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## RISK COMMUNICATION AT UNIVERSITY CAMPUS

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### ABSTRACT

The aim of this paper is to report the preliminary results of an experiment conducted at Faculty of Letters of Lisbon University (FLUL), from May to July 2014, on risk perception, with a 20% users' sample. Mental maps and spatial awareness in a hypothetical earthquake and fire were the source of the research. Preliminary results show that the FLUL users are young, mostly students that are familiar with the building for less than 4 years. They know what to do if a fire occurs, however further educational activities should be provided regarding earthquake's safety because they do not know what to do if an earthquake occurs. In general the users are not aware of any safety equipment (fire-extinguishers, exit signs and emergency doors), do not know where the meeting point is located and as well the location of their workplace. For these reasons more effective ways of communicating the risk should be attempted.

**Keywords:** Natural hazards, mental maps, human behavior, public buildings, emergency equipment.

### Introduction

The authors have analyzed the safety condition at the Faculty of Letters of Lisbon University (FLUL) and found several traps that could be a barrier to a quick emergency evacuation (Santos and Queirós, 2015). For that reason a pilot-evacuation exercise was conducted on March 21, 2012, where a restricted group of users participated. This was the first time that this kind of activity was carried out at the Lisbon University campus. After the exercise was finished, they answered a questionnaire. The main conclusions of that study showed that in spite of the initial traps, the FLUL building is very well provided with emergency equipment (fire extinguishers, hoses, exit signs, emergency doors and emergency buttons). Still, the participants of the evacuation exercise were not aware of it. Furthermore, some of the participants evacuated running instead of walking, which showed that more safety education and evacuation exercises are needed. Therefore, a more elaborated questionnaire was conducted at FLUL, on risk perception, with a 20% users' sample. The objective of this study is to present and discuss the preliminary results of this questionnaire.

### Methodology

The study is focused on mental maps and spatial awareness in a hypothetical earthquake and fire. The questionnaire was elaborated to 20% of the FLUL population (students, researchers, professors and staff) as presented in Table I. The questionnaire consisted on a total of 22 questions regarding personal information, safety issues, and indicating the safety equipment on the plants of each floor. Furthermore, the survey was conducted between May and July, 2014 on several hours of the day, on the floors zero, one and two of the building.

**Table I: The FLUL population and the analyzed sample in this study.**

Population	Total number	Analyzed sample of 20 %
Under-graduated students	2805	561
Master students	601	120
PhD students	331	66
Post-Graduation students	26	5
Researchers	15	3
Professors	241	48
Staff	140	28
Total	4159	832

**Results**

A total of 832 questionnaires were analyzed. The questionnaire had a total of 22 questions however in this study only the preliminary results of 14 questions will be presented and discussed. The preliminary results are shown in Table II. Most of the participants are women (484), representing 58.2 %. The FLUL users are in general young people, with less than 30 years old (question two), which represents 84.3 % of the population. Most of the users are at FLUL for more than 1 year (634, or 76.2 %). At the moment of the questionnaire (question four), 33.1 % of the participants said they were on the ground floor (275).

**Table II: Results of the questionnaire.**

Questions	Answers	%
<b>1.Sex</b>		
Females	484	58.2
Males	337	40.5
NA	11	1.3
<b>2.Age</b>		
20 or less	199	23.9
21 - 30	502	60.3
31-40	62	7.5
41-50	30	3.6
51 or more	32	3.8
NA	7	0.8
<b>3.How long have you been at FLUL?</b>		
Less than 1 year	189	22.7
1 - 2 years	159	19.1
2 - 3 years	145	17.4
3 - 4 years	106	12.7
More than 4 years	224	26.9
NA	9	1.1
<b>4.Indication of the present floor.</b>		
3rd Floor	5	0.6
2nd Floor	180	21.6
1st Floor	239	28.7
Ground Floor	275	33.1
Basement	108	13.0
NA	25	3.0
<b>5.Have you ever felt unsafe at the FLUL?</b>		
No	674	81.0
Yes	155	18.6
NA	3	0.4
<b>6.What should you do in case of a fire (2 steps)?</b>		
3 steps	54	6.5
2 steps	530	63.7
1 step	230	27.6
NA	18	2.2
<b>7.What should you do in case of an earthquake (2 steps)?</b>		
3 steps	23	2.8
2 steps	399	48.0
1 step	377	45.3
NA	33	4.0
<b>8.Indication of your position on the plant.</b>		
Correct	608	73.1
Incorrect	130	15.6
NA	94	11.3

Questions	Answers	%
<b>9.Indication of fire-extinguishers on the plant.</b>		
0	492	59.1
1	195	23.4
2	94	11.3
3	35	4.2
4	9	1.1
5	1	0.1
6	1	0.1
Several	5	0.6
<b>10.Indication of exit signs on the plant.</b>		
0	575	69.1
1	183	22.0
2	36	4.3
3	22	2.6
4	6	0.7
5	1	0.1
Several	9	1.1
<b>11.Indication of emergency doors on the plant.</b>		
0	447	53.7
1	241	29.0
2	69	8.3
3	40	4.8
4	15	1.8
5	3	0.8
6	8	1.0
7	1	0.1
Several	8	1.0
<b>12.Indication of emergency buttons on the plant.</b>		
0	796	95.7
1	25	3.0
2	4	0.5
3	1	0.1
4	1	0.1
Several	5	0.6
<b>13.Indication of the meeting point on the plant.</b>		
Outside the building	203	24.4
Inside of the building	132	15.9
NA	497	59.8
<b>14.Indication of the work place on the plant.</b>		
Correct	272	32.7
Incorrect	35	4.2
Other floors	223	26.8
NA	302	36.3

However, five (0.6 %) said they were on the 2nd floor, which does not exist, and 25 participants (3.0 %) were not able to identify in which floor they were. 81.0 % of the participants said they have never felt unsafe at the FLUL building (question five). Although in question six only two steps were asked about safety procedures if a fire would occur, 54 participants (6.5 %) remembered three steps. However, 18 participants (2.2%) did not know what to do to protect them in a fire, while the majority of 63.7 % were able to remember two procedures. In question seven, two procedures were asked if an earthquake would occur and 23 participants (2.8 %) remembered three steps, but 33 (4.0 %) did not know what to do, and 48 % were able to remember 2 procedures. Most of the users, 608 that correspond to 73.1 %, were able to correctly point out where they were on the floor, but 94 participants (11.3 %) did not know where they were (question 8). The large majority of the users are not aware of any safety equipment (questions 9, 10, 11 and 12), since 59.1 % (492 participants) did not see any fire-extinguisher, 69.1 % (575 participants) did not see any exit sign, 53.7 % (447 participants) did not see any emergency doors, and 95.7 % (796 participants) did not see any emergency buttons. Regarding the meeting point (question 13) the majority of participants do not know about it (59.8 %, or 497), and 132 users (15.9 %) think it is located inside the building. Finally, only 272 participants (32.7 %) were able to correctly point out their work place on the plant (question 14).

### Conclusion

In this study 832 questionnaires were analyzed, that correspond to 20 % of the FLUL users (students, researchers, professors and staff). The survey was conducted from May to July, 2014. Although the questionnaire had a total of 22 questions, in this study only preliminary results of 14 questions are presented and discussed.

The results show that the FLUL users are young, being 84 % less than 30 years old. Most of them are students (90.4 %) that are familiar with the building for more than one year (76.2 %). The participants of the survey know what to do if a fire occurs (at least theoretically) since only 2.2 % did not remember any procedure, while more than 90% remember one or two procedures, and 6.5 % remembered three procedures. However further educational activities should be provided regarding earthquake' safety because although 96 % of the participants remembered what to do if an earthquake occurs, most of those actions are wrong (not shown in the text). In addition, the fact that 73 % of the users were able to indicate where they were, and only 33 % could point out where their workplace is shows that the spatial knowledge of the FLUL is quite poor and therefore, educational activities to improve this situation should be carried out.

In general the users are not aware of any safety equipment (fire-extinguishers, exit signs and emergency doors) since 59 % did not see any fire-extinguisher, 69 % did not see any exit sign, 54 % did not see any emergency door, and 96 % did not see any emergency button. Also, 60 % of the users do not know where the meeting point is located, and 16 % think is located indoors. For these reasons more effective ways of communicating the risk should be attempted, and the evacuation exercise conducted in 2012 should be repeated to all FLUL users.

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