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The “STAR” Interaction Design Summer Schools Framework

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Introduction

Each year, an interdisciplinary community of students, researchers and practitioners from computer engineering, social sciences, Human Computer Interaction (HCI), visual communication and other related disciplines, gather together to participate in intensive summer school sessions. Hosted by organizations like the Convivio Network and the Institute for Information Design, these workshops are devoted to furthering the discipline of Interaction Design (IxD). Although the theme changes every year and the participants vary, these programmes remain focused on the teaching and practice of IxD in the context of the local community where the academy is conducted. In order to complete a time-bound, resource-limited interaction design project successfully, while collaborating with multicultural and multidisciplinary teams, participants experientially learn a variety of ethnographic, prototyping and IxD methods, as well as teamwork skills. Living with target users and facing real-world design problems, participants gain proficiency in interaction design principles despite the programme's short duration. In addition to hands-on experiences, lectures from experienced practitioners further the learning process.

Intensive design summer academies like this are essential, as they offer an environment for experimentation that is difficult to create in other educational settings. However, developing and implementing such programmes in a way that optimizes the learning process can bring several challenges that must be overcome in order to maximize the experience. Conversely, negligence of these challenges might lead to an unsuccessful learning situation.

Background

Constructivist theories in education view learning as a collaborative process of constructing knowledge among its participants (Dewey, 1958; Lewin, 1973; Piaget, 1973; Vygotsky, 1978). Building on the constructivist line of thought, Lave and Wenger (1998) proposed a theory of situated learning, which argues that a new apprentice learns in a community by experimenting and by advice of the elders. In this theory, unequal levels of knowledge among participants are assumed, thus the less knowledgeable learners are in the periphery and the



more knowledgeable members are at the core of the community. An onion can serve as a metaphor to describe the levels in a community where an apprentice progresses from the periphery to the core through continuous learning about the community's practices and body of knowledge. The learner starts by observing, then helping with easy and small tasks. Over time, tasks increase in difficulty and responsibility.

The Convivio summer schools are examples of such communities of practice (Lave and Wenger 1991) where interactions among the participants are critical in the learning process and practice of Interaction Design. However, unlike the long learning process described by Lave and Wenger in the communities of tailors and butchers, Convivio participants interacted with the knowledge experts and their sometimes more experienced peers for only two weeks. This limited timeframe made it even more difficult for the organisers to plan and structure the participant interactions in a way that maximized the educational exchange. Bringing together experienced teachers, researchers and participants from different disciplines and cultural backgrounds to a common but foreign locality produced a community of practice in which all participants learned by working alongside the more experienced professionals. This 'learning by doing' process increased the participants' engagement in the tasks performed within their ateliers. While the variance in the participants' cultural backgrounds and expertise levels was of particular importance to the learning and ideation processes, it posed an interesting but not insurmountable set of challenges. Alternatively, such diversity enabled teams to develop unique solutions to common design problems, creating an innovative learning environment, coined by Ghosh et al. (2004) as Contextual Innovation.

Innovative and collaborative ways of teaching interaction design, like in Convivio, are becoming more popular (IID, 2003; Ball, 2005). Docherty (2001) reports on a successful information technology programme that uses concepts similar to the Convivio summer school. Its learner-centered approach highlights educational design that values learner interaction, problem solving and small group work with a focus on real contexts. Similar to Convivio ateliers, the studio design encourages a community of learners to interact while solving problems. Docherty, points out that "design must be taught as a hands-on project-based subject". The success of this *studio model* was later adopted by other universities (e.g. see Lynch and Markham 2003). After three years, the new model was evaluated and was preferred by students over the traditional teacher-student approach.

Other scholars (Belbin, 1993; Harris, 1999) have discussed theories of teamwork and how collaboration processes are influenced by different personalities, and stages of group development. Belbin (1993) identifies these team types as Chairman, Shaper, Plant, Monitor-Evaluator, Resource Investigator, Team Worker, Company Worker, and Completer-Finisher. An example of this occurs in group work when individuals are allocated to teams at random and no natural leader emerges. Some groups can then suffer from a lack of direction. Group work influences Interaction Design activities and learning processes significantly. Similar to other scholars, we view Interaction Design as a hands-on and collaborative process which could be described as exploring a space of possible design solutions. The more an IxD project progresses, the more the space is structured and probable design solutions become the centre of focus. For further discussion of alternative interaction design models see Westerlund (2005). Within the summer school context, a variety of design



process and design space models were taken for reference (for example: Preece et al., 2002; Westerlund, 2005; Lennon et al., 2006).

As previously discussed, collaborative user-centered design and learning are closely related practices that have been examined in a variety of contexts. Despite an increased popularity of summer schools in design education, very few studies have been conducted which offer learning frameworks for such environments. We find that Interaction Design summer schools offer a unique environment and set of constraints in which collaborative learning and design processes can be explored. Building upon the aforementioned pedagogical theories, in the remainder of this paper, we suggest a framework to organize IxD summer schools. Furthermore, we give an example of how a summer school could be prepared and implemented using this framework.

Setting and Methods

International research networks like the Convivio Network and the Institute for Information Design (IIID) secure resources and manpower, invest time and show enthusiasm to organize annual summer schools in collaboration with local universities. Each of the summer schools in which we have participated (IIDj 2003, Convivio 2004 and 2005) shared certain logistics. Sessions were conducted over a period of at least two weeks, involving 40-60 international participants from Europe, Asia and the Americas. These participants included postgraduate students from a variety of academic backgrounds (engineering, arts, media,...) but with at least minimal exposure to HCI principles, as well as experienced professionals who served as atelier leaders, invited lecturers and local cultural experts. In addition, each summer programme offered extra curricula activities, continuing education and a unique experience that exceeded the typical university curriculum. While such schools cannot replace university learning environments, we believe they are an excellent complement to academic graduate or postgraduate education.

In efforts to validate our experiences during the three design Summer Schools, qualitative data was gathered through observation, informal interviews and an interaction design pattern workshop held in situ. Inspired by evaluations of design pattern workshops (McInerney, 2002) the summer school participants pulled from their recent experience and suggested successful solutions supporting collaborative design and learning in international interaction design summer schools. This workshop was conducted as part of ongoing research in IxD patterns for intercultural collaboration (Schadewitz, 2005). In addition, a questionnaire was administered to 2004 and 2005 Convivio summer school participants, asking for the three most positive experiences and insights they learned. We also asked for the differences to traditional university courses and possible improvements of the summer school. These latter evaluations were performed four months after the summer school, allowing time for reflective learners to evaluate their experiences fully.

Reviewing IxD Summer Schools

We received 16 replies from the questionnaires that were administered to about 60 participants. In addition, over the 2 years, 40 participants shared their experiences during pattern workshops. Among 16 interaction



design patterns, the most frequent teamwork patterns [frequency range: 8 - 1] identified by the majority of the participants were:

- multi-modal communication [8],
- encouragement of risk taking and experimentation [8],
- gaining common ground [6], storytelling [6], sharing and testing methods [6],
- controlling the dominance of English speakers [5],
- the roles of locals [4] and
- social events [4] among others.

The questionnaires and pattern workshops presented findings consistent with our own observations about the successes and challenges in IxD summer schools. We grouped the resulting data in the following 6 categories:

- Setting up an International Environment,
- Hands-On Practices in Project Work,
- The “New Experience” of Locality, People and Methods,
- Cross-Cultural Teamwork,
- Expert Lectures,
- Social Interactions, the Feeling of Community and foster further Collaboration

Setting up an International Environment

A Summer School brings together collaborative learning and design in a multicultural and international environment, that is not easy to create in a university course. Some of these experiences could be compared to attending a conference, like one participant did:

“Normally the chance for interaction such as this only happens in conferences. The problem with conferences is that ...you do get to listen to interesting lectures and meet interesting people but in a constrained way. The two-week period of a summer school allows for more in-depth interaction between the participants.” (delegate, Convivio 2005)

The international environment and heterogeneous nature of the students and atelier leaders were identified as being amongst the prime advantages of the summer schools. However, for a truly international summer school to be organized successfully, logistics are more complex. At Convivio 2005, visa problems delayed the attendance of some delegates by 3 days, and others failed to attend due to prosaic logistical matters. This absenteeism delayed the formation of cohesive teams in the ateliers. Moreover, the students that did attend cited logistical problems as a significant challenge.

“... in summer schools you have much more heterogeneous bunch of people which means much more richness due to epistemological distances but much more costs (emotional, time spending, economical, mutual understanding related etc.)” (delegate, Convivio 2005)

Hands-On Practice and Project Work



Despite these challenges, participants - enjoyed working “with a real setting” in the absence of the pressure for academic success experienced at their home universities. The questionnaire respondents cited hands-on practice and project work to be fascinating and rewarding activities and commented:

“...having the chance to practice new design methods with a new team”, “...change to meet and work with a diverse group of people and get different perspectives...” (delegate, Convivio 2005)

The “New-Experience” of Locality, People and Methods

Conversely, the alien design context meant that much was new to the students, including some design techniques, culture, language and working styles of colleagues. Although, the participants cited this circumstance as a rewarding experience in retrospect, a high degree of uncertainty avoidance and fear was exhibited in some of the teams. This was mainly generated by the alien context and latent anxiety over the two-week time constraint. Some native team members who acted as interpreters were affected by this uncertainty as well, preferring to make assumptions about local attitudes rather than question the public directly. Since no one but the interpreters spoke the local language, this reluctance hindered the discovery process. The alternative was for the other team members to conduct interviews with local people in English, which limited the sample group to the more educated. Delays of up to three days before interviewing the first local resident were common, hampering an essential understanding of the culture and the city, and hence the progress in finding a design focus.

Cross-Cultural Teamwork

Collaborative learning was promoted through the work of the ateliers. With a limited timeframe to complete a successful interaction design project, from discovery through problem definition to prototype delivery, participants needed to form cohesive and productive ateliers as rapidly as possible. The group process of forming, storming and norming (Harris, 1999) was intensified by individuals’ unfamiliarity with one another’s disciplines, cultural backgrounds, academic levels and economic circumstances. For instance, these aspects affected participation in extra social activities like weekend trips. Eliciting individual strengths and encouraging adoption of responsibility within some ateliers was challenging.

“I could not really enjoy the group work as people constantly were fighting childishly and were unable to work together. At least I learned how important it is to listen to each other and to appreciate their input.” (delegate, Convivio 2005)

Irrespective of culture, each team member’s “team type” affected the nature of the collaboration (Belbin, 1993). Clashes were observed between multiple “shapers” allocated to the same group, whilst the quieter “plants” in the team lacked opportunity to share their ideas. While “shapers” are characterised as members that drive the team process in a challenging way, “plants” are less efficient in communicating although they are more creative in their work. The students’ different, often opposing, views on the work approach affected team motivation and commitment. Based on culture or discipline some students needed to have substantial discussions before proposing a design while others preferred to jump right into prototyping activities. The



“official language” of the academy intensified these dynamics. Native speakers, often more comfortable expressing themselves, had a tendency to dominate discussions and ultimately the direction of the design work. Therefore, the facilitators had a demanding role because students’ learning needs varied greatly. Team members who were unfamiliar with interaction design fundamentals and/or collaborative learning practices tended to feel powerless or lost without guidance from their facilitator. At times, it was difficult to shift these students’ perceptions of learning, from the traditional teacher-student model to a more collaborative, experiential one. Conversely, students that were accustomed to collaborative work often resented any strong directives given in the ateliers. Providing sufficient knowledge to empower the students, yet knowing when to step back and let the team flourish unaided, was a delicate balance to strike. Despite these challenges, the questionnaire respondents identified cross-cultural collaborative working as adding significantly to their learning experience.

Expert Lectures

Learning took place through participation in complementary didactic and collaborative activities. While afternoon teamwork in the ateliers promoted active, experimental participation, morning lectures invited passive, receptive participation. Nevertheless, the heterogeneous nature of participants’ experience of interaction design made it difficult to pitch lecture material at a level that satisfied all participants equally. This is evident in the feedback:

“I was orienting myself in this field, so getting the overview...was good.”

“The lectures ...were... maybe on a too low level.” (delegate, Convivio 2005)

Social Interactions, the Feeling of Community and Further Collaboration

Against this background of international heterogeneity and the challenge of cross-cultural collaboration, half of the delegates expressed a strong desire for greater social engineering. Additional opportunities to interact informally with staff and other delegates were seen as desirable. Specifically, participants hoped for more opportunities for casual interaction with visiting lecturers – something that was perceived as very limited:

“Communication among the teams and between participants and facilitators could be improved by providing more time for informal gatherings and social events.”

Hence, in a summer school, the interactions and social ties between participants need to be engineered more strongly than in other educational environments. Social interaction fosters the emergence and the feeling of a community. Within this environment, the opportunity to network with peers has ongoing value, with relationships established coming to fruition long after the summer school:

“my room-mate and I are working on an idea [that we had during the summer school] we are both excited about” (delegate, Convivio 2005)



Results of the student projects in the 2004 and 2005 Convivio summer schools show the effectiveness of the teaching methodologies presented in this paper. The following three examples briefly illustrate the process of collaborative learning and describe the resulting design solutions.

“Ajmo Splite: Tell Us What You Think!”: A group of designers converged on Split, Croatia with the design challenge of using Mobile technology to support the need of sustainable tourism within the local community. The interaction design method engaged the group in understanding the real needs of the stakeholders involved. These were not only the tourists but also the local population. The design group found out that their project needed to address the local community’s capacity to support the needs of its visitors. The interaction with other groups, facilitators and their feedback was important in the project development. Involving multiple stakeholders in the learning process is supported by the methodology presented in this paper.

“Mediating stories from past and present to dream about the future”: This group was engaged in investigating the history of the city of Timisoara in Romania, finding interactive ways for citizens to explore the historical facts and contribute through storytelling from their perspectives. During the project work three group members struggled with different directions to follow this idea. The involvement of the team facilitator and lecturers in group discussions helped to clear out the different group members’ goals and to find an acceptable compromise. Although the group’s diversity in this situation created a few conflicts, it was valuable in generating different approaches to find a design solution.

“Communicating Recipes from the Past into the Future”: In Timisoara, Romania, this group started from a personal story about a cooking recipe to stimulate the invention of a new, experimental and innovative recipe communication device called the Umami-E-Card and a supporting service, the Umami-E-Market. This group had a good balance in members’ diversity regarding backgrounds and the roles members took. Following a preliminary version of the framework presented in this paper, the group went through all the interaction design steps from investigating the opportunities for design to a prototype and its testing. This result was the seed to develop the STAR framework.

These findings confirmed our experiences that summer schools are perceived as unique, introducing novelties like a foreign environment, a different design team composition, diverse cultural backgrounds, user-centered methods and cross-cultural social interactions. Based on the findings we believe that these events need to be fostered and promoted within graduate and postgraduate education. Therefore, we want to suggest a framework to organize and implement such international design summer schools in the following sections.

The “STAR” Summer School Framework

Principles and Parameters

Building upon the aforementioned findings, we propose the “STAR” Summer School Framework. The framework, represented by a six-point star, consists of three foundational principles and three essential activities which expand the traditional university curriculum. Represented visually on the vertices in Figure 1, the core principles are:



- **Cultural Diversity** ensures a diverse mix of international students, lectures, atelier leaders, professionals' knowledge systems, ideas, participants' perspectives and a local cultural community;
- **Human Centeredness** represents methodological but also the social maxims of a summer school;
- **Contextual Design and Innovation**, on the other hand, relates the design and learning process to a concrete physical, social and cultural local environment in which the design projects are grounded.

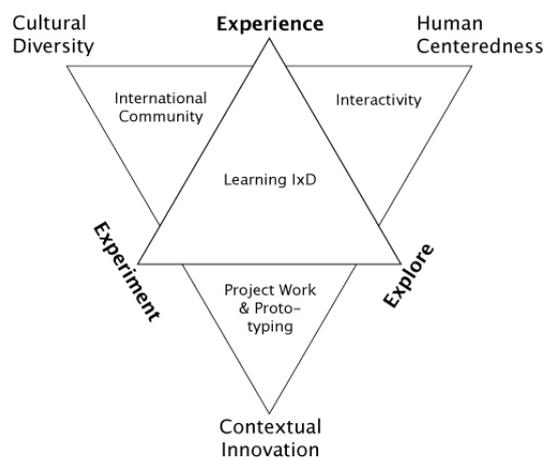


Figure 1 - the main elements of our framework

These principles are linked by three additional activities that ensure participants remain engaged:

- **Experiencing** cultural diversity and human-centeredness within social and work-related interactions;
- **Experimenting** with new approaches and methods through hands-on practice within a novel team composition. A new group of people and a new environment invites to try-out new ideas and learn by experimenting and reflecting with others. Participants experiment based on their diverse backgrounds to innovate within a local cultural context;
- **Exploring** innovative design ideas through human-centered inquiries and prototypes. In order to innovate contextually and reach consensus in the team the participants need to get to know the fellow team mates as well as local population itself.

These core principles and essential activities span a vector space in which several collaborative learning and design parameters can be identified and correlated. As Figure 1 shows, four sub-triangles emerge which represent the four parameters that must be accounted for throughout the programme design and deployment cycle:

- Being part of an **international community**,
- Enjoying multiple faceted **interactivity** and
- Practicing IxD through **project-work**.
- **Learning IxD**



Figure 2 illustrates a more detailed specification of the single parameters of the summer school framework.

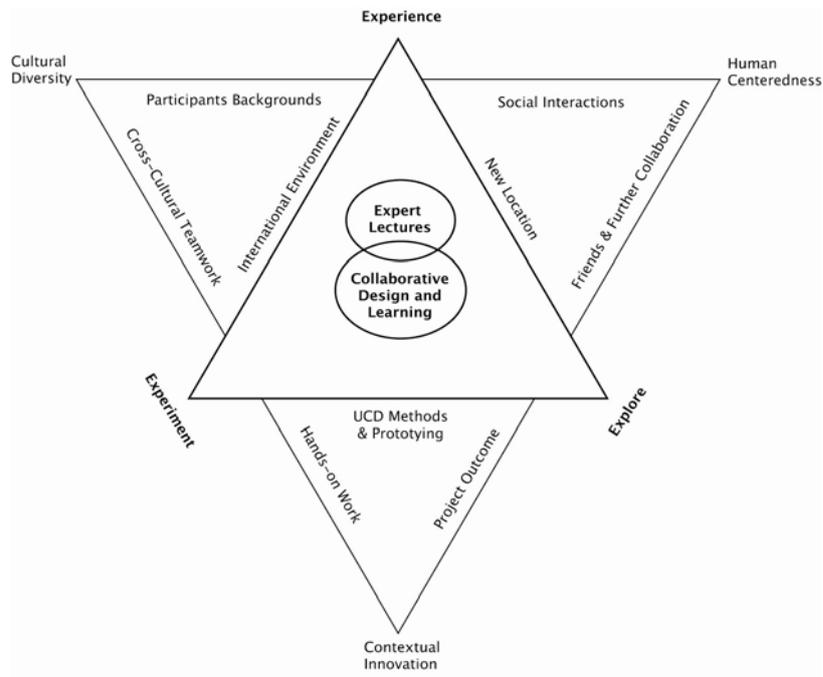


Figure 2 - Detailed framework description

International Community

The upper left triangle represents the finding that being part of an international working and learning environment is a unique and important experience for most participants. Participants had diverse cultural and professional backgrounds, which resulted in using different approaches to designing in cross-cultural teamwork. These alternative views were reported to be inspiring and broadening personal points of view on design methods and ideas. Participants felt very positive about the benefits but also challenges of cross-cultural collaboration. They needed to self-organise and compromise about the goals of the design project as well as social interactions within a team. Based on the fact that participants went through the same experiences and saw similar and different practices they perceived themselves as a part of a bigger, international community.

Interactivity

As the upper right triangle specifies, the actual social interactions among all participants (students, team, teachers, and organisers) and interactions with the local population and within a new locality should be emphasized and encouraged. Through social interaction, comparing knowledge and practices, the participants established friendships and contacts to engage in further collaboration. Intensive social interaction created a feeling of a community.



Practice IxD through Project-Work and Prototyping

The lower triangle mainly signifies that cross-cultural teamwork in user-centered interaction design should engage participants in practical work. This hands-on practice in a local "real" environment was perceived to be one of the most important ingredients of interaction design summer schools. Participants learned design processes, methodologies and techniques by testing probes and prototyping with the local population. Moreover, an additional benefit perceived by the participants was the process-centeredness of the school. It was more important to actually try and experience new methods and exchange ideas with people who have a different perspective than reaching for the ideal project outcome. Nevertheless, trying different versions of the proposed design ideas utilizing hands-on work and User-Centered Design (UCD) methods shapes a unique design project. Hence, if an interesting design was tested to be useful, usable and desirable, the team felt encouraged to work on and improve the design even beyond the limited time of the summer school.

Learning IxD

Finally the inner triangle connects the above outlined parameters to create an environment that supports learning and practicing IxD. For this purpose, lectures from international experts complemented collaborative design and learning activities in the individual teams. Participants felt the teamwork benefits from having the chance to get to know the latest advancements in the field as well as engage in discussions with these renowned scholars. However, participants frequently stressed that the lecture topics need to be relevant and presented in a timely manner, matching the teams' work progress. Hence, this framework suggests that the incorporation of lectures and collaborative design and learning, formal and informal, social and work related activities are important to hold a successful summer school. This unique setup of international summer schools encourages the participants to explore and experience within a new physical local context.

Furthermore, participants also explore and experiment with UCD methods and produce and test different versions of the design. Experiencing these communal efforts and seeing the designs evolve produces an international community. As discussed earlier, summer academies blend collaborative learning with traditional educational methods. Establishing values such as "involve the users; experience the local community; design probes and prototypes" is especially handy to convey the learning objectives of the programme. However, at the start of the programme, a healthy dose of ambiguity is an equally valuable component of the learning process. When no specific design problem is prescribed, the students are forced to explore the locality, interact with the local community and take risks in their work.

The framework presented in this paper not only describes an abstract model of successful implementations of past summer schools but it can also be used as a tool to organize future summer schools. This will be described in the following section.

Using the framework to Organize Summer Schools

Usually, the event organisers have to manage certain constraints concerning time and resources. Constraints are variables, which might differ from event to event. Time might be limited to a period of 2 weeks. Also, organisers need to be aware that they might not have all necessary resources like work materials or



infrastructure at their disposal. However, such constraints can be used to spark creativity. Constraints regarding the available facilities and tools create a need to compromise with co-workers and to find innovative and cheap solutions, namely using “quick and dirty” probes or prototypes when testing various design ideas rather than getting lost in the details of one design.

Hence, keeping possible constraints in the back of one’s mind, we propose that the programme organisation might be accomplished in three phases:

- preparation (before the event starts),
- the event itself and
- evaluation.

In each phase we will discuss the STAR model and its four parameters for developing successful IxD summer schools: International Community, Interactivity, Project Work & Prototyping and Learning IxD.

Summer School Preparation

The effort to organize a summer academy should not be underestimated. Ideally, planning and preparation would start at least a year in advance of the event. The major concern in the summer school’s preparation phase is to frame *‘what the participants will do and how this can best be supported.’*

▪ International Community

In order to reach a diversity of cultures and backgrounds, an international call for participation is issued half a year in advance. Thereafter, participants are selected carefully and purposefully. Participants are chosen to build teams of 6 to 10 participants that are a mixture of cultures, ages, genders, disciplines and expertise. Hence, asking for a letter of motivation during the application helps with making a first selection and identifying the potential compositions of the teams. Local participants are invaluable to every team, as they can help ease the interactions with the local population, explain the local culture and identify their specific design needs. Local coordinators can be invaluable in arranging resources, and ensuring that things run smoothly in preparation and throughout the duration of the programme. In addition, lecturers and atelier leaders need also to be prepared for the school’s theme and should have experience in working in an international environment.

▪ Interactivity

Once the funding is secured and the location is selected, academy organisers can visit the host city and make contact with academic, civic and corporate groups in efforts to identify relevant themes for the summer school. The design topic should also be open enough and easy to explore by the participants. Another important objective is to prepare the summer schools in a way that offers good opportunities for participants to get to know each other’s personalities, interests, backgrounds and expertise and the local culture. Offering multiple opportunities to socialize and interact with all participants, lecturers and atelier leaders as well as with the local population supports the formation of a community. This can be fostered by preparing an opening event, various evening programmes and visits to local places and museums.



One or two months before the event officially commences, a mailing list can be set-up as a place where the participants can introduce themselves and share their ideas, interests and establish a nascent community feeling. Three weeks before the event commences participants get to know who their team mates will be, so that they can communicate and establish a feeling for the group.

▪ **Project & Prototype**

Due to a twofold learning strategy of lecturing and experiencing those concepts through hands-on experiences, the summer school organisers need to prepare the selected location to support practicing IxD using various design processes, means and methods. Practical resource needs for the academy and delegates must be anticipated, including accommodation, food, workspaces with electronic equipment and materials to support collaborative design activities. Simple tools and materials are appropriate as long as they can be used to produce rapid, iterative prototypes (Frishberg, 2006). More importantly, the selected design theme should reflect the local needs and opportunities. The theme, together with appropriate resources, aids the experiences, experiments and explorations in the local reality in order to learn and practice IxD.

▪ **Learning IxD**

The visiting lecturers should be reminded to introduce basic and specific concepts, ideas and methods, calling on examples from successful IxD projects in educational and business contexts. Selecting the sequence of the lectures is very important and defines the basic schedule. It is crucial to have a good balance between the lecture topics, the atelier work and a social programme in order to maximise the learning effect.

During the Event

While the event is running, the framework can aid the organisers and participants answering following questions: *'how are things going'* and *'how can we keep a good balance among the summer school activities.'* Although most activities will be planned beforehand, organisers should be willing to re-shape or re-schedule activities mid-programme to fit the needs of the participants..

▪ **International Community**

Social, collaborative learning and design practices are closely related in international IxD summer schools. In order to solve possible culture clashes or other problems caused by cross-cultural collaboration, organisers and atelier leaders support the students' interactions and learning processes. Particularly for multicultural teams, it is important to highlight, even celebrate, the differences in background and cultural orientation. Differences influence ways of working, timing of activities, and expectations towards hierarchy as in master-to-student or non-hierarchical relationship. To circumvent these differences, it is advisable to establish a team contract that outlines common goals and working styles. Dominant behaviour of some team members may need to be managed and controlled by a facilitator or other team members. It is important to ensure that linguistic hegemony does not prevail, by encouraging those with English as a second language to speak first. Similarly, quiet participants should be actively encouraged to speak up. Re-arranging the distribution of group members among the different groups might be considered when major problems reoccur.



▪ **Interactivity**

The accomplishments of collaborative design summer schools illustrate that creating a common ground among the participants facilitates the collaboration processes. Common ground can be gained through regular, formal and informal information-sharing sessions in a communal space, combined with some organized social events and activities for the evenings and weekend. Interactions among all participants including lecturers, team facilitators and organisers should be encouraged without hierarchical boundaries. As a community of practice, common methods are presented and new insights are shared, drawing from the different points of view and experiences. Hence, strategies to incorporate formal team-building and informal social activities create a deeper understanding and trust amongst participants. Starting the event with team-building activities where everyone can present themselves, their background and their expertise is key. Visits to the locality are also important to get introduced to the culture and the population where the work will be done.

▪ **Project & Prototype**

Hands-on IxD practice is the key to all collaborative learning and design activities. In addition to formal lectures, the atelier leaders need to stimulate the use of multiple design means and methods. However, students also need to feel comfortable with the design theme, the local environment and the team to which they have been assigned.

Although the paths to resolving ambiguity or the lack of clarity can vary, our experience shows that an IxD process model and phase model (Preece, 2002) could direct the team's approach efficiently. The model suggests that gathering user requirements, and discovering and defining the design problem help to develop design alternatives, which can be evaluated interactively. A more experimental approach might be to build and test designs almost immediately, as a means to explore concepts and ultimately discover the problem space. User-centered and multimodal design methods are a necessity when designing in and for an unknown target user group and a foreign culture. In order to traverse the language barriers that may be encountered, teams can utilize a variety of nonverbal communication techniques to inform the design space, such as sketches, photos, models, performances and use of flipcharts posters. Regardless of the processes used, teams should be encouraged to pursue challenges, take risks, generate design ideas quickly, validate them with real users and share their results with the other teams. On the other hand, frequent sharing of ideas and results also encourages the groups to quickly test and prototype ideas, instead of trying to develop only one fully defined final product.

▪ **Learning IxD**

Therefore, during the event, the organisers, teachers and atelier leaders need to verify that there is a good balance of teaching interaction design concepts and experiencing, exploring and experimenting with those concepts.

Our experience shows that it is important to synchronize formal lectures with hands on interaction design experiences to facilitate the "Ah!-Ha!" learning-effect, when previously isolated concepts are connected through a concrete application. Such epiphanies enhance the team's collaborative design process by enabling



the individuals to reflect and challenge practice, and create opportunities to reshape and improve the plans within situated actions. A timetable for lectures is suggested as follows.

During the first day, after the overview and logistics, time should be allotted for groups to set up an overall plan, discuss methods and previous experiences, to identify potential difficulties, questions and gaps of information. The morning lecture of the second day should then introduce general process models, with a focus on explaining the challenges of discovering an unknown design space. Subsequent lectures over the two weeks should cover a variety of topics related to interaction design processes, methods, tools and experiences gained from real world projects. Furthermore, guest lecturers should visit each team individually, and comment on the design process and work accomplished so far.

To address the students' varied learning styles, the facilitator may need to be more directive during the first two days but recede as the project progresses, allowing more self-organization in the team. As soon as the team starts to become cohesive, members are encouraged to take on roles according to their skills and interests, such as documenting the process or providing local or specialized professional expertise. A rotating team facilitator position can be created to foster accountability for these roles. As Figure 3 shows, throughout the event, the facilitation intensity should decrease and self-organization increase.



Figure 3 - Summer school scheduling

Post-Event Evaluation

As the summer school draws to a close, the programme and the leaders should be evaluated again, making use of the framework to identify *'how did the event go'* and *'what can be improved'*. More specifically, feedback should be gathered about each of the four underlying components. Understanding the role of the International community, team interactions, project work and learning process in the success of the programme is important and can help organisers improve the experience for future participants.

Post-event evaluation interviews, held in July 2006, confirm that students, facilitators and tutors likewise see a magnificent difference from traditional intra-cultural and professional education to the international and multi-professional environment offered in those summer schools. Moreover, we hope that an in-depth analysis of



newly gained knowledge from the additional summer schools conducted and evaluated in 2006 will allow us to discuss the aforementioned concepts in more detail and to compare to other models and methodologies of collaborative learning and design.

Conclusions

An interaction design summer school is perceived as unique. Moreover, it is a valuable complement to university programmes, which are expanded to a new environment where cultural diversity, human-centeredness and contextual innovation are the major vertices for a student to experience, experiment and explore new IxD practices. This “novel” environment, complemented with different perspectives from the other participants, stimulates creativity and innovation. Being in a new place breaks the monotony of everyday activities, opens space for new ideas and fosters the initiatives to try new ideas without fear. This was the spirit of the ateliers in Convivio summer schools.

The reflections presented in this paper attempt to convert the issues we faced in organizing and participating in summer academies into a structure for developing future programmes. Thus we propose the “STAR summer school framework”. This framework encourages the blending of formal learning and design practices and instructions with more organic, applied and experimental experiences. Involving the target community and utilizing user-centered interaction design methods encourages quick iterations of design ideas and testing of the interactive designs in several design cycles. Combining teambuilding, theory, practice and daily reflections nurtures a good learning environment for interaction design. Summer academies that incorporate conventional teaching and “learning-by-doing” sustain the discovery of new design methodologies and solutions. This framework explains how to apply constructivist theories and situated learning in summer schools.

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Notes

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All websites were accessed in March 2006.