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A Systematic Methodology to Use LEGO Bricks in Web Communication Design

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ABSTRACT

This experience report presents a case study and the lessons learned from using Real Time Web (RTW) in the design of a corporate website. RTW is an innovative methodology to effectively elicit and plastically represent requirements in the design process of a web application. RTW adopts a playful approach to collaboratively elicit requirements and strategic web design issues, and extends the experience of LEGO Serious Play (LSP), a team collaboration methodology. The basic tenet of LSP is that LEGO bricks are simple to use and provide ready-made, powerful and multi-purpose symbolic pieces, known to most people and used in different cultures. RTW exploits this potential to elicit communication requirements, create a share vision for high-level design, and build team commitment.

Categories and Subject Descriptors

D.2.1 [Requirements/Specifications]

General Terms

Design, Human Factors.

Keywords

Requirements analysis, web applications, LEGO bricks, informal interactions, cruise industry, eTourism.

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1. INTRODUCTION

The communication design of complex websites requires differently skilled stakeholders (e.g. web designers, project managers, marketing experts, programmers, graphic designers, financial officers) to work in concert and agree on a common vision, strategy, and operative directions [2]. Collaboration, discovery and negotiation of ideas at the early stage of design is traditionally known as requirements elicitation and analysis. The work on requirements is paramount: it is at this stage that team members start developing and sharing basic design concepts, envisioning their users, content and goals. Far from being a uniform and straightforward process, requirements elicitation for the web is a complex and multifaceted activity, for which there is no silver bullet or recipe that guarantees success.

In the context of exploring innovative and effective methods for eliciting web communication requirements, this experience report presents a case study and the lessons learned from using Real Time Web (RTW). RTW is an innovative methodology to effectively elicit and plastically represent requirements in the design process of a web application. It adopts a playful approach to collaboratively elicit requirements and strategic web design issues, and extends the experience of LEGO Serious Play (LSP), a team collaboration methodology developed by LEGO and IMD, a business school based in Lausanne, Switzerland. The basic tenet of LSP is that LEGO bricks are simple to use and provide ready-made, powerful and multi-purpose symbolic pieces, known to most people and across different cultures. LSP's assumption is that everyone within an organization can contribute to the discussion and help creatively generate solutions.

RTW was developed by two laboratories of the Università della Svizzera italiana in Lugano, Switzerland, in collaboration with Italian companies Trivioquadri and Kartha, in order to build up a methodology that could specifically support the collaborative requirements elicitation activity of complex web applications. To show how RTW can effectively meet the needs of the requirements

activity in an innovative and engaging way, we will illustrate the use of the methodology during the design of the web communication strategies of an international cruise company, leader in the luxury goods industry. We will show how the results of requirements elicitation with RTW informed the re-design of the website, helped unlock new business opportunities, and facilitated sharing a vision among stakeholders.

2. BACKGROUND

Ethnographic approaches applied to interaction design and filtered through the lens of designers, have distilled some important methods such as Contextual Inquiry [1], as a response to the traditional approaches to requirements. These methods address analogical thinking (e.g., the use of affinity diagrams and related techniques), as well as organization-wide brainstorming mediated by the reflection and discussion of *shared artifacts*. In the same tradition, participatory design has emphasized the role of stakeholders in the design process as a way to elicit more salient and accurate requirements, facilitate and unleash creativity by drawing from outside the toolbox of the designers, and keep emerging ideas more aligned with the user needs throughout the development process. It is in this tradition of approaches that the notion of *make tools* [10][9] emerged as a way to organize thoughts in participatory design sessions. It supports not only active “doing”, but active “making”. Building physical artifacts or “convivial tools”, as opposed to conceptual artifacts, meets the stakeholder need of creativity and introduces a sort of playfulness that facilitates sharing, engagement and openness [11][12].

Leveraging this tradition of research and practice, LSP [8] is based on the assumption that everyone within an organization can contribute to solving problems, and help generating solutions. The main idea is developing a method that “gives your brain a hand” [8]: holistic thought, supported by *making* together instead of just thinking, can enhance understanding and creativity.

LSP exploits on LEGO bricks, which (a) are simple to use and do not require fine motor abilities in order to be able to build models; (b) provide ready-made powerful symbolic pieces, such as little men and women representing many professions, skeletons, money, animals, etc; (c) are known to most people as a toy and as a joyful part of their own childhood; and (d) are present in many different cultures.

LSP exploits the creative power of LEGO bricks, and their intrinsic playfulness, to generate a relaxed environment where trained consultants can guide participants in team-building activities, SWOT analysis, and to the definition of simple guiding principles for advancing their projects. The key of the method is its structured sequence of timed activities, which lead participants from play and competition to modeling complex organizational issues, developing what-if scenarios about alternative designs and to systematically wrapping up new knowledge. Each activity is based on three principles: (a) creating a model, (b) attributing a (metaphorical) meaning to it, and (c) sharing that meaning with the others through a story.

LSP currently includes activity modules for team building (called *Real Time Identity*), project planning (*Real Time Strategy*) and wicked problems (“*the beast*”). Each module produces outcomes that can be summarized in a report, including “simple guiding principles”, i.e., principles that can be applied in the team or project

starting the next day. LSP heavily leverages on team interaction, so that all outcomes are negotiated and shared, preparing the ground for smooth organizational change. LSP is being currently used in over 25 countries through a network of LSP authorized partners [5].

From a methodological point of view, we extended LSP to support requirements elicitation for web communication design. The playful nature of our approach perfectly fits the complexity of requirements analysis and design, mainly for two reasons. First, research on playing games [7] suggests that playing is basically pattern construction and learning, and this is actually what requirements elicitation and communication design is about: identifying patterns in users needs, modeling complex situations in order to make them manageable. Second, playing means entering a magic circle where game rules hold, while some “real world” rules can be put off [6][3]. This entails, for example, taking on new roles [5], different from corporate ones, and exploring unusual ways of collaboration and discussion.

3. REAL TIME WEB (RTW)

The first important step in a RTW session is the selection of participants. RTW, like other LSP modules, works well with up to 12 participants. When more people are involved, it is better to split them into groups. The rationale here is that (a) each participant should have time to tell her/his stories and (b) the session should not be overlong. RTW elicits requirements bottom-up, so that a good working group should ideally include one representative for each stakeholder type (e.g., managers, IT staff, sale force, clients, etc.).

The Website Communication Model (WCM) [4] is a metaphor that illustrated the areas of concern for planning, implementing, maintaining, promoting and evaluating a web application. As presented in Figure 1, WCM is based on four main pillars: (a) *contents and services*, (b) *technical instruments*, (c) *people in charge* of building, managing and promoting the website, or message “senders”, and (d) *people who access the website*, or message “addressees”. The *competition arena* around a project represent the website’s environment: the context and competitors.

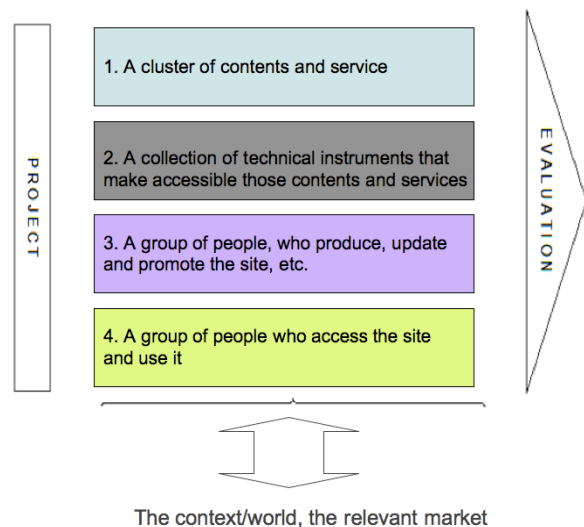


Figure 1 – Main WCM elements (adapted from [4])

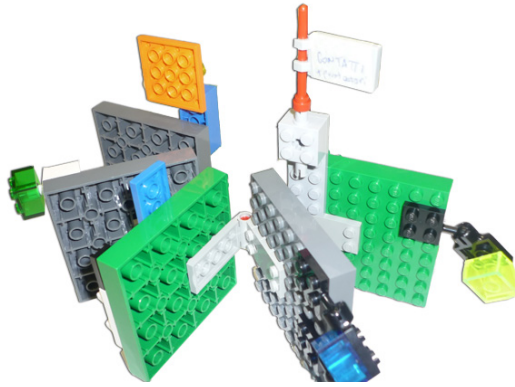


Figure 2 – RTW individual model for “many contexts”.

RTW is basically sequence of facilitated and timed activities, following the format of LSP modules, and designed on the basis of the WCM. Activities for a single session include:

1. *Introduction: goals, method and warm-up activities.* These preliminary activities, included in the main LSP method, serve both as ice-breaker and illustration of the main steps in the session.
2. *Individual model: your role in the project.* This model represents how each participant thinks s/he can contribute to the project. It also allows identifying the absence of key stakeholders during the session, or even in the project at large.
3. *Individual model: define users.* This model represents what each participant thinks are the main users of the web application. More than names, the models represent the main features of specific users, and how/why/when they might use the website.
4. *Collaborative activity: black-box landscape.* This first landscape positions all models of project stakeholders and specific users around a symbolic object (the black-box) that represents the web site or application as a whole. It is a first step in collaborative thinking and team alignment.
5. *Individual model: web application content.* This model represents a single content item – possibly the most important – in the web site. The model in Figure 2 represents a content feature expressing the need for presenting “different contexts” in which information bits should be understood by users.
6. *Individual model: web application function.* This model represents a single function (e.g., an operation, transaction or service offered by the site) – possibly the most important.
7. *Collaborative activity: complete landscape.* At this stage the black-box is removed and replaced by content and function models. The whole landscape is then rearranged in order to fit the new situation and to make sense as a consistent narrative. Figure 3 illustrates a landscape developed during a RTW session.
8. *Connections: use and management.* Connector pieces are used to link stakeholders to content/function models (indicating a management relationship), and users to content/function models (indicating a use relationship). This allows identifying central and peripheral parts of the web

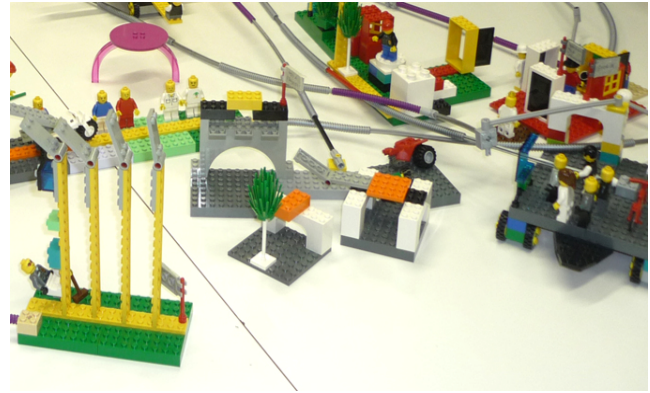


Figure 3 – Sample RTW final landscape.

application, along with potential unbalances (e.g., a content relevant to many users but not managed by anyone) or useless features (e.g., a function connected to no user).

Each activity has a precise timing varying between 5 and 10 minutes, both to prompt action and to keep the session within a defined time limit. Activities are performed on a musical background that a laid-off environment.

RTW, like LSP, uses a special set of LEGO bricks (available for purchase through LSP partners), which includes special connector pieces and some particular figures and colors.

4. COMMUNICATING LUXURY GOODS ON THE WEB WITH LEGO BRICKS

This section presents a case study, which took place in 2008. RTW was used as requirements analysis technique for the overall re-thinking of an international luxury cruise company’s online communication. Project goals were (a) redesigning the website and (b) developing an effective online communication concept aligned with corporate identity and business requirements.

4.1 Preparation

Designers worked on several explorative analysis. We conducted user requirements interviews with key-people, as well as a focus groups, to elicit as many explicit requirements as possible. RTW was then used in a half-day session, involving 14 executives from several offices worldwide, including the President and people reporting to him. The RTW session was held during the initial phase of the project. Explorative analyses did not directly influence the preparation of the RTW session, provided a background for a more effective presentation of tasks during the session, and allowed facilitators to ask more focused and relevant questions when participants shared the stories of their models. Furthermore explorative analyses helped in understanding the context in which the models should be adapted.

In this case, the RTW basic structure was fine-tuned to fit specific requirements, namely target participants and time available. Consequently, the session skipped step 4 (black-box landscape) and 8 (connections), and merged steps 5 and 6 (content and services). Finally, participants built three individual models and negotiated collaboratively a final landscape.

4.2 Results and Impact

The RTW was an opportunity to collaboratively and creatively design the main requirements for the new website as envisioned by the people working for the company. The session facilitated communication among participants about their commitment and the complexity of the redesign process. The main result obtained was the connection among different cultures, needs and users, in order to sketch, as a participant put it, a “cosmopolitan web-space”.

Thanks to the application of RTW, designers were able to confidently define the contents and functionality of the website which formed the basis for the design of the information architecture.

An external vendor was then contracted for the graphics design and the technical implementation.

The following paragraphs highlight the main requirements emerged from the session following the WCM structure.

The design implications for the first WCM pillar (contents and services) can be summarized as follows:

- The website will showcase the services offered on board (i.e., spa, virtual tour, life onboard, cruises, destinations, ships, fares, people onboard, etc.). In Fig. 4 (right) a user behind a screen virtually visits the deck plan of the ship, in the model built by the Guest Relationship Manager.
- The website will clearly communicate emotions: “a contemporary undisputed class and elegance”. In Fig. 4 (left) the President built a model of a ship. He explained the black color and the simple lines as representatives of classic and elegant style. Thus the website will represent the modern top quality elegance and style of the brand as top leader in its niche.
- The website will feature state-of-the-art media such as web 2.0 solutions: corporate blog, user generated content, and social networking among the existing online cruise club members. During the session, stakeholders realized that they wanted to enter this world, but without any loss of control, making sure that user experience would be always aligned with brand image.
- The website needs a consistent brand campaign aligned with web communication at large. Consequently, an international agency was selected to conceive a new brand image campaign.

The second WCM pillar considers *technical solutions*, and related requirements are:

- The website will provide dedicated access to different sections

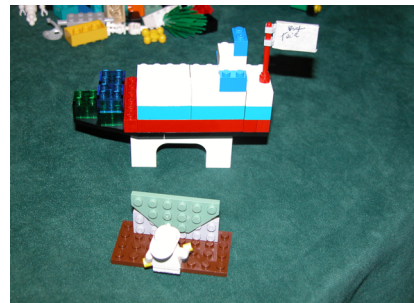
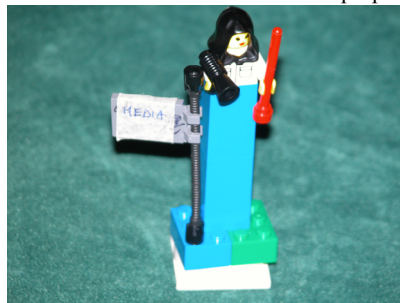
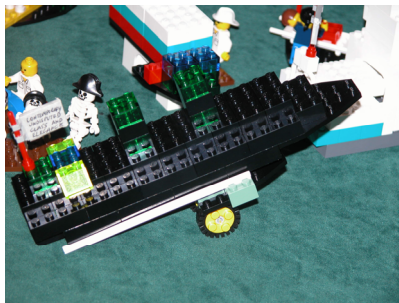


Figure 4 – RTW individual models for a contemporary undisputed class and elegance (left), media as target audience (center) and virtual tour as content (right)

(Corporate & Incentive, Press Area, Guest Area, presentation of a new ship).

- The website will support easy experience planning (i.e., “click to talk” solutions as support to online booking).

Design implications for the third WCM pillar (*site managers*) are:

- Some participants were deeply involved in the project while others perceived it as quite far from their duties: they were interested in getting advantages, but could not figure out how to actually contribute to it. The session helped clearing this.
- RTW helped managers to better focus on budgetary issues. They better understood which resources were needed for the launch, promotion and maintenance of the website. Internal information flows and decision processes were discussed, offering a clearer image of the implications of building a new website within the context of an overall online communication strategy.
- The website will be easy to manage, constantly updated, and user friendly (i.e. adopting an easy and multi-access content management system).

The fourth WCM pillar considers *users*, with the connected issues of usability, web promotion and access analysis. Elicited design requirements included:

- Users share the cruise experience through word of mouth: it is important to create a solid web reputation about the company brand.
- Media are an important partner in corporate communication and the website should be their main source of information about the company. The Director of Communication and Marketing represented the user “media” as a woman with a megaphone and a receiving antenna on the top of a tower, as presented in Fig. 4 (center).
- Users were characterized as demanding, multi generational, international, innovative, diverse, and interested in planning experiences with other people.
- During formal user requirements interviews, all internal stakeholders stressed the importance of travel agents, as a key user type. Nevertheless, when it came to building a model of an important user type, no one built a *travel agent*. This fact was debriefed at the end of the session to make sure that explicit and implicit expectations (which could form a sort of hidden agenda) were better aligned. In fact, there were mixed feelings about the possibility of a partial disintermediation of the relationship with clients and prospective clients through the website. Thanks to the RTW session, this issue was identified and properly discussed.

Some final requirements address the *context* of the web application, i.e., its relationships with the web as a whole. Stakeholders realized that they had to take into consideration so-called *freedom boomers*: people belonging to the baby boom generation, which are now experiencing great freedom from family and job duties.

5. A CRITICAL REFLECTION

Based on the presented experience, and other applications of RTW, we critically reflected on its advantages and drawbacks.

The playful experience of RTW pushes people into a creative and constructive mood. Stakeholders feel less constrained, and dare exploring wider scenarios. If compared with more formal strategies, such as interviews and focus groups, people are more likely to think out of the box.

As typical in strongly collaborative sessions, RTW helps relevant internal stakeholders to focus on the project, to better understand their own perspective as well as their colleagues'. Many different silent assumptions are made explicit and eventually challenged by others. RTW promotes a sort of double mirroring: stakeholders mirror their own ideas into a single LEGO model, and at the same time, they can see how their viewpoints are reflected in the models produced by their colleagues.

It is clear that RTW helps prioritize needs and requirements. Participants are requested to build up a single Lego model, to represent "an important" or "the most important" content/service/target group. They cannot just list many items, as it happens quite often during interviews and focus groups. People understand that the more focused is the communication, the more effective and efficient it is. In this process, they are naturally driven to align web communication requirements with company goals and business.

Thanks to its playful aspect, RTW also helps mitigate power-related biases. Following the structure of activities, participants can freely express themselves ("everybody has a voice"): there is no risk of just copying or approving the boss' ideas. This is a particularly relevant advantage, if compared with focus groups, where the viewpoint of a leader could reduce or even block free expression by others.

Most interestingly, RTW helps make explicit hidden or ill-defined goals, fears or expectations. These aspects are crucial to shape the context in which the website project is actually managed and evaluated.

As to the overall efficiency, a lot is accomplished in a relatively short period of time. RTW helps build up a shared understanding of the website project, and of its role in the company business. This is all achieved in few hours of collaborative activity. Moreover, the methodology helps people in charge of user requirements elicitation to access an incredibly rich deposit of knowledge (emerging from the other participants) in quite a short time, and to use it to better align website design with actual stakeholders' needs.

Beside the many advantages, RTW also presents shortcomings and limits. Firstly, it requires a significant effort on behalf of the client company or organization. While personal interviews can be arranged with individual employees, RTW requires all main stakeholders to get together for half a day.

Secondly, RTW requires willingness on the company side to play and to be challenged in a new and unconventional way – a condition that sometimes can be hardly met.

Concerning the output of the process, RTW does not provide a complete map of the requirements. Saliency is favored over exhaustiveness. Therefore, it is useful to complement RTW with other user requirements techniques, as it cannot be used as the only method to gather requirements in a complex project.

In our current and future research on RTW, we are elaborating more formal ways to systematically use elicited requirements to inform specific aspects of the design, including monitoring the website development process.

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7. REFERENCES

- [1] Beyer, H., and Holtzblatt, K. 1998. Contextual Design. Defining Customer-Centered Systems, Morgan Kaufmann.
- [2] Bolchini, D. 2005. Capturing Visions and Goals to Inform Communication Design. In Proc. ACM 23rd International Conference on Design of Communication (SIGDOC 2005), ACM Press, Coventry, September 2005, 131-137.
- [3] Botturi, L., and Loh, C. S. 2009. Once Upon a Game: Rediscovering the Roots of Games in Education. In C. T. Miller (ed.), Games: purpose and potential in education, Springer, New York.
- [4] Cantoni, L., and Tardini, S. 2006. Internet, Routledge, London.
- [5] Gee, J. P. 2003. What video games have to teach us about learning and literacy (2nd ed.), Palgrave Macmillan, New York.
- [6] Huizinga, J. 1980. Homo ludens: A study of the play-element in culture (R. F. C. Hull, Trans.), Routledge & Keegan Paul, London.
- [7] Koster, R. 2005. A Theory of Fun for Game Design, Paraglyph Press, Scottsdale.
- [8] LEGO, LEGO Serious Play, <http://www.seriousplay.com/> (retrieved October 19th, 2008).
- [9] Sanders, E. B.-N., and Dandavate, U. 1999. Design for experiencing: New tools. In Proceedings of First International Conference on Design and Emotion, Delft, The Netherlands.
- [10] Sanders, E. B.-N. 2006. Scaffolds for building everyday creativity. In Jorge Frascara (ed.) Design for Effective Communications: Creating Contexts for Clarity and Meaning, Allworth Press, New York.
- [11] Vaajakallio, K., and Mattelmäki, T. 2007. Collaborative Design Exploration: Envisioning Future Practices with Make Tools. In Proceedings of DPPI07. Helsinki, Finland: 223-238.
- [12] Ylirisku, S., and Vaajakallio, K. 2007. Situated Make Tools for envisioning ICTs with ageing workers. In Proceedings of Include 2007, Helen Hamlyn Research Center, RCA. http://www.ektakta.com/include_proceedings/ (retrieved February 18th, 2009).