

Co-created tools for teaching, learning and designing services in Colombia

Facilitating interdisciplinary learning in service design innovation

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Abstract

This paper resumes an on-going research project that is developing and prototyping an improvement on the learning experience for students in design innovation. For this project the key components of the Innovation Workshop's learning experience have been considered, evaluated and adjusted. Among these elements are the tools that have been adapted to facilitate the design and learning process of multidisciplinary teams, composed by designers and non-designers, which work collaboratively through a semester-long project with a company brief. This paper presents and describes three tools from successful student's experiences, why they have been chosen, and how they have been adapted to be integrated into the set of resources for the *Innovation Workshop* learning experience.

KEYWORDS: Innovation workshop, Human-centred innovation, design thinking, service design, service design tools, service design in Colombia.

1. Introduction

Background and origins. In recent decades both the Design discipline and its practice have experienced a great transformation all over the world; the connection between Design, services, value and innovation, by means of interdisciplinary and human centred approaches, have redefined the way in which Design is nowadays understood, valued and implemented, and Colombia has been no exception to this change. However, as it is an ongoing global transition, the effects of this mindset change are just being recognized in Colombia.

With the potential that Service Design has now in developing countries, it is not only important to educate Design professionals in this approach, but also to share this way of thinking with other disciplines. In this attempt it is important to consider that the way in which design methodology is taught has to be adapted, designed and documented for people with different academic backgrounds, in order to make this process explicit, transparent, appropriable and replicable.

Innovation workshop. Working in the context of a multidisciplinary effort by the schools of Design and Management of Los Andes University in Bogota – Colombia, a semester-long course for undergraduate programs was created three years ago. The course objectives are: to develop a concise methodology for conceiving and executing innovation projects, to transfer this methodology to students (both designers and non designers), and to engage company managers throughout this experience.

The course, named *Innovation Workshop*, is offered as a fourth year studio for the design program and as an elective for the entrepreneurship minor offered by the Management school. This structure allows the course to integrate design students with students from all the programs offered by the university, and in this way develop the projects from multidisciplinary groups. During the course the teams, with the coaching of the teachers and the information given companies, apply the methodology of the class, based on the paper: “Innovation as a Learning Process: Embedding Design Thinking” (Beckman & Barry, 2007) for the development of projects that can be either products, services or product/service challenges.

Although during the years that the course have been implemented several adjustments have been made to the contents, the activities and resources; today, more than 3 years with the course, around 54 projects and 228 students from different backgrounds, it is possible to reflect about the experience. Consequently, with the objective of documenting, codifying and improving the learning experience and practice of the course, an ongoing research is being conducted.

This paper presents preliminary results of the research related to the experience of the students around the following questions: how students (designers and not designers) understand service design concepts and methodologies and incorporate them along the different phases of their projects? How to make use of good practices of students and build on their adaptations? What are the barriers that students face when trying to understand and design a service? If any, how can we help students overcome this barriers?

2. Methodology

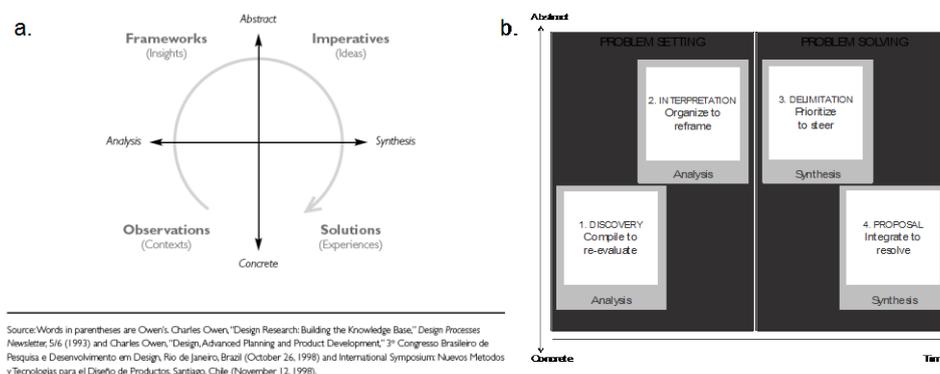
Since the students' and professors' engagement and participation determine the experience, the evolution of the methodology and the materials developed by both professors and students were examined, with a particular emphasis on tools and resources related to the research questions. Extensive interviews and work sessions were performed with former and actual students, conducted by researchers who were not involved in the original workshop sessions. Emerging patterns about service design concepts, tools, and methodologies were identified and analyzed. Tools from successful experiences were assessed, adjusted and redesigned to be tested during the second part of the research.

3. Tools for service design in the Innovation Workshop learning experience

From this research, the components of the Innovation's workshop learning experience were identified as: human factor elements (teamwork, coaching of the teachers and interaction with companies), methodologies, concepts and tools.

- *Human factor* is the main and most important component. It is divided in teamwork, coaching by professors and interaction of students and professors with companies. *Human factor* is related to the complex experience of working collaboratively with people of different backgrounds to develop a project, thus it was considered as one of the most important indicators for the development and co-creation of the tools presented below.

- *Methodology* is the compass for the learning process and the project development process. For the Innovation workshop the model presented by Beckman & Barry (Figure 1a) has been adjusted (Figure 1b), the phases have been re-named and adapted to the needs of the students, the companies they work with, and the local context in which projects are developed. The graphical representation of the model has been changed as it was found that is clearer for the participants to understand the methodology in relation to its development over time.



a. Beckman & Barry Innovation Model

b. Innovation Workshop model

- *Concepts* are the abstract elements of the methodology that frame and support the process. From the research within multidisciplinary teams, one of the main barriers to assimilate design thinking and service design approaches was the lack of a shared language and comprehension of basic concepts between designers and non-designers. Therefore, it was fundamental that the resources enabled the comprehension and integration of concepts such as *stakeholder*, *touch-point* or *front-stage* through the project, as this integration builds a common ground for a fluent communication

- *Tools* are the component that articulates the concepts' implementation throughout the methodology, and integrates all the components of the learning experience. Tools (guides, to do lists or printed forms, among others) have shown to be a key element of the learning experience as they support designers' practices by making them tangible and communicable, plus they guide non-designers and firms throughout the project phases by making assignments feasible.

When assessing the development of the projects in teams of students from design and other fields, complications emerged frequently when the groups were moving from one phase to the other, especially in those paths from concrete experience observation to abstract conceptualization (from discovery to interpretation in our model) and from abstract conceptualization to abstract conceptualization (Interpretation to delimitation in our model). These were the moments where non-designers were more likely to feel lost and disengage from the group, often because they were unfamiliar on how to conceptualize and organize qualitative information with graphical analysis such as profiles, journeys or blueprints; or because they didn't feel comfortable with setting the problem in an intangible connection path (from insights to benefits, to value proposition, before defining the solution attributes).

It was also found that both designers and non-designers tended to use the tools presented in *This is Service Design Thinking* (Stickdorn & Schneider, 2011), *IDEO HCD toolkit*, *IDEO Method Cards*, *Bootcamp Bootleg* (Stanford University, 2011), and those from their previous experiences, in an unconnected manner within and between the different phases, leading to confusion and frustration when trying to make sense of loads of, sometimes inutile, information.

On the other hand, successful initiatives of groups coping with these complications were identified and analyzed. There were communication strategies related to the human factor mentioned before, such as teams that defined clear roles and activities based on each participant's abilities; but there were also tools designed or adapted by the group to overcome their difficulties.

Tools appear to be a manner to codify, share and transfer practices; therefore tools from the state of the art can evolve and be adapted to specific environments. The following parts describes three tools from successful student's experiences, why they have been chosen, and

how they have been adapted to be integrated into the set of resources for the *Innovation Workshop* learning experience.

All the tools presented below have been adjusted and translated into an instruction-template format. *Instructions* convey considerations related to: objectives, outcomes, participants, key concepts and implementation activities. Instructions have been thought to be shared grounds for the team to discuss and take into account basic elements that can help them overcome the barriers. *Templates* were designed to facilitate dealing with the organization and visualization of the information (specially for non designers), and to focus the designers' attention on the content rather than on the layout's design.

3.1 Service Experience

Origins: A team had to understand how was the experience of an Asian restaurant in Colombia, since the restaurant wanted to develop a more sustainable utensil to eat without affecting the experience. After gathering information from different sources they decided to place images on a piece of paper and write down what elements composed every image, as a step between gathering and analyzing the information. With this tool the team was able identify differences between the way waiters attend the customers, the way chopsticks were on the table from the beginning or not, the way forks and spoons were offered depending on the waiters perception of the customer and the way customers changed depending on the location of the restaurant.

Appraisal: Although the results of the tool were relevant, in order to replicate the group's experience with other projects, it was necessary to codify this process in a template that could assist data sorting and analyzing. Additionally, tools such as this one that includes large amounts of information tend to be complicated when the team faces the analysis stage, therefore requesting the integration of, at least basic, guidelines.

What has been added? The instruction format (figure 2) integrates detailed descriptions of the tool, the skills, key concepts and references. However, the main addition was to include in the instruction format suggestions on the actions that have to be done before, during and particularly after gathering the information and filling the templates. These instructions are meant to be a guide that integrates the most common tips and feedback given by the professors in the coaching sessions related to these activities. The template (figure 3) includes definitions and questions to trigger the discussion when filling in the information.

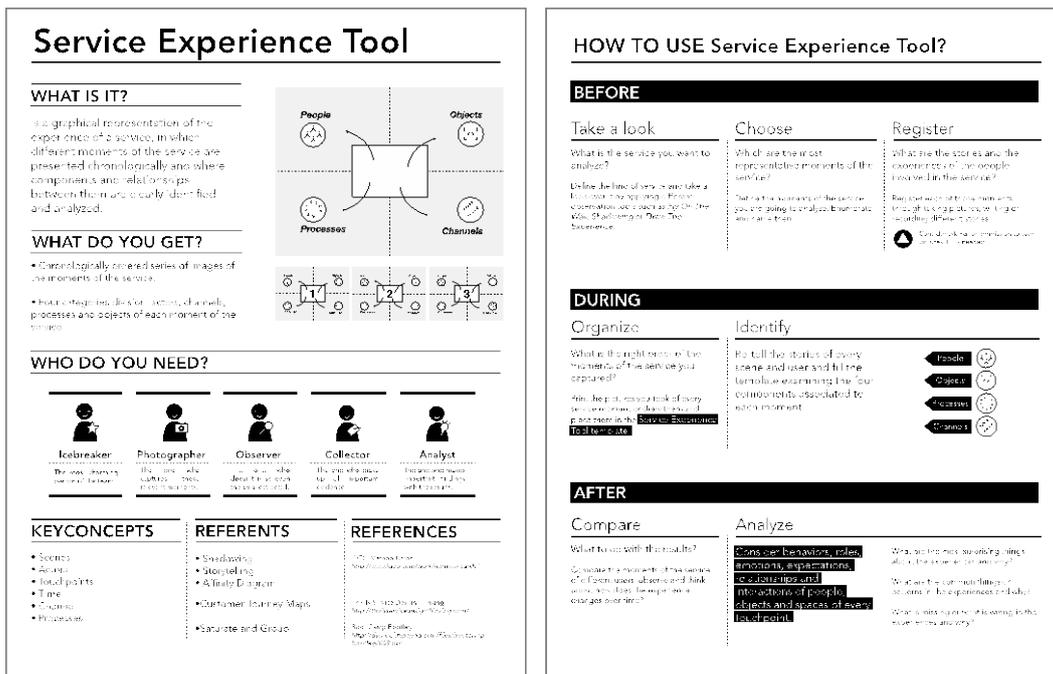


Figure 2: Service Experience Tool instructions

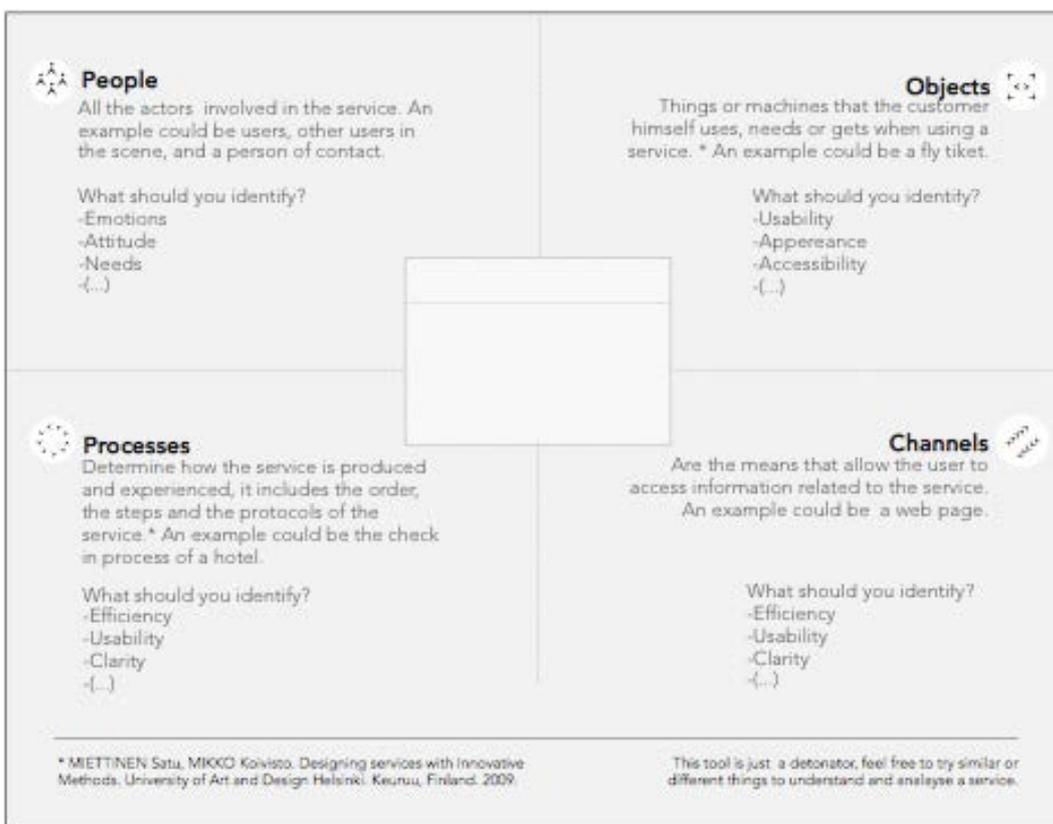


Figure 3: Service Experience Tool Template (adjusted from the A4 original size).

3.2. Behind the service

Origins: When evaluating the ways teams dealt with the problem of trying to decompose and analyze service related projects, it was found that very often they tend to centre their attention on the user's experience and find it complicated to relate this experience with the provider's perspective. Blueprinting was used for a general overview of the service but led to a rather superficial backstage understanding since the graphical piece integrates a lot of information that, again, was mostly focused on the user experience. In a project that was taking care of the lack of university services for the disabled community, a close assessment was made to the current university offerings, formal and informal, from all the stakeholders involved in the backstage of the service. This approach led to understand that there were several initiatives with the question on how to integrate the disabled community, with platforms and resources that were available but disjointed. Afterwards, it was understood that framing the attention on the backstage only could give a complementary perspective of the service offering that complements the user experience's perspective.

Appraisal: Blueprinting might be the tool that is more clearly related to service design, both for understanding and designing services. However, for groups of students unfamiliar with service design concepts it can be cumbersome, leading often to a simplification where only those elements occurring "on stage" are taken into consideration. With a close and focused look to backstage current activities insights, patterns and opportunities can be integrated to the observations of the user's service perspective.

What has been added? Detailed instructions (Figure 4) aim to lead the team to be aware of the key elements and define a starting point before initiating their activities. The template (figure 5) seeks to induce the capture of observations and notes related to the backstage actors and relations in a systematic fashion.

This tool is meant to be used together with the service experience one for the process of gathering, organizing and analyzing the information of the problem setting phases of the model; although they are also suggested as a resource to define and communicate design proposals.

Behind the Service Tool

WHAT IS IT?
It is a graphical organization of the components of the backstage of a service, in which different backstage scenes are analyzed having in mind the system support, the management support and the physical support.

WHAT DO YOU GET?

- An organized list of the backstage of the service components.
- Clear relations between the backstage and the frontstage of the service.
- A list of problems and successful situations of the service.

WHO DO YOU NEED?



Photographer
The one who observes the service.



Observer
The one who directs the service.



Collector
The one who collects all the important activities.



Analyst
The one who makes important backstage with the scene.

KEYCONCEPTS

- Backstage
- Line of visibility
- Actions
- Touchpoints
- Processes

REFERENTS

- Activity analysis
- Affinity Diagram
- Shadowing
- Service Safety
- Contextual interviews

REFERENCES

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This is Service Design Thinking
http://www.designthinking.com/

HOW TO USE Behind the Service?

BEFORE

Take a look

What is the backstage of the service you want to analyze?
Define the kind of service and take a look over its backstage by applying different observation tools such as Fly On The Wall or Shadowing.

A A good recommendation will consist in participating the backstage with the Service Designer Tool.

Choose

Which are the most representative moments of the backstage of the service?
Define the moments of the backstage of the service you are going to analyze. Prioritize and name them.

Register

What are the process, the resources, the activities and the requirements of the people involved in the backstage of the service?
Register each of those moments through using photos, writing or recording different stories or processes. Prioritize these activities in different moments during the day and during the week.

DURING

Classify

In Behind a Service template, identify and classify the information obtained on the backstage in:

System Support

Management Support

Physical Support

Organize

Organize service backstage moments chronologically.

AFTER

Compare

What to do with the results?
Compare the results of different moments during the day and during the week.
If you analyzed the backstage before, compare those results with these results.

Analyze

How does the backstage influence the frontstage and vice versa?
What problems are related?
What successful situations are related?

Is other moment in the service providing value?
What is missing in the service?
What is the most surprising thing about the backstage of the service?

Figure 4: Behind the Service Tool instructions

The scene number is _____

The scene title is _____

System Support Technology, Systems and Know How	Management Support Managers and Supervisors	Physical Support Support functions and Support Persons
<p>System support is composed of investments that the service organisation has made in infrastructure, technology and system know-how. Buildings, offices vehicles, machines, tools and template documents are examples of system support*</p>	<p>Managers and supervisors are responsible for supporting and encouraging the contact personnel to perform well. Management creates the service organisations values working methods and prevalent service culture.*</p>	<p>Contact persons are often dependent on support persons' work-input when serving customers. For example, without the support people's contribution airplanes would not be cleaned, passengers on the flight would not be served any meals, and the flight crew would not be trained for their work tasks.*</p>

* MIETTINEN Sari, MIKKO Kolvito. Designing services with Innovative Methods. University of Art and Design Helsinki. Keuruu, Finland. 2009.

This tool is just a detonator, feel free to try similar or different things to understand and analyse a service.

Figure 5: Behind the Service Tool Template (adjusted from the A4 original size).

3.3. Needs, benefits and opportunities

Origins: A group of students was working with small-retail food stores in low-income neighbourhoods. The task was to find a way to use the relationship between the tradesman and the people from the community as a channel to inform about nutrition and healthy eating habits. After gathering information of the community and defining profiles such as “the spoiled”, “the piggy”, “the pigeon” and “the tetrapack”, the group used the question ¿what are their particular needs? to start the conceptualizing process. They found that “the spoiled” needed to be coddled because he found in the tradesman more a friend than merchant; “the piggy” needed to be surprised because this was the case of little kids with few coins left from a big purchase that their mothers did; “the tetrapack” needed to be recognized because he knows how to buy nutritive groceries, and “the pigeon” needed access to low prices, because he prefers to fly instead of paying a high price. From these benefits the students defined that the proposal had to include a personal treatment, a surprise factor, recognition, and low prices of the products.

Appraisal: As it was mentioned before, groups find hard to handle the transition between abstract stages of the model (from interpretation to delimitation). For students unfamiliar with qualitative processes these stages are complicated, and when the group lacks sufficient communication skills these are the points in which they tend to separate. With the connection between profiles, needs, benefits and opportunities being visible, teams are given a means to organize and discuss their findings.

What has been added? Starting from the students experience mentioned above, the instructions of this tool (Figure 6) guide the students on how to extract from the analysis phase needs, benefits, and opportunities in a systematic way. The template (Figure 7) is thought to facilitate the information capture. From this point brainstorming sessions can be conducted to start defining ideas on how the service provider can satisfy the needs, deliver the benefits, or take advantage of the opportunities related to each actor or profile.

Needs, Benefits and Opportunities Tool

WHAT IS IT?
Is a graphical representation of the information found so far, based on the user profiles or on those actors involved in the service.

WHAT DO YOU GET?

- A list of the opportunities to propose.
- Comparing needs and benefits of the stakeholders involved in the service.
- Related needs and benefits of the stakeholders involved in the service.

WHO DO YOU NEED?

Observer
The user who doesn't see and doesn't feel.

Collector
The user who acts as an important element.

Analyst
The one who creates important things and ideas.

KEYCONCEPTS

- Value proposition
- Needs
- Benefits
- Opportunities
- Profiles

REFERENTS

- Personas
- Why How Laddering, Point of view matrix.

REFERENCES

Design for Innovation of Dan Seltzer

Real-time Service Innovation: Designing the Service Experience

HOW TO USE Needs, Benefits and Opportunities?

BEFORE

Take a look

What is the service you want to analyse?

1. Specify the innovation you are looking for and why you value the findings on the Service Experience tool. Then, fill in the boxes with the data on Service Tool.

Define

What are the actors that are involved in the service that you would like to analyse?

Choose the actors of the service from a previous investigation.

What are the profiles of the service users?

Deepen

What is the relationship of the actors with the service?

Take a look if the actor is satisfied with the service, what are the gaps related to the service of these actors?

Investigate each of these questions if all you do not have the sheet.

DURING

Choose

Choose if you are going to apply this tool with profiles, personas or stakeholders of the service.

Complete

Fill in the boxes of the **Needs, Benefits and Opportunities tool template** with each actor asking about his or her:

- Needs**
- Benefits**
- Opportunities**

AFTER

Compare

What to do with the results?

Compare the results of the needs, the benefits and the opportunities of the different actors or the user profiles.

What needs and benefits of the stakeholders involved in the service are competing or related?

How can you combine different needs, benefits and opportunities?

Analyze

Consider what is the most appropriate part of the service where you can participate considering the needs, and the benefits of the pursuing the stakeholders of the service.

What is the most important opportunity?

What is the most important benefit?

How can you combine different need, benefits or opportunities?

Having in mind the specific of the service which is the most important opportunity?

Figure 6: Needs, benefits and opportunities instructions

1. User's Profiles
These are the users profiles that resulted from the Service Experience Tool.

This part can also be filled with the service actors identified in Service Experience tool or people belonging to management support or physical support identified in Behind the scenes tool. (service actors)

2. Needs
These are user's profiles or service actors' unconformities, concerns, objectifs and also the desire to satisfy them.

3. Benefits
These are the true profits or advantages pursued by users profiles or service actors.

These should be reflected in the final proposal.

4. Opportunities
These are identified situations or service moments that are more conducive to propose.

This tool is just a detonator, feel free to try similar or different things to understand and analyse a service.

Figure 7 Needs, benefits and opportunities template

4 DISCUSSION

A multidisciplinary course dealing with User Centred Innovation, and Service Design is a complex system where each component alters the outcome of the learning experience. As it was mentioned in the components section, the human factor regarding both the interaction between professors and students (coaching), and the interactions that occur within groups through the project, is a central element of the learning experience. Supporting these interactions with tools derived from students' successful practices appears to be a way to facilitate those moments where groups frequently face difficulties.

Service design and user centred methodologies are extensive in qualitative data gathering, sorting, and visualization; and for these activities several tools are available in the state of the art literature. However, there is still room for adaptation of these tools regarding the particularities of a learning environment where not all designers are able to communicate and instruct on their practices to non-designers, and where non-designers are faced with a different way of dealing with projects. Having said so, it is clear that the tools presented in this paper don't intend to be "new tools"; they are rather a complement to widely known ones, such as story boards, blueprints, profiles or probes, and are proposed to be in one hand a means to elicit designers' skills, and on the other hand to provide resources and frameworks to non-designers, in the process of understanding, analysing and communicating the information gathered and processed as a group along the project.

4. Conclusions

This project has shown early results in general and specific aspects. Tools from the student's practices have shown that the attempt to make the process explicit for non-designers is a need when working in multidisciplinary groups.

The three tools with the instruction-template format described in this paper are currently being tested, to be integrated as part of the resources of the course. Although this is an ongoing project, preliminary results show that our tools can be useful resources that can help to close the gap between designers' language, practice and activities within multidisciplinary groups. The overall research project about the *Innovation workshop* learning experience presents evidence of the positive effects of an interdisciplinary approach to innovation; while designers are discovering the multiple applications that their knowledge and skills have in organizations, non-designers are learning the processes and disciplines of creativity as they seek to integrate innovation into their activities. These tools, their following versions and adaptations aim to lead designers to reflect and communicate better their practices, and to bring non-designers closer to design concepts, methodologies and procedures.

References

- Beckman, Sarah & Barry, Michael. (2007). *Innovation as a Learning Process: Embedding Design Thinking*. California Management Review. Vol 50. No.1.
- Bitner, Mary Jo et al. (2007). *Service Blueprinting: A Practical Tool for Service Innovation*. Centre for Services Leadership. Arizona State University. United States of America.
- Brown, Tim & Katz, Barry. (2009). *Change by Design. How design thinking transforms organizations and inspires innovations*. Harper Collins Publishers. New York, United States of America.
- IDEO. (2009). Human-centered Design Toolkit. A free innovation guide for social enterprises and NGOs worldwide. *Palo Alto, United States of America*.
- Kimbel, Lucy. (2009). *Beyond design thinking: Design-as-practice and designs-in-practice*. Saïd Business School. University of Oxford. Oxford, England.
- Moritz, Stefan. (2005). Service Design. Practical Access to an Evolving Field. Paper.
- Shedroff, Nathan. (2007). *An Evolving Glossary of Experience Design: glossary*. Retrieved June 15, 2010, from <http://www.nathan.com/ed/glossary/index.html>
- Stickdorn, Marc & Schneider, Jakob. (2011). *This is Service Design Thinking: Basics - Tools – Cases*. BIS Publishers. Amsterdam, The Netherlands.
- Vesga, Rafael. (2009). *Emprendimiento e Innovación en Colombia: ¿Qué nos está haciendo falta?*. Working paper. School of Business. Universidad de Los Andes. Bogotá, Colombia.
- Viladas, Xenia. (2010). *El diseño a su servicio. Cómo mejorar una idea de negocio con la ayuda de un diseñador*. Index Book S.L. Barcelona, España.