USING FICTIONAL CHARACTERS AS STUDENTS' ALTER-EGOS IN PARTICIPATORY DESIGN SESSIONS

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Abstract

The paper describes a novel approach to collaborative design of educational software, one that is based on the use of fictional characters (we introduce the idea of design alter egos) as a means towards eliciting and understanding students' requirements. Through the presentation of the design process, a case study application for the design of a course website and a quantitative and qualitative analysis of the results the paper's aim is to suggest the use of design alter egos as an appropriate, effective and efficient means of co-designing educational software with students.

Introduction

A number of methods and techniques have been developed, that allow the inclusion of children of all age groups in the design process of educational applications, e.g. Cooperative Inquiry (Druin, 1999), Bonded Design (Large et al., 2006), Mixing Ideas (Guha et al., 2004), KidReporter (Bekker et al., 2003). All methods share a strong belief that children can be active participants in the design of more situated and appropriate technology products, and at the same time they serve as pedagogical tools that enable constructivist learning to take place.

However, depending on their age, children may exhibit difficulty in expressing their ideas or find it hard to collaborate with other, mostly adult, team members, feeling intimidated by previously established power relations between them (Nesset & Large, 2004). In order to overcome such obstacles, it is necessary for any participatory design approach to (a) set up a solid ground for collaboration through the use of the appropriate mediating tools and techniques for the project at

hand, (b) establish an environment that respects, motivates, stimulates and rewards children for their contributions (Bekker et al., 2003), and, eventually, (c) allow for them and their needs to become the central focus for both the designers and the design process.

The use of fictional characters in requirements elicitation, that either substitute the input of actual users or enhance idea generation processes, has been studied extensively the past few years. We claim that fictional characters can act as a valuable design artefact in collaborative design sessions with students that can support their participation and greatly enhance their creativity. In this paper, after discussing the theoretical framework followed and the two most prominent approaches concerning the use of fictional characters in design, we describe a novel approach, that of design alter egos, and present a case study application.

The We!Design Framework

The objective of the We!Design methodology (Triantafyllakos et al., 2008a) is to enable the design of educational software tools that respond accurately to the distinctive conditions of diverse educational environments. It fits with design circumstances where wide-ranging perspectives on the design problem are essential, time barriers are restricting and participants' long-term involvement is not feasible. It can become an integral part of the everyday reality of an educational institution, without disrupting the students' primary learning objectives and/or activities.

The methodology focuses on the collaboration of software designers with students (ranging from secondary to undergraduate university students, aged between 12 and 22 years old), educators and other stakeholders, for the design of educational software that supports and enhances typical educational processes such as communication, cooperation, knowledge management, knowledge sharing, course management, and so on. The first phase of the methodology consists of multiple iterations of the same, concise and highly-structured, collaborative design process, conducted with different students. During each design session students' problems, needs, expectations and design ideas are elicited and transformed to a low-tech prototype interface through a task analysis stage. In the second phase of the methodology, the designers analyze and synthesize students' suggestions and ideas so as to design a final software product. The methodology has been successfully applied for the design of several educational applications in the past. (Triantafyllakos et al., 2008a).

However, the analysis of these case studies revealed numerous opportunities for the methodology's improvement. In this paper we will focus on the problems, needs, expectations and design ideas elicitation stage of the methodology. By introducing the use of fictional characters in that stage, we aim at establishing a

design context where students are encouraged to search for new situated interactions supported by technology — as opposed to mere technological solutions — understand and appreciate their internal motives, identify the causal links between them and their personality traits, and situate their design ideas in entrenched social behaviours.

Personas

Personas as a user-centred design technique were introduced by Cooper (1999) and have been widely used in design research and practice (e.g. Blomquist & Arvola, 2002; Chang et al., 2008; Grudin & Pruitt, 2002). They are considered to be abstract representations of archetypal users based on real user data that result from interviews, observations, field research and/or quantitative data analyses (Pruitt & Grudin, 2003) and have been used as guides to the design process. They are fictional characters that embody users' characteristics, histories, thoughts and feelings (Blythe & Wright, 2006) and have precisely defined aspirations, needs and goals (Blomquist & Arvola, 2002). Personas work complementary to other design methods and techniques that primarily aim at the creation of scenarios, and can greatly enhance their effectiveness (Grudin & Pruitt, 2002). They become a replacement of 'the user' throughout the design process, provide a shared language for communication between various stakeholders, allow designers to measure their designs' effectiveness, avert the risk of self-referential and/or elastic interpretations of 'the user' on behalf of the designers, and, eventually, act as an effective means towards committing design team members to the process (Chang et al., 2008; Cooper, 1999; Pruitt & Grudin, 2003). Yet, their most important benefit is that of being generative, allowing designers to easily project them in diverse contexts and situations and make inferences on their prospective behavior (Grudin & Pruitt, 2002).

However, when personas lack the necessary details that could render them as real, round characters, they could be reduced from user archetypes to user stereotypes (Blythe & Dearden, 2008). As such they can lead to erroneous and superfluous assumptions and, eventually, mislead design decisions.

Pastiche Scenarios

As an alternative to personas, pastiche scenarios propose the use of fictional characters from well-known cultural sources, such as literature, film and pop culture, throughout participatory design processes (Blythe & Wright, 2006). Their overall goal is to provide design stakeholders with the ability to "explore alternative understandings of how different people might respond to proposed technologies" while offering "a space where personal and upsetting issues can be discussed in a distanced and safe way" (Blythe & Dearden, 2008). Pastiche scenarios take advantage of the complexity and specificity in which fictional characters are described and also of people's tendency to strongly engage (Grudin

& Pruitt, 2002) and, at times, identify with them. Such characters can act as common denominators for all participants and reference points for further exploration of social, political or emotional contexts (Blythe & Wright, 2006). Furthermore, by introducing individual characteristics and behaviors in the design process it is claimed that design issues otherwise left unexamined can be brought to light (Dearden et al., 2006).

As in the case of personas though, pastiche scenarios do not come without problems. There is a difficulty for the designers to identify suitable characters, both familiar and engaging for the whole group of participants, especially when working with young participants (Dearden et al., 2006). Additionally, intense engagement with the fictional characters on behalf of the participants could lead to unfavorable discussions where hilarity and fantasy prevail over productive design space explorations (Dearden et al., 2006).

Design Alter Egos

We introduce the idea of design alter egos. Design alter egos have been conceptualized as fictional characters. They are portrayals of representative students with a face, a name, a personality and a life story, but, instead of being based on user data analyses, as in the case of personas, or derive from well-known cultural sources, as in the case of pastiche scenarios, they are created by the students themselves at the initial stage of collaborative design sessions. Each participant creates his own design alter ego, and develops his physiological, sociological and psychological traits through a process of introspection, recollection and organization of personal experiences, and, at the same time, reflection on other students' attitudes and characteristics. Eventually, each participant ends up with his own detailed and tangible rendering of 'the user', which becomes his communication agent throughout the design process.

The design alter egos' construction aims at working as a warm up, preparatory technique forcing the participants to recall and shift all aspects of real users to their working memory and focus their attention on them. In addition, they share several assumptions and benefits with personas and pastiche scenarios. Similar to personas, they intend to be generative and used as a creative source of inspiration, allowing the participants to project them in different contexts and situations, and make assumptions on their prospective behavior (Pruitt & Grudin, 2003). In a way not unlike that of pastiche scenarios, they aim at liberating the participants from the fear of straightforwardly exposing and talking about themselves during the design process (Blythe & Dearden, 2008). Overall, our hypothesis is that design alter egos can act as a technique that can intensify the participation experience and

engagement and increase the effectiveness of various collaborative design approaches.

Case Study

In order to evaluate the design alter egos technique, we conducted 12 collaborative design sessions with the participation of 54 undergraduate students so as to elicit requirements for the design of an ideal course website. The process followed in the design sessions was structured and influenced by the requirements elicitation phase of the We!Design methodology (Triantafyllakos, 2008a). Twenty-six (48%) of the students were female and 28 were male (52%). Each design session lasted for approximately 2 hours and 30 minutes and was comprised of four to six students and two coordinators. The coordinators' role was to guide the students throughout the design process and provide support when needed.

A video camera captured the design sessions' setting in order to provide a detailed documentation of the whole process. Additionally, after each session's completion, students were asked to evaluate the design process, the final products, their experience with the design alter egos, and the coordinators' role in a questionnaire containing 5-point Likert scales. Coordinators also initiated in the end of each session a brief semi-formal discussion concerning the students' experience in order to elicit their rationale and critique of the process and their attitude towards the design alter egos technique.

The Design Process

During an introductory phase the students were acquainted with the design process and the problem at hand. The overall goals of the process were presented, followed by a short presentation of the basic principles of design and participatory design in particular. The main challenge set was the envisioning of a course website that meets students' learning particularities, incorporates and sustains technological trends such as social networking and blogging and which can be harmoniously situated in the daily routine of a modern, active student with multiple interests. So as to familiarize with the design process and support idea generation, students were provided with a set of 23 printed hand-sized cards. The cards played a dual role: (a) they acted as a guide for the students, directing them to the different stages of the design process, thus, making it easier for the coordinators to maintain and control the flow of the session; and (b) acted as visual (through their graphic design and pictures) and textual (through their descriptions) stimuli to support students cognitive processes and creativity when needed. The introductory phase lasted about 15 minutes.

Upon completion of the introductory phase the design alter egos concept was introduced. It was imperative to elaborate on the basic psychological assumption behind their conceptualization: that people share a strong ability to envision one's behavior and thoughts while knowing little of his character (Pruitt & Grudin, 2003). Students were then asked to play the role of a scriptwriter and develop their own design alter ego, a character with whom they can relate to and for whom they will be asked to create scenarios during the rest of the design process.

Each student was given a Design-Alter-Ego Form, a specially designed work sheet that allowed them to develop the discrete characteristics of their design alter ego's personality and life style. At the outset, students were asked to select their character's photograph among a variety of photographs depicting people close to their age taken from various cultural magazines. The photographs depicted every day, common people and had a balanced ratio of background, body and face characteristics. The remaining Form elements included the following: name, age, favorite motto, basic personality traits (e.g. extroverted, critical, anxious, enthusiastic, open to new experiences), academic status and ambitions, professional ambitions, technological skills and habits, daily routine and extreme habits. Eventually, students presented their design alter egos to the rest of the group. The duration of this phase was approximately 30 minutes.

The next phase included the design space exploration and constituted the core of the design process. Its duration was close to one hour and 30 minutes. The process was organized in a structured way around the following five design activities: (a) elicitation of existing problems and needs, (b) elicitation of design alter ego specific requirements, (c) search for new technological opportunities, (d) elicitation of requirements after design alter ego swapping, (e) existing solutions' evaluation and (f) envisioning the future. In each activity, students were provided with a set of visual and/or textual stimuli as a source of inspiration for the creation of scenarios describing instances of use of the course website by their design alter egos. Students were asked to work alone at first and present their scenarios and discuss them with the rest of the group in the end. Two or more rounds inside each activity took place.

Results

Informal discussions were transcribed, and students' responses in the questionnaires together with the video recordings were thoroughly examined in order to identify issues and themes regarding the value of the design alter egos in the design process. Table 1 presents summarized statistics from all 12 design sessions. We considered students' positive attitudes towards the session structure, the coordinators role and the design products as prerequisites for examining the

effects of the design alter egos. The analysis of students' responses, as shown in Table 1, shows that their satisfaction with the design process was very positive (M: 4.31, S.D.: .41) as was their evaluation of the final list of scenarios (M: 4.29, S.D.: .67). Students believed that the suggested scenarios could eventually lead to the design of an original and particularly satisfying course website. The suggested scenarios covered a wide range of requirements, including both typical needs already addressed in most learning management systems (LMS) (such as providing news feeds, supporting team formation, making available video-recordings of the lectures) and innovative ideas (such as integrating each course with relative job agencies, providing inter-university services for similar courses or presenting course's history in the form of short documentaries). Finally, students acknowledged that the coordinators did not interfere or influence their design suggestions (M: 4.56, S.D.: .67).

Table 1: Summarized Statistics from the Design Sessions

Session	Total # of scenarios	Scenarios per person	Satisfaction with the process	Satisfaction with the products (2qs)	Satisfaction with the coordinators	Satisfaction with the design alter egos
1	23	6.25 (1.1)	4.46 (.07)	4.37 (.94)	4.62 (.47)	4.18 (.31)
2	28	4.50 (1.7)	4.59 (.18)	4.75 (.27)	4.87 (.20)	3.45 (.73)
3	24	6.00 (1.6)	4.10 (.85)	4.00 (.40)	4.62 (.47)	3.62 (1.0)
4	23	5.75 (4.8)	4.14 (.40)	4.12 (.85)	4.93 (.12)	4.25 (.79)
5	18	4.50 (0.5)	4.07 (.50)	4.12 (.47)	3.87 (1.2)	3.56 (.68)
6	22	5.50 (2.5)	4.50 (.27)	4.87 (.25)	4.93 (.12)	3.12 (1.0)
7	18	4.50 (2.2)	4.42 (.11)	4.25 (.28)	4.93 (.12)	4.37 (.47)
8	28	5.50 (0.5)	4.00 (.40)	5.00 (.00)	5.00 (.00)	3.25 (.35)
9	22	5.50 (3.5)	4.60 (.29)	4.50 (.57)	4.18 (1.5)	4.50 (.67)
10	19	4.60 (2.5)	4.25 (.15)	3.80 (1.1)	4.45 (.44)	4.40 (.45)
11	25	6.25 (1.9)	4.51 (.37)	4.37 (.44)	4.71 (.45)	4.46 (.55)
12	24	4.80 (2.0)	3.74 (.18)	3.70 (.83)	3.80 (.57)	3.10 (.74)
Mean (S.D.)	**22.8 (3.2)**	**5.24 (2.5)**	**4.31 (.41)**	**4.29 (.67)**	**4.56 (.67)**	**3.90 (.82)**

Students' Final Products

The analysis of students' needs and ideas allows us to assert that the methodology helped them externalize their prospects for the new generation of e-learning systems. It was rather evident that Web2.0 and its highly participatory and disseminating culture have affected their expectations. Their ideas revolved around the establishment of a learning environment that provides opportunities to (a) *initiate* educational activities, by suggesting lecture themes, organizing supporting lectures or assessing and changing the evolution of the course, (b) *produce* and *share* personal and self-initiated projects, links or comments, (c) *connect to the world* and *communicate* with instructors, fellow or ex-students, other students of the same course in different departments, professionals, and (d) *collaborate* and develop a *community of practice* with students, instructors and professionals, that will allow them to familiarize with relevant cultural and professional practices and exchange ideas, products and interests. Moreover,

students seemed to recognize the importance of informal learning activities, and suggested the use of games, simulations and storytelling by professionals. Eventually, they critiqued the isolating and de-contextualized experience offered by traditional LMS approaches, and asked persistently for more socially situated learning experiences and rich media offering (podcasts, vodcasts, etc.).

Students' Attitude towards the Design Alter Egos Approach

The development and employment of the design alter egos were significant parts of the design process and hence students' positive attitudes towards the process indirectly referred back to those phases. At the conclusion of all design sessions, students commented those activities as being the most original, interesting and unanticipated.

Constructing the Design Alter Egos

Although the Design-Alter-Ego Form was concise, students were motivated and willing to engage deeply in the exploration of their design alter ego's characteristics. In almost all design sessions, they asked for additional time to complete the form, to think, develop and empathize with their characters. The creation of the design alter ego initiated a form of introspection which forced students to inspect and recall several elements of their own personality, interests and habits. This effect was in accordance with our initial goal of asking students to develop their design alter egos at the onset of the design process.

The majority of the students projected their own characteristics to their design alter egos. They claimed that they represented either an idealized version of themselves, or an ideal partner (especially in the cases where they selected the photograph of an individual of the opposite sex), or an intimate friend. Only few students experimented with extreme and divergent characteristics, while some created purely humoristic characters.

The selection of the photograph played a decisive role in the development of their fictitious characters. Several students stated they were inspired by the physiological and style features of their selected photograph in order to envision their design alter ego's personality traits and behaviors. In all sessions students were curious to see their colleagues' choices. So as to make students feel less self-conscious of their selection, the coordinators humorously advised students to pick an image of a person that they "will not marry, will not hate and will not help accessorize", but simply "can talk on behalf of him." Still, a few students made selections that were based on the distinctive features of the depicted individual and did not follow the coordinators' recommendations.

Design Alter Egos and Students' Participation

The design alter egos' functioned as 'liberating agents' for the students, since they allowed them to consider themselves not accountable for their proposals. This ascertainment was commonly accepted as one of the most crucial contributions to the process. The majority of the students felt free to explore new behaviors and ideas through the fictitious identity of their design alter egos, relieved from the burden of articulating their opinions straightforwardly and the fear of being criticized. This is further exemplified by the almost identical interpretations of the design alter egos, offered by students in different design sessions: *"The design alter ego) protects you and allows you to say things that perhaps you wouldn't say about yourself. It's a kind of camouflage."* and *"Several characteristics are mine while others are not. I prefer though to work with a design alter ego. Otherwise it's like playing The Moment of Truth — the TV game."*

Moreover, the development of the design alter egos functioned as a warm up technique since students had to concentrate on their personal characteristics and then re-introduce themselves and socialize with their colleagues with their new identity from the very beginning of the design process. However, students needed some time to get used to the idea of speaking through their design alter egos. As one student stated *"It was somewhat weird at the beginning, but then 'the ice broke'!"* Eventually, all students engaged with their design alter egos to the point that, even several weeks after the completion of the design sessions, they entertained themselves using their design alter egos' names in their conversations.

Design Alter Egos and Students' Creativity

The majority of the students did not think of the design alter egos as an obstruction during scenario writing (M: 4.20, S.D.: 1.08). Instead, they found them to be rather helpful during the whole process (M: 3.70, S.D.: 1.04) and considered them to be supporting their creativity (M: 4.09, S.D.:.99). Several students stated that they would not produce as many scenarios as they did without their design alter ego (M: 3.52, S.D.: 1.22).

The variance in the students' responses related to the extent at which their design alter egos represented a similar to them, or a totally different character. When the former was the case, the design alter egos played a twofold role. They were used as a means of recalling personal problems, needs and preferences, and at the same time, they functioned as a creative source of inspiration offering supplementary fictitious characteristics to think for. The comments made by the majority of the students whose design alter egos shared similar attributes with them, verify this argument: *"Sometimes (the design alter ego) helped me, sometimes it didn't. It brought some ideas to mind that I wouldn't suggest for myself but then I thought: yes, but X — my design alter ego — would like that."* and *"(The design alter ego)*

helped me think more. Most of my ideas were based on the design alter ego (even though I disagreed with him at some points).”

However, the students who developed design alter egos with whom they could not eventually empathize confronted many difficulties during the scenario writing activities. They participated in the process by simply talking about themselves, or felt trapped in their creation and could not use it as a source of inspiration, or dismissed the whole design process and quietly abstained. In no such occasion did students state that their design alter egos affected them positively while at times they became an impediment to their participation: *“Mine, just made my life difficult.”* and *“My design alter ego was not close to my personality. It did not help me think more. I did not understand what (the design alter ego) had to do with the course website. I found it easier to talk about my self.”*

The design alter egos’ effect on students’ creativity was different during the various design space exploration activities. They worked effectively as generative devices during the first three design activities (elicitation of existing problems and needs, elicitation of design alter ego specific requirements, and search for new technological opportunities) allowing students to produce numerous diverse scenarios. However, the students’ references to their design alter egos diminished as the design process progressed, namely during the last two design activities (existing solutions’ evaluation and envisioning the future). This behavior was to some extent expected. The aforementioned activities presented students with novel and unprecedented views of the design space. Consequently, students needed more time to recognize and comprehend the suggested approaches at first for themselves and then for their design alter ego. It is important to mention that, on the whole, these two design activities facilitated the production of only few scenarios.

Discussion

Overall, students’ evaluations revealed that the integration of the design alter egos in the collaborative design sessions was successful. Our initial hypotheses were supported given that the design alter egos liberated the majority of the participants from the fear of straightforwardly exposing themselves, supported and enhanced their introspection and helped to establish a creative atmosphere throughout the design sessions. In particular, the design alter egos acted as a tabula rasa for the majority of the students to project upon them an idealized version of themselves together with characteristics and behaviors borrowed from others. This presented students with an opportunity to introspect and, in effect, re-invent themselves, while at the same time offered them a fruitful and stimulating source of inspiration that enhanced their creativity.

We could claim that the design alter egos provide a more suitable technique for working with young students as opposed to personas and pastiche scenarios. In both approaches, participants are presented with existing characters, either based on real user data derived from diverse data analyses, as in the case of personas, or born from the imagination of an author or scriptwriter as in the case of pastiche scenarios. However, the resemblance of the majority of the students with their design alter egos correlated significantly with their overall satisfaction from the design process and their view of the design alter egos as creative stimuli. Thus, it could be supported that the identity of a fictional character plays a crucial role for the successful outcome of his employment in a collaborative design setting.

Students' excitement with their participation allows us to assert that they want a more determinative role in inventing their future learning and are available to participate, to be involved and contribute in addressing their needs. Short duration participatory design sessions provide a window to transform the imposed and externally determined reality of educational environments to a co-formulated desired prospect that embeds and respects students' diversity. Eventually, they promote a decentralized future that empowers locality and diversity, encourage participation and involvement, as opposed to homogenization and passivity, and endorse change management without abrupt educational interventions (Siozos et al., 2008). We intend to continue investigating narrative approaches in collaborative design sessions with students, in order to understand and, at some degree, direct the participants' experience in a way that augments their engagement with the process, facilitates their participation and supports their imagination (Triantafyllakos, 2008b).

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