Usability Document

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Abstract

The aim of this Usability Report is to describe the results of a usability evaluation executed on the *Lemon Peel* website, carried out with the *user testing* method. This method consists on the data collection and observation of how some representatives of real users use the system.

Its goal is to uncover actual difficulties that users have when interacting with the website and to obtain a systematic feedback on the effectiveness and efficiency of use of it.

Contents

Chapter 1

Introduction

1.1 Purpose

After the design and the creation of *Lemon Peel* website, it is fundamental to know what are the users' feelings about its structure, its contents, the navigation process and the graphic design of what the association thought to be the proper website.

Lemon Peel wants to avoid biased opinions of people involved with it, and it need feedback from the typical users who most likely will use the website.

1.2 Scope

Feedback from users will help the release process of *Lemon Peel* website. It allows to know if the design and the contents fit the needs of the users and their expectations and to measure their motivation to visit the website.

The scope of this study is to evaluate the work done and to check if there are some problem to fix in order to improve the user experience, with the support of real data.

Chapter 2

Design of the Test

2.1 Overview

The test was designed according to some constraints due to the distance between the evaluators and the users. This situation had an influence on the user profile defined for the evaluation, but not for the tasks, that are easily verifiable with a shared screen, and the measurable variables.

2.2 User Profile Definition

The definition of a standard user profile to test the web application allows to make the results comparable and to have a reliable feedback based on multiple experiences.
Unfortunately, due to the pandemic and the difficulty to phisically reach people who do not have a proper workstation, it would have been impossible to set the standard user profile as the typical person who might be interested to the website (according to the evaluators, a person between 30 and 50 years old who enjoys folk italian music and speaks english fluently, due to the language of the contents). So the decision fell on students between 22 and 25 years old with music interests and a decent experience with technology; they must have a computer, a microphone, a webcam and the possibility to share the screen with their interviewers.

2.3 Variables

Some variables, considered important, have been chosen to be measured with the execution of the tasks and with a subsequent survey for the users. The variables chosen to evaluate the website are the following:

V_1 Effectiveness: tasks success rate;

V_2 Efficiency: needed time to complete the tasks;

V_3 Errors: wrong paths or actions while completing the tasks;

V_4 Satisfaction: users' feelings about the navigation experience;

V_5 Disorientation: difficulty to realize what the user is seeing;

V_6 Wandering periods: difficulty to realize the next steps;

V_7 Confidence with the design: graphical structure of the pages.

2.4 Tasks

Four tasks have been selected for the users to evaluate the usability of *Lemon Peel* website. They have been shuffled for each user to minimize the learning effect on them during the calculation of Effectiveness and Efficiency.
The chosen tasks are not very complex, but the website does not have a complex structure and they represent some realistic use cases of the website. The tasks are the following:

- Task 1:

    (a) Find the date and time of the last event;

    (b) Find the email of the organiser of that event.

- Task 2:

    (a) Discover the name of the bagpipe invented in Emilia Romagna;

    (b) Find the time of the course of that instrument.

- Task 3:

    (a) Find the address of *Lemon Peel* office.

- Task 4:

    (a) Find the name of the musical instruments that have the same type of *Vattacicirchie*;

    (b) Discover which parts a *Vattacicirchie* is composed by.

2.5 Test

Before submitting the usability test to the recruited users, it has been simulated among the group members. This allowed to better specify the tasks in a structured way, in order to minimize the misunderstanding due to bad interpretations.

Chapter 3

Execution of the Study

3.1 Overview

As previously described, the goal of the study is to observe the actual usage of the implemented website in order to uncover potential difficulties found by representatives of real users.

In the following chapters the test and its execution are explained in a more detailed way, with a section dedicated to the data gathered, their meaning, interpretation and results.

3.2 Execution

In order to have reliable data, six users have been recruited for the test.

At the beginning it has been explained to them the purpose of the test, its structure and their possibility to give up for any task or for the entire test if they did not want to continue anymore. Then, a short presentation of *Lemon Peel* association and the sharing of the url of the website followed, asking them to share the screen with the two evaluators, connected with them through a videocall.

The order of the tasks has been randomized for each user to minimize the learning effect; each of them started from the homepage. The proceeding of the tasks have been supervised by the evaluators who wrote down the successes, the durations and the path followed by the users.

After the completion of the task phase, it has been asked to the users to complete a survey based on their experience using the website. The survey consists of ten mandatory statements to evaluate, choosing among five opinions: *Strongly disagree, Disagree, Neutral, Agree, Strongly agree.*

Below, an optional comment section has been added asking for free comments about the evaluating process, the website or the experience the user had. The

survey contains the following statements:

S$_1$ The website was easy to use (used to measure variable *V6*);

S$_2$ I found the website unnecessarily complex (*V6*);

S$_3$ I immediately felt confident using the website (*V5*, *V6*);

S$_4$ During the navigation I felt lost once or more (*V4*);

S$_5$ I could quickly get the information I needed (*V5*);

S$_6$ The content was easy to read (*V7*);

S$_7$ The content was well structured (*V7*);

S$_8$ The structure of the pages helped me to locate information I needed (*V4*);

S$_9$ I found inconsistencies among the pages (*V7*);

S$_{10}$ Homepage's content made me want to explore the website (*V7*).

3.3 Data

The data collected for each user test and task are reported in the tables below. The success rate of each user for each task is visible on *Table 3.1*. The values are calculated as the number of completed subtasks by a participant divided by the number of subtasks for that task (*1 = all the subtasks have been completed, 0.5 = half of the subtasks have been completed, 0 = no subtask completed*). The aggregated percentages of completion for each task are shown in the last row of the table.

Table 3.1: Success rate for each user and task

Participant	Task 1	Task 2	Task 3	Task 4
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
Success	6	6	6	6
Completion Rates	100%	100%	100%	100%

The needed times to complete the tasks for each user have been taken , they are visible in *Table 3.2*. The values of the table indicate the time used by the user to retrieve the information that has been asked to her, starting the navigation from the home page of the website. For each task the average time has been computed.

Table 3.2: Needed time to complete a task for each user

Participant	Task 1	Task 2	Task 3	Task 4
1	50s	40s	25s	50s
2	64s	77s	9s	64s
3	51s	26s	19s	78s
4	95s	40s	20s	58s
5	40s	47s	8s	42s
6	23s	14s	4s	83s
Average Time	53s	40s	14s	62s

3.4   Results

After having collected the data, they have been analyzed in order to evaluate the website through the variables defined in Chapter 2.3.

Every user completed all the tasks, so the calculated Effectiveness (*V1*) is 100%. The expectations were high due to the simple structure of the website, and this result confirms it. About Efficiency (*V2*), all the tasks have an acceptable average time. Scores that most deviate from the average are generally due to difficulties to locate specific elements, like the *Past Events* section on the *Event* page in a couple of cases, but in few seconds everyone succeded autonomously in their tasks. With respect to the order by which tasks have been assigned, the last two took less time to be completed, compared with their average, than the first two, giving enough certainty to state that the user, after completing her first two tasks (and in some cases right after the first one), was yet confident with the website and its navigation. This assertion is also confirmed by the survey already cited in 3.2, whose answers are reported in the *Table 3.3*

Only an Error (*V3*) of wrong path occurred during a task (i.e. a user tried to find the address of *Lemon Peel* office in the *Association* page instead of the *Contacts* section), and two wrong actions in the *Task 4*, while looking for the instruments of a specific type, probably due to the low visibility of the filters in the *Musical Instrument* page.

The survey shows good scores about the statements presented to the participants of the test; the highest ones are related to the easiness of the website and how fast information can be retrieved. The lowest score, even if it is a good score overall, is related to the engagement of the home page. This might be related to the interests of the sample of users that might not match the typical user of *Lemon Peel*. It is suggested to investigate this aspect further in order to have a better understanding of the causes.

From the survey, what is noticeable is that the users felt no Wandering periods (*V6*) or Disorientation (*V5*) during the navigation (*S1, S2, S3*) and that the website gives Confidence (*V7*) to the users with its graphical design and structure, so that they could find the information they needed without feeling

any inconsistency between pages (*S6*, *S7*, *S9*, *S10*). It has been measured also the users' Satisfaction (*V4*), whose results are positive showing that there were limited or no difficulties during the navigation (*S4*, *S8*), that is also confirmed by *S5* about the lack of disorientation.

Table 3.3: Aggregated results of the usability survey

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
S1				1	5
S2	2	4			
S3				3	3
S4	3	3			
S5				1	5
S6				2	4
S7				2	4
S8				2	4
S9	3	3			
S10			1	2	3

The results of the previous survey have been aggregated to show the scores of the variables that are computable from the statements. The varables are *V4*, *V5*, *V6* and *V7*; the scores of the variables are the averages of the single statement scores, assigned as described in 3.2. The single statement scores are the averages of the survey's scores, considering 4 points for the best option (*Strongly Agree* for *S1*, *S3*, *S5*, *S6*, *S7*, *S8*, *S10*; *Strongly Disagree* for *S2*, *S4* and *S9*) and 0 points for the worse ones. The following graph shows also the maximum and the minimum scores for the statements of each variable.

All the variables are almost on the same level; the graphs shows the need of slightly more attention on Wandering Periods (*V6*) and the Design (*V7*).
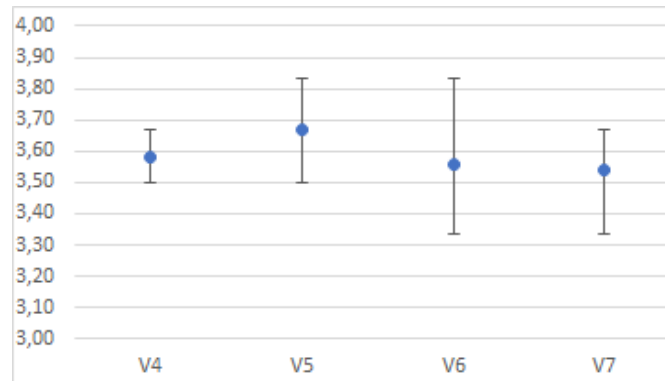
Figure 3.1: Aggregated scores for variables *V4* - *V7*

Chapter 4

Conclusions

4.1   Comments on the results

At the end of the evaluation, *Lemon Peel* website seems to match the users' needs in terms of usability and expectations. However, during the test, small weaknesses have been found while seeing users interacting with it.

These weaknesses are mostly related to sections and interaction items that are not immediately visible to the users: they are the *Past Events* section, that is compressed by default at the end of the *Events* page, and the dropdown menus used in *Events* and *Musical Instruments* pages. It looks like the users focus on the left side of the page while they are looking for information or interaction items, and the dropdown menus are not visible enough. It should be remembered that all the tests were made with a large-size screen and the considerations about the horizontal positions of the items are related to them.

Among the strenghts, the simplicity of the website and the links to immediately go from an item page to a related one make the navigation fluent and it accompanies the user on his path.

4.2   Suggestion for Improvements

The whole evaluation process gave some suggestion and ideas to improve the user experience while using the website, through the study of the user interaction during the tests and through the comment section at the end of the survey. Most of the listed suggestions are quick in terms of time needed for the development, but some of them might significantly improve the first impact for new users that land on the website for the first time:

- Move the dropdown menus from the right to the left of the page. Some users did not immediately consider them when they visited the pages for

the first time. Even if in all the tests the users always finded it autonomusly, someone might not see it if she gives a quick look to the pages.

- Expand the *Past Events* section by default making their images black and white in the *Events* page or make the *Past* and *Next* titles more visible. A past event can be useful to retrieve information about its organiser, so the suggestion is to show it a better way.

- The *Musical Instrument* page contains information about its region and type. The *Related Musical Instrument* section contains the ones from the same region and of the same type together. In order to distinguish the ones from the others, two solutions can be implemented: the first one is creating two sections on the *Musical Instrument* page that separate them; the second one is to create a link from the type and region sections that bring the user in the *Musical Instruments* introductory page, automatically filtering by the selected information. The page will remain the same, but the dropdown menus will be set by a parameter taken from the url.

- Add a link from *Association page* to *Where we are* page.

- Highlight the hierarchy of the titles and the text modifying the font weights or using a new font (Oswald font, for example, is among the suggested ones by Google Font to be used together with the current one).

- Chromatically standardize the several pictures of the website and the palette used to offer the desired mood to the user.

Appendices

Figure 1: Survey completed by User #1

Please, for each statement select the option that best reflects your experience *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The website was easy to use	○	○	○	○	◉
I found this website unnecessarily complex	◉	○	○	○	○
I immediately felt confident using the website	○	○	○	○	◉
During the navigation I felt lost once or more	○	◉	○	○	○
I could quickly get information I needed	○	○	○	○	◉
The content was easy to read	○	○	○	○	◉
The content was well structured	○	○	○	○	◉
The structure of the pages helped me to locate information I needed	○	○	○	○	◉
I found inconsistencies among the pages	◉	○	○	○	○
Homepage's content made me want to explore the website	○	○	○	○	◉

Do you have any additional comment about the website, the tasks or the evaluation process?

"Where we are" could be difficult to find if someone doesn't associate "contact us" to it, other than that is the best website for a
Musical association I've ever seen

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Figure 2: Survey completed by User #2

Please, for each statement select the option that best reflects your experience *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The website was easy to use	○	○	○	○	◉
I found this website unnecessarily complex	○	◉	○	○	○
I immediately felt confident using the website	○	○	○	◉	○
During the navigation I felt lost once or more	○	◉	○	○	○
I could quickly get information I needed	○	○	○	○	◉
The content was easy to read	○	○	○	○	◉
The content was well structured	○	○	○	◉	○
The structure of the pages helped me to locate information I needed	○	○	○	○	◉
I found inconsistencies among the pages	○	◉	○	○	○
Homepage's content made me want to explore the website	○	○	○	○	◉

Do you have any additional comment about the website, the tasks or the evaluation process?

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Figure 3: Survey completed by User #3

Please, for each statement select the option that best reflects your experience *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The website was easy to use	○	○	○	○	◉
I found this website unnecessarily complex	○	◉	○	○	○
I immediately felt confident using the website	○	○	○	◉	○
During the navigation I felt lost once or more	○	◉	○	○	○
I could quickly get information I needed	○	○	○	○	◉
The content was easy to read	○	○	○	◉	○
The content was well structured	○	○	○	○	◉
The structure of the pages helped me to locate information I needed	○	○	○	◉	○
I found inconsistencies among the pages	○	◉	○	○	○
Homepage's content made me want to explore the website	○	○	○	◉	○

Do you have any additional comment about the website, the tasks or the evaluation process?

L'organizzazione dei contenuti e la struttura delle pagine rendono il sito molto facile da consultare e permettono di reperire velocemente anche informazioni precise (come richiesto dalle tasks).
Efficace, secondo me, l'uso delle immagini nella navigazione.

L'utilizzo di diversi pesi del Montserrat (Light - Semi-bold, ad esempio) e/o l'associazione di un altro font (Google Fonts consiglia, ad esempio, l'Oswald) potrebbero enfatizzare la gerarchia tra i contenuti testuali e rendere la lettura più scorrevole.
Le immagini di tutto il sito potrebbero essere uniformate a livello di cromatico e di composizione.
La palette cromatica del sito potrebbe essere rivista in chiave più neutra (per dare maggior risalto alle fotografie) o, al contrario, cercando maggiori contrasti (in tal caso uniformando le foto ad essa).
Il marchio potrebbe essere più coerente con il linguaggio visivo del sito.

Il tipo che che mi ha fatto fare il test aveva degli strani baffi che potrebbero mettere a disagio i partecipanti.

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Figure 4: Survey completed by User #4

Please, for each statement select the option that best reflects your experience *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The website was easy to use	○	○	○	○	◉
I found this website unnecessarily complex	◉	○	○	○	○
I immediately felt confident using the website	○	○	○	○	◉
During the navigation I felt lost once or more	◉	○	○	○	○
I could quickly get information I needed	○	○	○	○	◉
The content was easy to read	○	○	○	○	◉
The content was well structured	○	○	○	○	◉
The structure of the pages helped me to locate information I needed	○	○	○	○	◉
I found inconsistencies among the pages	◉	○	○	○	○
Homepage's content made me want to explore the website	○	○	○	◉	○

Do you have any additional comment about the website, the tasks or the evaluation process?

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Figure 5: Survey completed by User #5

Please, for each statement select the option that best reflects your experience *

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The website was easy to use	○	○	○	○	◉
I found this website unnecessarily complex	○	◉	○	○	○
I immediately felt confident using the website	○	○	○	○	◉
During the navigation I felt lost once or more	◉	○	○	○	○
I could quickly get information I needed	○	○	○	○	◉
The content was easy to read	○	○	○	○	◉
The content was well structured	○	○	○	○	◉
The structure of the pages helped me to locate information I needed	○	○	○	○	◉
I found inconsistencies among the pages	◉	○	○	○	○
Homepage's content made me want to explore the website	○	○	○	○	◉

Do you have any additional comment about the website, the tasks or the evaluation process?

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Figure 6: Survey completed by User #6