Understanding the complexity of the multicultural design work team dynamics.

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Abstract

Designing digital artifacts for a culturally diverse market implies the thorough understanding of the psychological mechanisms derived from the social and environmental context. The next article introduces a research that investigates the relevance of cognitive and identity diversity (Page, 2007) in the working groups that have as a task the design of interactive services for digital environments. The argument of the article does not focus on the positive aspects of the heterogeneous quality of the group, but simply aims to understand how the diversity of the design group could help improve the nature of the interactive services designed for a multicultural market. Considering the craft of a virtual environment in terms of interaction metaphors that have to be understood by the end users, the step prior to the design of the above-mentioned environment is to be taken into consideration. Two pedagogical experiments placed in two different cultural contexts, Italy and China will be presented in order to exemplify the prior findings of the research inquiry. First the common ground creation in the context of multicultural workgroups will be analyzed, and second how the internal dynamic of the group reflects in the creation of the digital working model will be shown. Taking into account all the above, the question asked is: what methods and tools can be used to support an internal communication language of the working team and how the developed skills could then be applied to the process of designing digital interactive artifacts.

Keywords
Communication design, work group dynamics, collaborative projects, cultural diversity, interactive digital media.

What connections could be made between two different groups of students placed in different cultural contexts? In the next chapters it will be shown how apparent cultural differences in the design teams could be mitigated through a constructed disciplinary language, and how eventually this experience could bring more insight to the overall quality of the project. Although the final outcome of the experiments to be presented concretized into a digital artifact, the study of the diverse group dynamics could inform other disciplines of design as well.

1.Concept design for mobile communication
The above-mentioned experiments have involved two groups of students in Italy and China and have been organized to share the same brief. The brief asked the students to generate collaborative service ideas for mobile communication that will help social aggregation and promote a sustainable lifestyle.

More specifically the Chinese project came as an iteration of the Italian one and was intended to test and refine a previously defined teaching structure. Both groups had a similar no. of master degree level students (22-27) with an industrial design background and were asked to design digital intangible artifacts using a methodology specific to service design (Gong et al., 2008). It is interesting to note the same type of first view reluctance in dealing with service. The correct appropriateness of words such as interaction, service, system, scenario, prototype and simulation had to be stressed out and supported with comparisons between industrial and interaction design. In other words the input lectures given by the professors and technological partners had to be explained in the group revisions and "translated" almost into a vocabulary of concepts already used by the students in their previous learning experiences. In the same time the students had a much better ability to use the digital technology, being part of the digital native generation (Prensky, 2001). Both courses underlined the need for two ways of learning to design for mobile communication: one by using the physical and digital interfaces actively, and another by applying an awareness strategy to the acquired knowledge. From pedagogical point of view the role of the professor has to be seen not as an authoritarian presence that imposes a set of methods and tools, but as an active participant in qualifying the tacit knowledge (Polany,1966) gained through the shared experience.

1.1 Laboratorio di sintesi finale, Italy

The course followed a predetermined sequence such as case study collection, concept generation, concept development – which included service and interaction design, followed by the financial analysis of the project, service simulation and communication design. After the projects' completion the students had to prepare a presentation for the sponsoring partners in a public venue and for an extended audience.   The activities that took place during the course were of three types and involved three distinct groups. An organizing group of tutors and professors from the university, an external group of experts and the group of second year masters degree students. The input lectures, and revisions given by the teachers and expert teams were followed by progress presentation offered by the students.

The team of professors had to adjust from the beginning with each other's disciplinary language even before proceeding to develop the content of the course. The definition of notions and terms, which have a different understanding for the different disciplines, were subject of an ongoing negotiation process. Even more when the area of application dealt with the new and continuously evolving mobile communication systems, the above mentioned process had to be acknowledged and purposefully evaluated. The common ground creation effort was consequently reflected in the course material.

1.2 Workshop, China

Following the experience in Italy, the Chinese course was organized as an iteration of the Italian one and shared the same brief. The intention of the workshop was to test the same didactical structure following the same logical steps, but evaluate and review the methods used in the first place. This is in part due to the analysis of the students' response embodied in the projects that have been developed and the working flow observed in the class activities. Other important factors were the different geographical location as well as the ethno-cultural differences. In the same time the lecturer team was aware that given the circumstances the students' behavior and most of all their understanding of apparently obvious content, could not be fully anticipated this is why

the pace of the lectures had to be tuned according to the reaction of the students. From this point of view the pre-established sequence that worked well in the first case had to be reviewed and adjusted to meet the students' needs and bridge a common ground between the two groups. In the next chapter it will be discussed how the above-mentioned differences could be mitigated and channeled into a creative environment that leads to effective problem solving.

2.Cognitive and ethnic diversity
2.1 Personal relationships and student-professor interaction

After having seen how the cultural differences could modify the structure of a pre-defined teaching structure, we will now discuss the distinction between the cognitive or disciplinary differences and the ethnic ones. The Italian example offered a lesson on how teachers from the same university, therefore sharing the cultural base for a fruitful discussion, had to acquire certain awareness and construct an interdisciplinary bridge of understanding. The engagement in a conversational relationship had to balance the inner mental representations of possible outer circumstances (Shotter 2000) of four academics and professionals coming from service design, interaction design, architecture and management in one coherent chorus capable of developing a specific educational content. The difficulty in that situation was to correlate the construction of the particular representations. In this case the apriori explanation of the commonly shared terms and notions was necessary in order to avoid subsequent misunderstandings. Analyzing the initial phase of the content development, it is important to underline that this kind of negotiation has to occur at the beginning of the conversation otherwise the consequences will cost the participants a loss of time and an increased level of frustration. Good communication within the group could maintain open the flow channels (Csikszentmihalyi…) therefore be enriching, because all the participants have gained a new understanding of there own perspectives, beneficial because the collaboration had an optimal result, and rewarding because the overall experience was positive and not frustratingly tiresome.

The result of the conversational effort being, in this specific case the content of the course dealing with digital services for mobile communication the next important step to be discussed is how the students reacted to the content. Here it is important to stress out the presence of the generational gap. In his seminal work *Digital Natives Digital Immigrants* (Prensky 2001), Mark Prensky shows the ways in which the younger generation that grew up with the digital technologies thinks and learns in alternative ways and how this contradicts the traditional methodology of teaching. In fact he argues that the role of the professor is shifting from the authoritarian status to a peer status (Prensky 2007). Although the course at the Italian university had an ex-cathedra setting and an hierarchical organization, the information was exchanged in a peer to peer situation not only from the professors to the students but also from the students to the professors.

The experience and knowledge gathered from teaching the course was then reviewed and adjusted for the Chinese workshop. Here the already consolidated group of lecturers had to deal with the ethnic differences. Aside from the language barriers, the way in which the Chinese group of students assigned meaning and importance to the taught content made the lecturer group to change the way in which the lessons were taught. In this sense the theoretical lectures had to be supported by intensive mentoring sessions with the students in which the appropriation of the concepts took place from both sides. The conversation in this case had to be supported by hand drawn visual

representation and the use of commonly shared metaphoric comparisons. If in the beginning there were two distinct groups foreign to each other, the common effort in developing a mutually accepted communication language helped establishing a cohesive collaboration group.

2.2 Interacting with the mobile technology

If the previous chapters have explained the cultural context in which the two courses were placed and the pedagogical structure they followed, in the next part it will be explained how the students interpreted the brief and in particular in which way they have chosen to use the mobile technology.

As mentioned before both groups worked on how the mobile communication could help the social cohesion and lead towards a more sustainable lifestyle. In the Italian case having as a partner a major communication company, the group has received a very strong technological input on how the avant-garde technologies work. Perhaps this is one of the reasons for which the outcomes tackled the requirements of the brief from a technological point of view, suggesting rather futuristic solutions. In the same time the students successfully identified the critical moments in which the mobile technology could be successfully be employed without being intrusive (Ling 2004; Fortunati 2003). In this respect a good example is the project La Maglia -The Patchwork (fig.1), in which the service proposed acted upon the underused or "wasted" moments (Perry et al., 2001) imbedding them with a new meaningful activity. More specifically the project analyzed the behavior of a very specific group, a women's community center on the outskirts of Milan, in the time span of a working day. The delay moments, such as the waiting time at a bus stop, at the dentist or the hairdresser were qualified by getting in touch with a friend which happen to be nearby. The technology proposed the use of GPRS - general packet radio service, SMS –short message service, pc server, and smart phones.

fig.1

fig.2

The re-interpretation of public/and private space it is another issue that emerged in the usage of mobile telephony. In this sense the awkward situations are encountered every day insofar that they became an embarrassing but inevitable reality. The loud voiced conversation of a neighbor sharing the public transportation could irritate if not even annoy the others. The misuse of public space is in the eye of the beholder. If one party asserts his rights too boldly, the other side will feel that his or her status is being affronted (Ling 2004, pg.127).

Acknowledging this critical point in the user behavior the Cantastorie- Storyteller (fig.2) project proposes an alternative perspective raising the awareness and eventually re-

defining the public realm. Using the semantic code technology the lost story of the place is being remembered. Placed in the Comune di Opera, the service aims to preserve the memory of the different sites. Even if most of the physical traces of the history of the place have disappeared the stories told by the older generation create an alternative topology made out of pieces of memories, waiting to be shared with the younger.

 The workshop in China offered the opportunity to test not only the revised teaching methodology but also the different perspectives on the same brief. Presented with a similar structure and input lectures the Chinese students have chosen to base their concepts in the ethnographic insights provided by the field trips. More important almost all projects presented strong reactions to the changes in the social structure, and the events experienced through personal involvement. In this sense a good example is the Pride House (fig.3) concept, which focused on the migrant workers issues and their insecure status with respect to the local communities in the locations they are employed. The project proposed the use of GPRS and MMS technologies.

fig. 3

A particularly interesting example is Yesterday Once More (fig.4), because the target and starting idea of the concept are somehow similar to the Cantastorie project developed in the service design course in Italy. The initial idea is based on the same critical observation of the continuous change of the public space; only in this case the landscape is modified literally over night. Although the message is supposed to be positive the project conceals certain nostalgia for the traditional landscape and the traditions imbedded in it. The ethnographic research reveals stunning images of the demolition process in a low-income environment in contrast with the hi-rise concrete buildings that will replace the houses. With the help of MMS and SMS technology the memories of the community could be shared and the richness of the personal relationships revived.

fig.4

The examples shown above provided a thorough inside on the complexity of factors to be considered when approaching the same design brief requirements in two different cultural contexts. Moreover the understanding of the mobile technology and the project concepts developed by the students, expressed the richness of applications for which the mobile technology could be used. It is a matter of conscious choice to employ the digital tools in a meaningful way, addressing the social and environmental issues

relevant for each culture.

3.Research Methodology: analyzing the iteration process using action research methods

The complexity of the subject matter in the design teaching activities, calls for an ongoing appropriation of the research methods from other scientific disciplines; moreover when, most of the times, the person carrying on the pedagogical tasks is also a practicing designer. This is why the engagement in collaborative conversations (Feldman 1999) qualifies as a valuable inquiry tool belonging to the action research methodology. Action Research is a way of learning from and through one's practice by working through a set of reflective stages that helps a person develop a form of "adaptive" expertise (Riel, 2007). In fact in the passage from the first iteration to the second one the lecturer team engaged in several sessions of reflective conversations, which led to the evaluation of the accomplished experience and the craft of the following iteration. The conversations were synchronous or asynchronous and involved the different group members either as a full group or in separates sessions. The main subjects of the discussion were:
-what the team will do and the expected outcome, the evidence to be collected – in this case related in some respect to the kind of material the students had to prepare in their deliverables.
-the evaluation of our collective action that in the specific case of the design workshop involved not only the team but also external advisors.
-finally reflecting on the action taken and understanding the critical points, the knowledge created and outlining next possible directions of action.

The level of complexity in the second case presented shifted from the interdisciplinary lecturer team that had to achieve a level of common understanding of the emergent issues to the cross-cultural lecturer-student relation that had to be constructed through shared perspectives on the subject matter of the brief.

In the examples described before the outcome of the conversations was not only the improvement of the course structure and teaching practice but also an introspective journey into the creation of common ground in a interdisciplinary and multicultural situation. The iterative process provided a reflective inquiry into the professional action of the group and the initiation of an ongoing process of adjustments. The result was the acknowledgement of the need of change in the role of the academic from teacher-researcher to teacher-learner (Noffke, 1997)

Conclusion and future work

The qualities of a digital artifact conceal the laborious effort of multicultural teams and a fair amount of negotiation within the group. Having to face a fast pace in the changes that occur in the social context and in the technological field, the question is what kind of formation could prepare the next generation of designers to face increasingly complexity of the design projects. The paper presented intended to offer a view on the educational process and the complex issues that emerge in the development and teaching of the didactical content. Using the example of the two concept design experiments situated in two different geographic locations, the paper analyzed the multiple facets of the cultural differences. If the understanding of the notion of "culture" is commonly assimilated with ethnicity at a closer look the fine layers in cultural differences include discipline, age as well as gender or religion. In the case studies presented we tackled the intricacies of the interdisciplinary conversations and the need for a mutually agreed vocabulary. It was shown how the experience gathered in the process helped the professors deal with the

generational gap and the different perspectives brought by the young students that grew up in the digital era. It was shown how the learning paradigm changes from an hierarchical structure to a peer to peer one, and how the classroom becomes a physical space for exchanging ideas. Moving to the second iteration of the same brief part of the lecturer team had to confront the complexity of multiethnic communication and face the radical view change brought by the social context. The results of the both courses have shown how the above-mentioned differences reflected in the final outcome.

  To draw a conclusion, it stays in the teacher's ability to properly articulate the requirements of the didactical content and to encourage the students' progress in a collaborative manner. This is particularly important when the young generation has to be prepared to do the same under the pressure in a work environment. Especially in the specialized area of digital services, in order to achieve this goal the teacher has to be ready to adopt the alternative ways of transmitting the knowledge and be prepared to adjust these methods according to the cultural component of the student group.

  Insofar the experiments presented have dealt with internally homogeneous student groups coming from different ethnic contexts but sharing the same disciplinary language. For a thorough understanding of the multicultural issues, the future work should employ a similar teaching structure involving this time both ethnically and disciplinary diverse students and teachers.

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