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Inspædia user experience design (UXD)

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Abstract

The *Inspædia moto* is to inspire a collaborative intelligence network on innovation and design processes. This paper is focused on *Inspædia* user centered design features. We will describe how users can access the web platform, add, explore, relate, and share the *Inspædia* contents. It will be a unique, memorable and inspiring collaborative knowledge experience that will facilitate several creative activities.

Inspædia is the natural consequence and development of the prototype resulting from the research in Design PhD thesis entitled "Innovation, design *et cetera*". Therefore, the new platform is being developed under the post-doctoral Design in FA/UL – Faculty of Architecture of the University of Lisbon (Portugal); Science Without Borders Program with a Special Visiting Researcher fellowship from CAPES (Brazil) at the PGDesign UFRGS – Federal University of Rio Grande do Sul; CITAD – Research Centre for Territory, Architecture and Design of Lusíada Universities (Portugal); FCT – Foundation for Science and Technology (Portugal). The aim of this paper is to disclose the new research developments and the results from the systematization of experience and user's interaction on the *Inspædia* platform. We want to share and discuss the interim results achieved so far with the participants of the 6th AHFE through a visual based presentation of the *Inspædia*. We will choose the best outputs to be included in the next phases of the *Inspædia* research project.

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1. Context

This project is at the centre of a PhD research in design [1,2,3,4,5,6,7]. Between August 2014 and February 2015, the *Inspædia* strategy, research and development processes were focused on a holistic vision of the platform and on the systematization and simplification of the user experience, relating data visualization with interaction [8,9,10].

The processes went through the critical analysis of existing web platforms and some concepts were identified there that could be included and upgraded in the *Inspædia* user experience Fig. 1. (a). The definition of the players (persona profiles) and the identification and description of the use cases [11] shaped the environment of use, experience and interaction. Scenarios were developed and tested through rapid ideas prototyping to check and validate meaningful solutions [12]. The functional and non-functional requirements were defined to build up software for testing the *Inspædia* interface and UXD that will be presented in the 6th AHFE 2015 conference.

2. What is *Inspædia*?

The *Inspædia* will be a knowledge platform available anywhere, for anyone, to facilitate the nonlinear thinking and inspire collaborative intelligence network, exploiting the potential of Web 2.0.

Inspædia recovers some functionalities and features of existing platforms. It is clearly different from others in terms of individual and collaborative inspiration ability to feed productive thinking in highly creative contexts: the *Inspædia* concept comes from the articulation of the attributes that are at the basis of the conceptual model and the attributes that allow us to facilitate, operate and monitor its operation. Summing up:

a) It is 'locus free' [13] because it can 'happen anywhere' [14];

b) Contents depend on the collaborative intelligence of the *Inspædiers* (they continuously feed and perform the platform);

c) Contents are visually related and the relations they can establish are dynamic (and constantly updating in number, type and relationships);

d) It prepares abductive reasoning through the construction of visual lists (random, pragmatic and poetic) and (infinite) collections of things, enlarging and diversifying the frame of references (with the aim of stimulating ideation in design);

e) It promotes aphorisms and is, thus, thought provoking, opening up windows of meaning;

f) It triggers strategies to activate divergent thinking;

g) It facilitates the change of context (opens up the possibility to think, de-contextualize concepts and jump from one context to another, as is the case with rhizomatic thinking) through analogical thought (reasoning by analogies) when properly conjugated with logical thought (deduction, induction and abduction) and therefore, favors fluency (numbers and ideas), flexibility (number of categories implied in a particular idea) and originality (uncommon ideas), and facilitates the elaboration of new ideas and concepts;

h) It allows fantasy and improvisation, and can thus be a modality of over-interpretation;

i) It provokes the imagination leaving room to guess, presume and suppose;

j) It registers, for future memory, reasoning (one's own or by other *Inspædiers*) allowing its reconstitution and the possibility of revision;

l) It empowers the construction of future visions;

Last, but not least, *Inspædia* distinguishes itself from other platforms because its interaction design is inspired by the distinctive characteristics of the *Inspædia* concept.

3. Who are the *Inspædiers*?

The *Inspædiers* are visual storytellers – designers of the most diverse areas, teachers, researchers, artists, curators, entrepreneurs, managers, politicians, university students *et cetera* [1,2,3,4,5,6,7]. The *Inspædier* wants to enjoy the contents and the relationships they establish with each other in an intuitive, simple, meaningful and stimulating way (s/he wants to find and visualize unexpected related data in the fastest and most seductive way). The *Inspædier* expects a unique, memorable and inspiring experience in innovation and design processes. In this sense, the interaction is designed to match these expectations. That is the topic and the novelty that we want to visually present at the Conference. The process of systematization and the experience objective is to get rid of all the noise and unnecessary actions to enable navigation without losing one's way. The design process is simple and meaningful because it is focused on the essential (currently one of our research questions is to find out what is essential for the users).

4. Research methods and discussion of results

We confirmed the validity of the research methods and the objectives of the discussion of results.
Description of methods:
a) Systematic observation, measurement, and experiment, and the formulation, testing, and modification of hypotheses;
b) Design thinking: discovery > interpretation > ideation > experimentation > evolution [15].
c) Experimental design studies to test the hypotheses;
d) Rapid prototyping of ideas [16] through scenarios;
e) Inquiry (empirical and measurable).
Discussion of results:
The discussion and dissemination of the results aim to inform, promote and stimulate the use of the *Inspædia* platform and test solutions of interaction design and user centered experience.

5. *Inspædia* attributes, user motivations, user actions, persona profiles and use cases

We have confirmed and maintained the attributes that are at the basis of the conceptual model: Interactivity; Expandability; Productivity; Regeneration; Remissibility; Reversibility; Virtuality and the attributes that allow us to facilitate, operate and monitor its functioning: Friendly; Collaborative; User Centered; Democratic; Roaming Facilitator; Reliable; Ideologically Poor; Learning Inspiring; Integrator; Nonhierarchical; Nonlinear. The study confirmed and maintained the motivations of the users to explore the *Inspædia* platform: Learning; Peeking; Experimenting; Inquiring. As we will see further, we redefined in number and gender the previously identified entry and search actions in the platform: Browse; Explore; Discover; Research; Envision; Play; Visit. The persona profiles leading to the definition of Actors were identified and characterized: Anonymous (anyone who visits the platform that is not certified); Guest (user registered in the system that performed the login); Content Constructor (user registered in the system that performed the login and has permission to construct, connect and manage contents); Administrator (the platform manager). We have identified and described the cases of use. Given the length of the text that includes the detailed description, actors, pre-conditions, post-conditions, functional requirements, non-functional requirements and flows of use cases, we could not include it in the article.

Use cases:
a) Access to the platform's public pages (access the public pages of the platform without the need to login or be registered on the platform – Guest User);
b) Login (user authentication as *Inspædier*, Content Constructor and Administrator, registered in the system, allowing the execution of operations in the restricted area of the platform according to her/his permissions);
c) User registration (through access to the user registration form as *Inspædier*, through email or social networks, requiring validation of the account via an e-mail sent by the system);

d) Remember the password (the user forgot the password and the system has a feature for its recovery);

e) Forward registration activation email (the user that lost the email with the registration activation link can request a new one);

f) Edit profile (the user has an area to manage the profile information / account);

g) Manage areas of interest (the Administrator can manage the areas of interest that the users select in their profile);

h) View the profile of Contents Constructors (users can access a page with the profile data of Contents Constructors);

i) Exclude the user account (the user can delete his/her account from the system and the Administrator can select and delete any platform account);

j) Manage Favorites (the user has an area of Favorites and Favorite Collections, which can be organized into folders and sub-folders);

k) Manage Tags;

l) Manage Trails;

m) Log Out (the user can logout of the platform);

n) Browse the Web (the Contents Constructor can search the web using the Inspire tool; the results are displayed in a new browser window);

o) Visualize the description of a content registered in the repository Fig. 1. (b) (the user can access the description of a content from any input on the platform);

p) Access the contents repository through a Visual Mapping (gives the user a view of the contents by privileging the image);

q) Access the contents repository through a Grid Mapping Fig. 1. (c) (shows the user the images of the repository content displayed in a Grid mode). The interest in providing this possibility is still under review and evaluation;

r) Access the contents repository through a Chronological Mapping (gives the user a preview of the contents of the repository in a Time Line subdivided according to the classification of content: Facts; *Et Cetera*; People);

s) Content Registration (the Contents Constructer can register a new content that is stored in the platform's repository);

t) Manage a Collection (allows the user to manage her/his collections: add, change, delete, assort and connect);

u) User Trail View (the user can access other users' trails; the Trail corresponds to a user's browsing history through the contents repository for a specified period of time);

v) Manage users;

w) Manage contents Fig. 1. (d), (e);

x) View notifications;

y) Other Use Cases in analysis and validation phase.

6. User Experience Design: contents construction, contents visualization and interaction design

The crossing of the attributes that are at the origin of the conceptual model, the attributes that make it feasible, functional and reliable, the motivations of users to explore the *Inspædia* platform, as well as the input actions on the platform and use cases, conformed a principle of user experience and design focused on two types of Interaction / Actor:

a) Construction and content management / Contents Constructors and Administrator;

b) Contents display mode / Guest User and *Inspædier*.

The *Inspædia* platform will be the new "ideagora" [17,18] of the knowledge workers [13,19], aiming to provide the highest number and most varied relevant related content Fig. 1. (f). To fulfill this purpose the contents construction will be strict (in the title, in the detailed description of the content, and in the relationships established between contents), intuitive and fast. The accuracy and the relationships of the contents arise from default tags (identification, definition, relationship and suggestion of use). The relevance and inter-relationship of the contents stem from the knowledge, imagination and competence of the Contents Constructors as individuals and as collaborative intelligence network. The process of systematization and simplification of the user experience was achieved though the redefinition of the number and type of browse actions that were previously identified (Browse; Explore; Discover; Research; Envision, Play, Visit) into a single action – Inspire Fig. 1. (g) – from which

the search process begins. This action invites and drives the user to visit, explore and discover new things and new relationships, 'probably improbable'. This is a process that attempts to transfer to the digital world the brain's synapses and trigger conceptual leaps able to inspire and boost the *Inspædiers* imagination towards new visions and future scenarios Fig. 1. (h), (i).

The contents are added and managed in the Add Content window Fig. 1. (j) (Visible / Invisible; Title; Description; Link(s); Font; Author; Date; Related Tags; Timeline: Facts; Etc, People; Video(s); Attach Document). The tags are added and managed in the Add Tag window (Visible / Invisible; Tag; Description; Related Tags). Using the English language, the translation of content and tags is made automatically for the three other languages available on the platform (Portuguese, Spanish and Mandarin). The content interaction display happens by browsing through tags (using a single tag or a set of tags). When starting to introduce a search with alphabetical characters, suggestions are given by similarity to the sequence of characters entered. As an alternative to browsing through tags the platform makes suggestions to start the search (random content, Favorite Collections, Favorite Content and Favorite Content Constructors). When browsing, the *Inspædiers* will be creating a trail that corresponds to the chronological sequence of their navigation route and content display. As they navigate, users can mark their Favorite Content(s), Favorite Collection(s) and Favorite Content Constructor(s). The platform calculates automatically the most viewed / clicked contents. The user can, at any time, return to the trail to delete unwanted contents or restart the navigation from a particular content. The trail provides information on access dates and the most significant landmarks of navigation (intentionally marked by the user).

The user has two modes for displaying and interacting with the content:

1) Through an eminently visual cartography (inspire by Things) Fig. 1. (k) that maps the contents, evidencing the selected content and its proximity to other related contents (organized by levels, according to the number of tags that are common among those contents). Starting from the selected content the user can navigate to other contents by dragging the map (pan function) or by clicking other contents (closer or farther away from the origin). After selecting / clicking on the content, the user can access its detailed description. Navigation is via the horizontal / vertical movement and through zoom (in / out). The lower the zoom (increased distance) the more contents the *Inspædier* can see simultaneously. The number of contents with which a content relates directly (first level, second level,...) introduces variations in the display mode performance (by favoring images, titles or points). The passage of the mouse / finger over an image reveals the title of its content. The passage of the mouse / finger over a title reveals the image corresponding to that content. The passage of the mouse / finger over a point shows the image or the title of its content.

2) Through a mapping that organizes chronologically (Timeline) Fig. 1. (l) and thematically the contents (Facts, Etc, People) where Etc corresponds to all the things that cannot cover the categories People and Facts. The navigation in the timeline is similar to the navigation in the Visual Mapping (images).

In either of the display modes of *Inspædia*'s contents, where possible, the image display and interaction is privileged. In this sense, before programming the process of UXD [20,21] (written language, graphic design, sound, motion, information design, interface design, interaction design, programming) [22] inevitably went through the exploration of synthesis ideographic records [23] in order to prototype, communicate, test and validate ideas.

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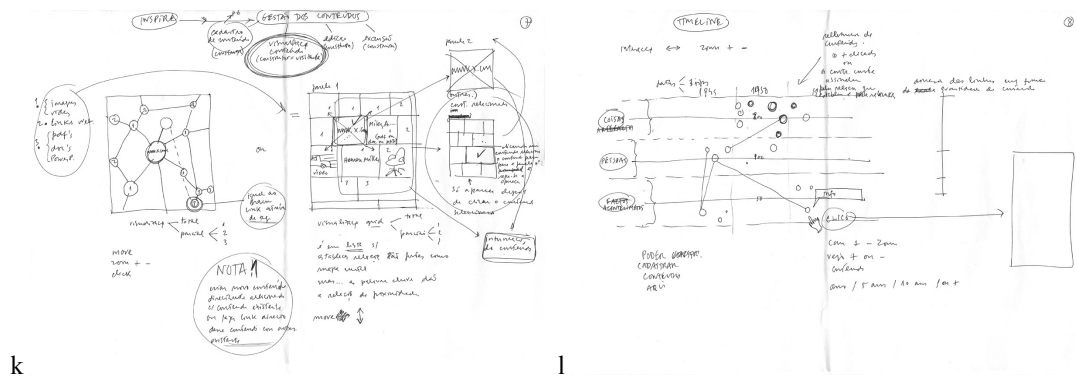

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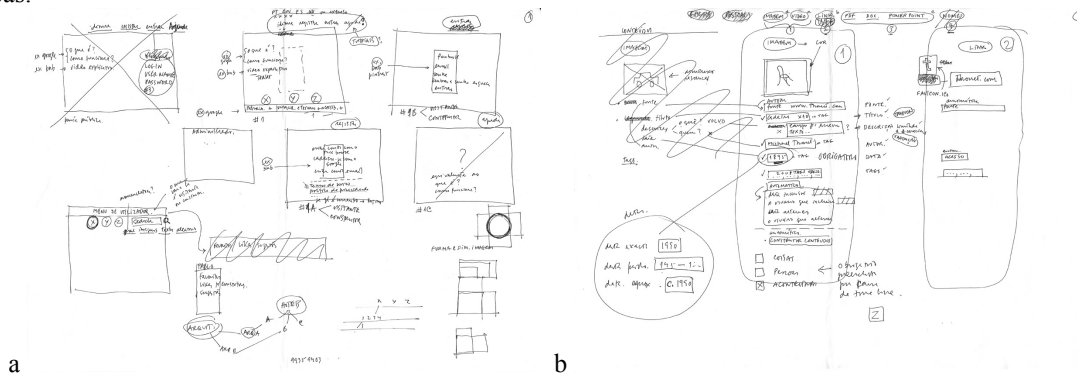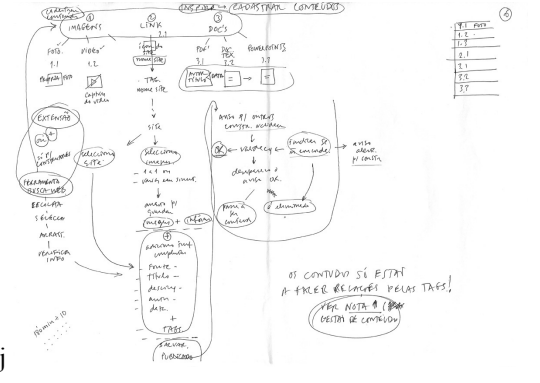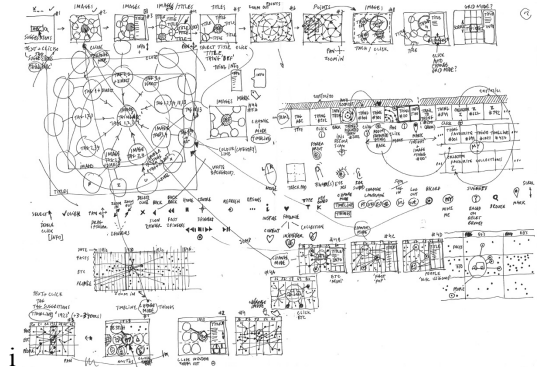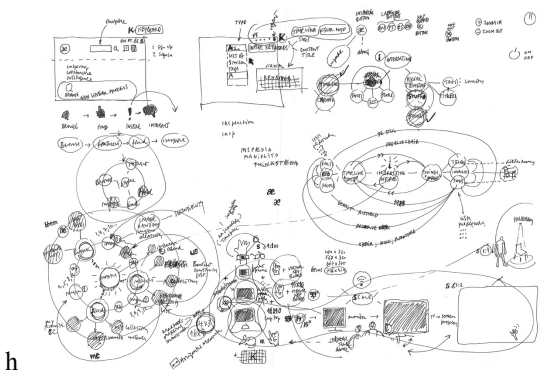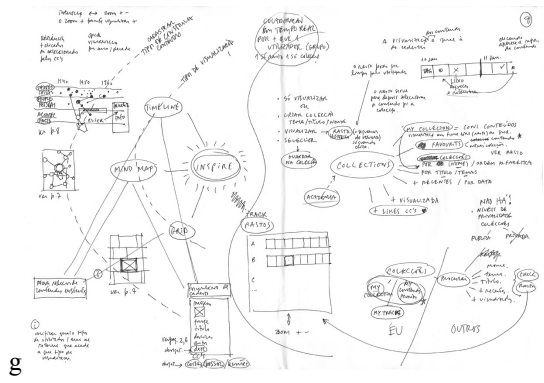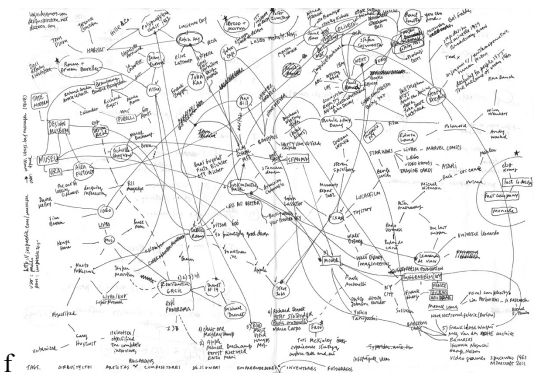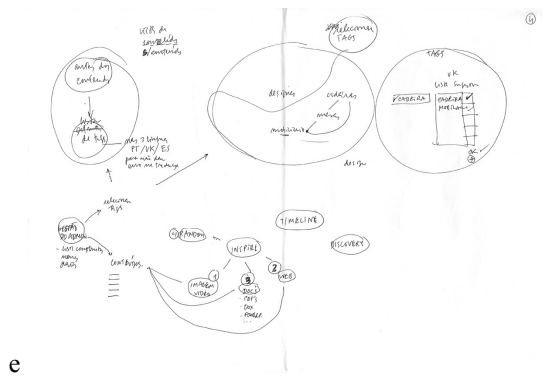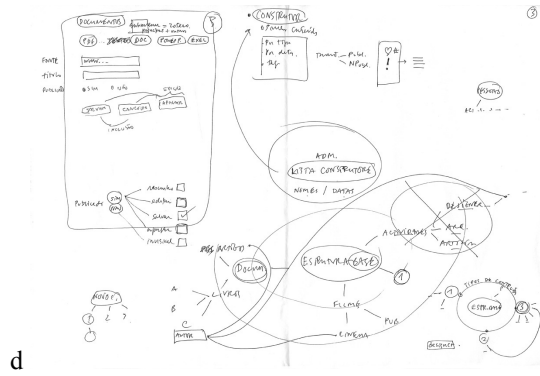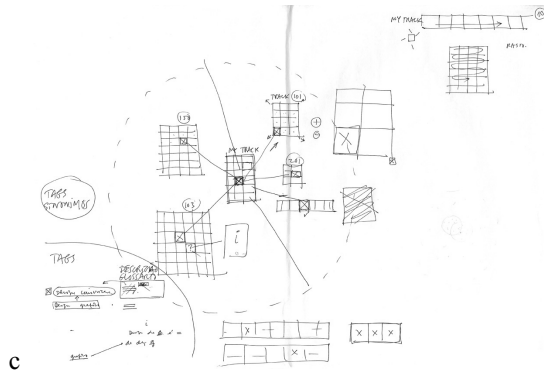
Fig. 1. *Inspædia* interaction ideographic diagrams (a) Benchmarking: synthesis (b) Contents description window (detail levels of information) (c) Grid Mapping: contents relations by levels of similarity of trails and tags (d) Contents management (Administrator and Contents Constructors) (e) Contents management (Administrator); relationship between tags and contents (f) Related contents for prototyping and test (g) Inspire: contents display modes and relationships between contents, Trails and Collections (h) Inspire by Things, Inspire by Timeline; displays / interaction scale (i) Inspire by Things, Inspire by Timeline; Trail; change interaction mode; icons list. (j) Contents record (k) Visual Mapping: content view and interaction: Things, Grid (l) Chronological Mapping: content view and interaction (Facts, *Etc*, People). [Source: Paulo Maldonado]

7. The future

It is expected that the *Inspædia* will have a great impact in the academic and the professional community because it incorporates useful related transversal knowledge. The knowledge is the result of the collaborative intelligence work that provides an inspiring environment in innovation and design. Tests conducted with potential users, in particular with students from the UFRGS PGDesign, have confirmed the interest and the inspiring potential of the *Inspædia* platform (globally). The methodology and the research and development process assure that the objectives can be achieved – to develop a web platform to access relevant and reliable content; to facilitate the collaborative intelligence oriented to innovation and design processes, pursuing open design processes accessible to "more voices"; to expand and diversify the frame of reference and to stimulate ideation in design.

Acknowledgements

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