Future of Creative Technologies

Journal of the Institute of Creative Technologies

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About the IOCT
The IOCT was launched in Autumn 2006 at De Montfort University to conduct transdisciplinary research at the nexus of the arts, humanities, science and technologies. Our research themes focus upon enhancing quality of life and understanding cultural horizons.

For information about the IOCT and our projects, visit ioct.dmu.ac.uk

If you would like to contribute to future issues of this publication, please contact Dr Tracy Harwood (thanwood@dmu.ac.uk) in the first instance.

To join in our discussion on transdisciplinarity, go to ioct.dmu.ac.uk/publications
Editors’ Comments

Welcome to the first issue of the Future of Creative Technologies, a joint transdisciplinary publication by the Institute of Creative Technologies (IOCT) at De Montfort University. This issue of the journal presents an eclectic mix of short feature pieces and articles by keynote speakers, hosted by the IOCT in its first 18 months of existence, selected by the editors.

The diversity of the content is deliberate, and is intended to stimulate readers not only from the range of disciplines represented, but also to way of exploring further discussion which lies at the heart of the IOCT: what does it mean to be transdisciplinary? How can we foster good practice in transdisciplinary research? and, what outcomes might we expect from such research?

Reflecting upon our ambitions to be an institute which conducts research at the nexus of the arts, humanities, sciences and technologies, we acknowledge that to be transdisciplinary can sometimes appear to be in conflict with traditional approaches to research within Higher Education in the UK today. However, this publication clearly demonstrates that transdisciplinary is central to the viability of, in which people interact with technology now and in the future. The boundaries between research disciplines appear to be dissolving before our eyes.

‘Creative technologies’ does not exist as an academic discipline in its own right – and it is not our intention to create such a discipline, but we do attempt to illustrate through the pages of this journal the potential of such an idea, that our future outputs can be achieved through extreme collaborations. Whilst this issue of the journal adopts a traditional, text-based publication format, including online (www.ioct.dmu.ac.uk/publications), future issues are expected to include other media!

In this issue, the first thought piece is by IOCT Visiting Professor, Howard Rheingold, World renowned for his contributions to the field of social networking, and his books, Smart Mobs and The Virtual Community. Rheingold has been a regular visitor to the IOCT and has spoken on more than one occasion. Here he touches on fields of sociology, anthropology, education and technology: understanding and extending Human Sociality: Literacies, Transliterations and 21st Century Pedagogy. Through his comments, we come to understand the enormous contribution the Internet has made to human social practices and examine what ‘cyberculture’ might mean in the future. Rheingold argues that in doing complicated things together, people create significant common value and that collective action possible only through virtual communities empowers us even further. Such empowerment, underpinned by social theory and the belief that technology can be used to address suffering and social injustice is the best way to invent new institutions, but this may come at a price. Rheingold postulates the need for people to know how to participate in the ‘infosphere’.

Claudia Eckert’s keynote contributed to the IOCT’s discussions on ‘What is Creativity?’, a series of Arts and Humanities Research Council (AHRC) funded seminars and conferences, and is an important part of the IOCT’s ongoing research in music technologies and digital performance, and her recent visit to the University generated much discussion of a wide audience. The IOCT’s Internet Orchestra works with her Telematics Ensemble, and future performances at Renesseale Polytechnic Institute’s new experimental media and performing arts center are in preparation. Eckert’s article presents an intriguing and technical overview of an evolving system a ‘timespace machine’ that supports and enhances improvisation in musical performance. Originally based on her early experiments with tape delay, the EIS remains a work in progress, and as well as providing a brief review of her history, Eckert suggests how the next stages of its development might be understood by systems of intelligence, creating a system that learns from experience.

The final article in this issue is by Martin Riezer, recently appointed Professor of Digital Creativity between the IOCT and the Faculty of Art and Design at De Montfort University. Riezer’s article, Mobile, Performative and Locative Media Art and the Reinvention of Place, is a fascinating account of the rise of technologies and their deep embeddedness into modern life, drawing on theories of sociology, psychology, architecture, geography, media and art. Riezer suggests mobile technologies, and ‘dispersible’ modes of interaction with them, have led to the emergence of new types of art, albeit these are in early stages of development and various phases of understanding by researchers, artists, politicians and society as a whole. Riezer describes new forms of mapping the World which are largely conceptual in nature and a ‘geospatial web’ of urban space which relies on massive, or collective, reconstruction, action, reaction and interaction.

The IOCT has identified two broad research themes to date: Quality of Life, and Cultural Horizons. Within both of these is implied an analysis of the present and a contemplation of the future. This cuts across all the papers in this issue. Thus King-Bright’s article concerns itself explicitly with improving quality of life for autistic children, but in so doing sees new cultural horizons, whereas Olivos’ paper begins by expanding our cultural horizons with regard to a range of music practice, which leads on to the kind of digital literacy which can be used to promote social interaction, creativity and learning among children and young people. Riezer’s article is also exploratory, and the interactions he describes are based on his early experiments with tape delay, the EIS remains a work in progress, and as well as providing a brief review of her history, Eckert suggests how the next stages of its development might be understood by systems of intelligence, creating a system that learns from experience.

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Understanding and Extending Human Sociality: Literacies and 21st Century Pedagogy

Howard Rheingold

Visiting Professor, Institute of Creative Technologies, Lecturer, University of California, Berkeley, and Visiting Associate Professor, Stanford University, USA

The focus of my interest has expanded from considerations of technologies and social impacts to the literacies certain technologies sometimes enable.

Literacies are where technologies meet the part of human nature that invents and makes sense of the world for itself. When we think about exchanging information and knowledge, forging relationships, creating groups, carrying out collective action, we do not first turn to the tangible artifacts such as computers and printing presses, but include such tools as language, typography, norms such as netiquette - the mental tools, social tools, and psychological tools that grew up around certain tools and amplify their usefulness.

Literacies - their powers, dangers, adoption or rejection by different groups - are central to what I believe, as I noted in my first lecture at the Institute of Creative Technologies, that humans are in the midst of a transition that begins with a change in the narrative that many people internalize and disseminate - the story about why we are social. This is not a universal narrative; it’s a “Rockstar Self Interest” that I believe that what we are witnessing with the rise of many media and digitally networked publics is the emergence of a scaffolding for what could be called “Deep Self Interest.”

People do things together for a rich mixture of reasons. The current story that most of us tell ourselves about how humans get things done is focused on the well-known features of self-interest and how that makes terrible things - survival, power, wealth, sex, glory. People also do things together for fun. In the heyday of a challenge society, we are smart enough to want to work together from time to time to make something beneficial to everybody. If I had to reduce the essence of Homo sapiens to five words, "people do complicated things together for the good of the group, education, slavery, commerce, democracy, organized warfare, benevolent societies, networks, virtuous communities." This is a complex and diverse story.

Online social networks can be powerful amplifiers of collective action precisely because they augment and extend the power of this ever-complicated story, making possible more efficient and effective execution of our most basic human behavior (or, perhaps, augmenting behavior already possible, too, by humans). But all human fun, art, curiosity and creativity are also essential parts of human sociality - and I propose that the Web is an example of some of that proof that these capabilities can be amplified, as well.

Indeed, our species’ social inventiveness appears to be central to what it means to be human. The parts of the human brain that evolved most recently, and which are connected to what we consider to be human sociality - the neural information-processing required for recognizing people, remembering their reputations, learning the rituals that reduce boundaries of mistrust and bias, and translating our communities to collaborations, may have been enabled by (and may have driven the rapid evolution of) that uniquely human brain structure, the neocortex.

One of the first questions that arose from my earliest experiences online was how the Web is different from other online spaces. Did it make me want to work together from time to time to make something beneficial to everybody? The answer is yes. Would I use my life online to track and learn of our behavior for the purpose of this paper a differentiation will be drawn been artistic design domains and technical design domains.

Design processes and the Rhetoric of Creativity

Claudia Eckert

Senior Research Associate

Engineering Design Centre, University of Cambridge, UK

Creativity is a hugely important concept for our society. Through the Cook report the government has set active targets for pushing the “creative industries”, referring mainly to artistic design domains and the media without acknowledging engineering design as a creative field (DTI, 2005). Creativity is an important part of our culture with its own strengths such as product design or graphic design as well as industries such as advertising or music, but surprisingly much less so in technical design domains, such as engineering or software design. Here the discourse is much more centered on innovation than on creativity. This is not a binary distinction, as many fields have technical and aesthetic aspects, but a reflection of traditional distinctions in design education and practice. Artistic design domains, such as product design or graphic design, embrace a wide range of activities, from the extreme ends, with knitwear design as an artistic domain and complex engineering as a technical field.

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Across Design as the wider context

The Across Design project, carried out in collaboration with the University of Cambridge and MIT, was specifically designed to compare across a wide range of industries the design processes of designers from different design domains. The designers in any one domain have been defining formal processes and applying them to projects carried out in the organisation since roughly World War II. By contrast technical design problems are often very overconstrained, customer that meet their needs and ideally exceed their expectations; however the designers themselves have to find a way to design something that is sufficiently new to be successful. Artistic design domains often have technical aspects, which can be accessed objectively; however the overall evaluation of the product is subjective, making it difficult to design clear credit to any particular individual.

Guarantor of success

When an objective evaluation of the product is possible, such as in technical design domains like product engineering, it is easier to predict success. However, knowing that a product does meet its requirements does provide some indication of the problem and its complexity, as well as the predictability of the design. Some companies also have a clear understanding of the strengths and weaknesses of their products as well as their own. They can therefore gauge their likely success.

In artistic products this often is by far from straightforward. The success of the product often depends not only on the product itself, but on the market context and general trends influence the acceptability of the product. It is equally difficult for customers and clients to judge the quality of their designers’ work. In some firms designers become in many ways the guarantor of success, rather than any objective technical or aesthetic criterion. The success of a fashion product is a risky, subjective business and is designed by a certain designer, and owning a design by the designer carries a certain degree of status. To successfully design, need to build up reputations for themselves. Breaking in can be challenging, as the marketing and visual merchandising business is both large. This makes designing a very expensive business for many artistic designers.

Repetition of activities and products is seen as a guarantor of success, because proven solutions carry less risk and a positive track record is important when designers can draw on past experience. Even in artistic fields, novelties can play a great role, the work of well-known designers can be quite similar over years. As designers find their style they become known for it and some become iconic. Based on their track record, they can do the same thing again, and often it will be seen as creative, if subtle adaptations meet emerging trends.

The Hidden and the Open Process

Every product has a process by which it is designed, where some elements of this process are open and freely discussed, while others need to be kept out of the air for being designed or designed. The second meaning of process is a series of clearly defined steps which constitutes a description of what happens or should happen in the design of a product, formulated in abstract, in a clear and precise manner, applied to the design of different industries. As a cooking recipe the steps that designers must take to design their products are laid out in advance, to ensure that the product will work. However, the process of designing the product is not as clear-cut. In artistic products, the designer’s work is highly personal, and the process is not always as clear. In artistic products, the designer’s work is highly personal, and the process is not always as clear. In artistic products, the designer’s work is highly personal, and the process is not always as clear. In artistic products, the designer’s work is highly personal, and the process is not always as clear.
The evolving envelope of acceptable designs in fashion products, taken from Eckert and Stacey, 2001.

Conservative designs Novel designs Irrelevant designs Out-dated designs

Figure 1

Process and creativity both play a key role in all design domains. Products need creativity to be novel in the market and to be attractive to customers, but they also need creativity to be novel in the way they are designed. The need for creativity arises in several distinct places in technical design domains. It is extremely critical to identify the correct requirements of the product at the start. The design of technical products requires both an understanding of the problem and potential of the market and finding ways of translating those into technical requirements. For example, an automotive company might identify a market opportunity for a small, economical sports car, and need to find a way of translating small and economical into dimensions for the chassis and power consumption. The designers need to combine their technical expertise with an understanding of market opportunities and potentials. Technical design processes are portrayed as rational sequences of activities, minimizing the perceived risk associated with the product. They will highlight the analysis and testing activities that are carried out in order to achieve this. Typically this involves abstracting the problem and then finding new ways to make it concrete.

Drivers of the design rhetoric

Creativity is a vital part of all design domains. No domain is a priori more creative than another. The creation of each design involves a combination of activities that are more creative and others that are fairly mundane and repetitive. In small projects the same person carries out all aspects of designing, but in complex design projects many people are seldom able to carry out activities that don’t seem very creative. In this sense the scale of the project affects the perception of the creativity involved. What is different between artistic and technical designs is the rhetoric that surrounds it. The rhetoric of marketing is different for technical and artistic products. However this has little to do with the processes through which they are designed and more to do with the way things are communicated to the public perception.

Designers often don’t know much about what people in other design domains do or how they work and therefore there is often a lack of understanding of the context and the position of the company within the evolving fashion and the position of the company, as illustrated in Figure 1.

Conclusion

Process and creativity both play a key role in all design domains. Products need creativity to be novel in the market and to be attractive to customers, but they also need creativity to be novel in the way they are designed. The need for creativity arises in several distinct places in technical design domains. It is extremely critical to identify the correct requirements of the product at the start. The design of technical products requires both an understanding of the problem and potential of the market and finding ways of translating those into technical requirements. For example, an automotive company might identify a market opportunity for a small, economical sports car, and need to find a way of translating small and economical into dimensions for the chassis and power consumption. The designers need to combine their technical expertise with an understanding of market opportunities and potentials. Technical design processes are portrayed as rational sequences of activities, minimizing the perceived risk associated with the product. They will highlight the analysis and testing activities that are carried out in order to achieve this. Typically this involves abstracting the problem and then finding new ways to make it concrete.

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My skin crawled as the strychnine kicked in and the acid slowly crept up my spine. Was I ready for eight more hours of this? I... stood on end. Now I had only to anticipate the roar of thunder that always followed the laser show. Above, the storm had...

I could feel it dancing across my skin: use of UseMod Wiki software, although the software was later rewritten and spun off into a standalone open source wiki platform: MediaWiki. The success of Wikipedia allied to the open source nature of the software has

Cunningham’s notion of the wiki is fundamentally linked with the concept of the social behaviours that occurred during the time the wiki novel was created. It is a moment of self-reflection where the wiki software for “A Million Penguins” was the obvious choice.

Wikipedia

People who don’t know what a wiki is still call Wikipedia, it is really listed in the top ten most read websites on the internet. The two articles in question 2.2.3.9,63 are used here 23,419,975 edits since July 2002 and their main wiki editorial page features by Jo Howard when two other sides wiki on the same subject. The wiki is an environment where all other sides are judged and, by virtue of its size, a completely typographical wiki. There is nothing else like WikiPedia. Wikipedia

Penguin's goal was to explore the potential for innovative collaborative authorship through an online wiki novel created by New Media Sue Thomas, along with their students on the MA in Creative Writing and New Media at De Montfort University, Leicester, to help support the online wiki novel “A Million Penguins” in November 2006.

The social behavior of the contributors was tracked through analyzing their communication in the wiki novel, their discussions in associated blogs and, where possible, in-person interviews. The results showed a complex set of interactions and understandings that questioned many of the assumptions about the wiki novel in general. The use of MediaWiki and Professor of New Media Sue Thomas

The Experiment

The wiki was opened to the public on Thursday February 1st 2006 with a

Seeded with a first line taken from a volume in the Penguin Classics

Before

In a wiki everything about you can be seen in the way you edit. The editing process is simple to do, but conceptually very difficult to grasp until you have tried it. Essentially, anyone can edit anything on Wikipedia. The editing environment in MediaWiki is well

Introduction

In February 2007, Penguin Books and De Montfort University launched “AMillion Penguins”, a collaborative novel open to... treatment of the site. To do this we will delve into the history of the wiki as enacted by Russian philosopher, Mikhail Bakhtin.

According to Bakhtin, a folk carnival provides a lens for the analysis of culture, language and narrative. It is our contention that the way the wiki novel was set up simply reflected the social construction in which a community could occur. Like a carnival, the wiki was bounded in space and time and provided an opportunity for “ordinary folk” to do a highly countable, countable, interactive community. Unlike a wiki, which is meant to evolve “organically” through multiple edits in such a way that no one “voice” dominates, a wiki is a moment of excess featuring multiple competing voices and performances. Indeed, the wiki novel was the first of several “impossible” challenges that Cunningham’s idea 

Wiki Editing

Wiki editing is about what you can see in the way you edit. The editing process is simple. Anyone can edit anything, but understanding what you are doing requires practice. Essentially, anyone can add anything you want to Wikipedia. But editing, particularly in its wiki form, can be a complex task. The first time you try to edit Wikipedia, nothing will happen. To do so, you will hit the “edit” button on the page you want to change. A small box will open, allowing you to edit. This box contains a text editor that looks like a word processor. Wiki editing

Wiki research has uncovered several types of behaviour in wikis. Some contributors become good “wikicitizens” interested in contributing to the community, while others become “spammers” and “hackers” who interfere with the collaborative process. In this paper, we will examine the social behaviour of the contributors to “A Million Penguins” in order to understand the wiki novel as a cultural text. The experiment

Spammers, hackers and wikicitizens

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Before the wiki was closed on 7th March 2007 at least 75,000 people had visited

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From this intervention onwards, strawhine and various re-workings of it became a central motif in the wiki novel, and Pabruce became an instantly recognisable voice. Although there was supposed to be an effect of "you do not know me" the entry did not ask whether some text that had been added or altered by Pabruce. Just in case it wasn't obvious, he used his user page to track what he was responsible for.

My main contributions were:
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He performed two large editing sessions on 5th March and 6th but it is noteworthy that this time other contributors gave as good as they got. High visibility YellowBanana's user talk page while Pabruce and Sentinel68 reverted or edited YellowBanana's text as they saw fit. In the end, it could be argued, the crisis-co-opted YellowBanana by creating a separate version of the wiki novel "the banana version" into which most of the banana references could be put.

In many ways YellowBanana subverted and re-visited their repealed, until next time when I know I will find something smoother, less violent. Bit like when you go to a club, you have to go through all those ruffians at the front door and find a place up the back somewhere on a sofa with your mates.

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- Pabruce's outburst was one of the crisis points for the wiki novel. As soon as the wiki had been initiated the performance of the protagonist emerged as the instigating message service. Stag. At that point it wasn't clear whether this was a user of deliberately absurd things, an inexhaustible cause of the overheated atmosphere or something more damaging. One of the team commented that "They are really treating (A Million Penguins) as if it were like episodes - very very serious?" however another noticed that Pabruce had not brought the logic to the story, instead playing off the readers as rageful, as if they wonder whether they should intervene at all or just ride it out. They had already noted the difficulties between Pabruce and Sentinel68 and Cornered, who described Pabruce as an individual who seemed too ready to delete material. Should they consider banning him? Come to that, did he even exist? At least one of the editors suspected that Pabruce and Sentinel68 were one and the same person acting out a drama. In the end the project team wished to respect the editing events, closely but not intensely, if this was a staged performance then banning someone would possibly be playing right into their hands. On the other hand, Pabruce's real personal details had indeed been posted there was the possibility of the events leading to all manner of distasteful and inaccurate. As it turned out, the decision not to intervene at all turned out to be the right one and events settled down again of their own accord.

Pabruce disappeared for a couple of days but soon he was back. On the 14th February Pabruce had mentioned he would write two edits to his and another person's user page and then on 22nd February, he returned to the wiki in earnest creating a new page for a character named Louis Crissal, and contributing another 665 edits before the wiki closed. After his return his behaviour was erratic and it was not clear if it was noteworthy that he made around half of the number of the edits after he returned as he did before he left. Clearly the experience of seeing himself re-invented as a character within the story had changed something, he left his mark.

Choose your own performance
Pabruce was not the only performer in town. Nostrum19 provides another example of dramatic interventions into the wiki novel that massively influenced the novel. As with Pabruce, Nostrum19's first edits were on February 2nd, and his contributions to the "Welcome" page where he renamed characters, and removed some of the imagery that had been edited into the story in order to return the story to a more "normal" story form. This was a reflection of his own judgement, he started at line 2 and made a pass through it. At the same time he added new page and removed his own contributions.

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As of March 7th, when the wiki closed, at least 75,000 different people had viewed the site. Of those, 1,476 people had actively contributed to the wiki. Although there were no frequent editors, all of the pages were accessible by any user. Of the pages with at least 750 visits, only 29% of them were linked to other pages, indicating that the majority of the pages in "A Million Penguins" were not connected to other pages. The wiki was considered a "walled garden" where pages didn't contain any links, implying that approximately 75% of all these pages did not link to any other pages in the wiki.

There appear to be two main elements that resulted in the carnivalesque effect. Unlike wikis, "A Million Penguins" rarely make major changes to the structure of the wiki content, as long as the content is not modified. Although there were no frequent editors, all of the pages were accessible by any user. Of the pages with at least 750 visits, only 29% of them were linked to other pages, indicating that the majority of the pages in "A Million Penguins" were not connected to other pages.

The structure of the wiki itself is the embodiment of the reversal of a typical author-publishing relationship through the use of a wiki. By setting up a wiki which anyone could edit, the author could not only be an editor but also a reader. This is a significant change from traditional publishing, where the author is usually the only person who can edit the content. The wiki allows anyone to edit the content, and the author is only one of the many editors.

"A Million Penguins" is a perfect example of a wiki where the reversal of the author-publishing relationship is evident. The use of walled gardens as somewhere that real work could get done is also a prominent feature of the wiki. The wiki was not just a place for people to read and write, but also a place for people to work together to create something new. The "A Million Penguins" project was a perfect example of this, as the contributors worked together to create a novel that was never finished.

There were 570 users who edited the wiki on just one or two occasions. Of these, it is possible to identify around 380 users whose edits were small, simple corrections. The wiki novel may have been a vehicle for contributors to express themselves, but it was also an opportunity for them to experiment with different writing styles and techniques. The use of walled gardens as a place where real work could get done is also evident in the "A Million Penguins" project. The contributors worked together to create a novel that was never finished, and the "A Million Penguins" wiki was a perfect example of this.
seems likely, however, that the most important factor determining the success or failure of the project was the sleeping interest and overall presence of one or more successful participation within the community. The community became so active that there is no hope of maintaining control. A related assessed model is the potential influence for such activities may strengthen and facilitate successful co-creation communities.

This report has, necessarily, only focused on a small number of the topics that emerged from the research and it is hoped to point towards future studies of wiki behaviour. In particular, it is possible that applying a “framework” such as the one developed in this study to the issues of concomitant and surrounding competence in “A Million Penguins”. SueThomas defines “transdisciplinarity” as “the ability to read, write and interact across a range of platforms, tools and media from signing and contrasting through hardcopy, print, TV, radio and film to digital social networks” (2007). It is notable that many of the contributors to “A Million Penguins” struggled with semantic difficulty. Without any written context to aid, this often meant that the contributors were unable to appreciate the way in which the wiki platform was being actively used. For example, it was difficult to establish what the editors’ point was across the boundaries of the wiki. The editors of “A Million Penguins” was a carnival, which is to say somewhat rude, response to these notions. As with any carnival, however, it also reaffirms the reality in which it existed. The amount of work that went into “A Million Penguins” over a short period of time is staggering and indicates the potential for this type of collaborative.

New media critic, Ben Vershbow claimed that the wiki was the wrong tool for collaborative fiction writing:

The problem with a Million Penguins in a nutshell is that the concept of ‘a wiki-novel’ is oxymoron. A novel is probably as un-collaborative a literary form as you can get, while a wiki is inherently collaborative. Wikipedia works because encyclopaedies were always in a sense collaborative works – distillations of collective knowledge – so the wiki was the right tool for that type of writing.

For a certain extension of this analysis of “A Million Penguins” combines his view because one that the wiki novel most definitely isn’t a novel. It is documented that very little editing was done on the wiki novel once it had been generated by many participants, yet with a significant increase, the users very rarely actively contributed to the wiki novel itself. It was written out and every other time than a novel once owned by a new pair were not always keenly accepted by the wiki novel community. What actually seem to have been reversed are the normal rules of publishing because that of a carnival because it is has an endpoint. During the period of the carnival the normal rules are suspended or reversed. It was the very vitality of “A Million Penguins” that both appalled and intrigued commentators and contributors alike. The editorial team were initially at the point of despair after the first day of the wiki novel experiment. It wasn’t until “A Million Penguins” was under the spotlight of fame that it was to take off and did not have the expected impact. The editing patterns of some of the users show them frequently making small changes then, a few minutes later, adding another: as if they were testing to see it how it worked. It wasn’t just the contributors who struggled to deal with this. The very act of imagining the project in the first place was an experiment in what might happen when you try to transpose the act of writing a novel into a wiki, and vague hopes that it might produce something traditionally publishable were abandoned within hours of the wiki hitting the wires. Throughout the whole experiment the Penguin/DHM team were engaged in a quest to figure out what it was that they had just done, and this report itself represents only a few first steps in understanding what may have happened to literature, if anything, during the month of February 2007.

Certainly, some of the participants in the project did attempt to ‘write a novel’ but it remains unclear as to whether they succeeded. What appeared to be happening was that the normal ‘rules’ of authoring would be reversed. What actually seem to have been reversed are the normal rules of publishing because that of a carnival because it is has an endpoint. During the period of the carnival the normal rules are suspended or reversed. It was the very vitality of “A Million Penguins” that both appalled and intrigued commentators and contributors alike. The editorial team were initially at the point of despair after the first day of the wiki novel experiment. It wasn’t until “A Million Penguins” was under the spotlight of fame that it was to take off and did not have the expected impact. The editing patterns of some of the users show them frequently making small changes then, a few minutes later, adding another: as if they were testing to see it how it worked. It wasn’t just the contributors who struggled to deal with this. The very act of imagining the project in the first place was an experiment in what might happen when you try to transpose the act of writing a novel into a wiki, and vague hopes that it might produce something traditionally publishable were abandoned within hours of the wiki hitting the wires. Throughout the whole experiment the Penguin/DHM team were engaged in a quest to figure out what it was that they had just done, and this report itself represents only a few first steps in understanding what may have happened to literature, if anything, during the month of February 2007.

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The ReactivColours Project: Taking an Embodied Approach to Information Communication Technologies, Creativity and Special Education

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Abstract

This paper will present practical insights and theoretical perspectives in order to offer an approach to Information Communication Technology (ICT) that is creative and expressive. Drawing on the outcomes of the ReactivColours research, we will highlight how the project explored kinesthetic engagement and embodiment to promote meaningful and transferable learning experiences for even the most anxious of young children on the Autism Spectrum Disorders (ASD) spectrum. The project identified that relating physical and perceptual play experiences with digital technologies can extend the opportunities for children who are given the opportunity to demonstrate their interests through action. New developments of the project will investigate the potential of mobile and networked technologies to facilitate and enable non-verbal forms of self-expression. In relation to this, future research will specifically consider the effectiveness of embodied interaction to encourage creative thinking and imagination with emphasis on synthesis and transfer, aspects of the creative process that are known to be particularly difficult for the highly individual group, and the need to discover effective mechanisms to evaluate learning that is tacit and experiential.

Keywords

Information Communication Technology (ICT), creativity, kinesthetic embodiment, interaction, synthesis, transfer, autism spectrum disorders (ASDs), transfer.

Introduction

The ReactivColours project identified through both empirical and exploratory methods the importance of social interaction and communication, two of the ‘trials of impregnation’ that contribute to the diagnosis of Autism Spectrum Disorder, (Wing, 1996), could be pivotal to the engagement with young children with ASDs in learning environments that are free from anxiety. New research prompted by these findings will evaluate whether playfulness, whereby goals and desires are discovered through experimentation and emergent interest, can encourage creativity and embodied thinking, which makes up the third of Winnicott’s (1995) diagnostic criteria.

This paper will describe how the physical and perceptual attributes of a range of technologies can be harnessed to encourage young children with Autism Spectrum Disorders (ASDs) to play fully and experience a range of social interaction and communication, two of the ‘trials of impregnation’ that contribute to the diagnosis of Autism Spectrum Disorder, (Wing, 1996), could be pivotal to the engagement with young children with ASDs in learning environments that are free from anxiety. New research prompted by these findings will evaluate whether playfulness, whereby goals and desires are discovered through experimentation and emergent interest, can encourage creativity and embodied thinking, which makes up the third of Winnicott’s (1995) diagnostic criteria.

The ReactivColours project

The ReactivColours project, based at Cardiff School of Art and Design, was awarded funding by the National Endowment for Science, Technology and the Arts (NESTA) to explore the role of ICT within educational strategies and practices with children on the Autism Spectrum Disorders. Throughout the project, children were given the opportunity to explore the world around them through engaging with ICT that is designed specifically to encourage social interaction and imaginative communication. The project builds on prior work, which indicates the benefits of using ICT with children with special educational needs in Wales, UK. The overall aim of the project has been to encourage children to playfully engage with technology in a variety of settings, both for personal and educational reasons.

For this reason it is important to find an approach to teaching children with ASDs in environments that enable creative thought to arise through emergent interests rather than activities dictated by the social environment. The project has found that children who have a particular interest can often be more engaged with learning experiences than those who do not. The project has also found that children who have a particular interest can often be more engaged with learning experiences than those who do not. The project has also found that children who have a particular interest can often be more engaged with learning experiences than those who do not. The project has also found that children who have a particular interest can often be more engaged with learning experiences than those who do not. The project has also found that children who have a particular interest can often be more engaged with learning experiences than those who do not.

The role of “affordances” in ReactivColours

The physical design of a mouse suggests it could be picked up and used easily for smoothing, circling and tapping. Usually, when it is used to perform a task, the link to function is arbitrary and bears no relation to the digital representation of the screen. A keyboard has been designed to run on technology that is creative and expressive. Drawing on the outcomes of the ReactivColours research, we will highlight how the project explored kinesthetic engagement and embodiment to promote meaningful and transferable learning experiences for even the most anxious of young children on the Autism Spectrum Disorders (ASDs) spectrum. The project identified that relating physical and perceptual play experiences with digital technologies can extend the opportunities for children who are given the opportunity to demonstrate their interests through action. New developments of the project will investigate the potential of mobile and networked technologies to facilitate and enable non-verbal forms of self-expression. In relation to this, future research will specifically consider the effectiveness of embodied interaction to encourage creative thinking and imagination with emphasis on synthesis and transfer, aspects of the creative process that are known to be particularly difficult for the highly individual group, and the need to discover effective mechanisms to evaluate learning that is tacit and experiential.

The ReacTickles Software

For most children learning will take place in an environment that encompasses informal and formal learning situations with all of the associated stresses. Therefore, tools that can be used to support the development of ICT skills are essential. The ReactivColours project has developed a range of technologies that can be used to support the development of ICT skills. The project has identified that relating physical and perceptual play experiences with digital technologies can extend the opportunities for children who are given the opportunity to demonstrate their interests through action. New developments of the project will investigate the potential of mobile and networked technologies to facilitate and enable non-verbal forms of self-expression. In relation to this, future research will specifically consider the effectiveness of embodied interaction to encourage creative thinking and imagination with emphasis on synthesis and transfer, aspects of the creative process that are known to be particularly difficult for the highly individual group, and the need to discover effective mechanisms to evaluate learning that is tacit and experiential.

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In this paper I described an approach to ICT that is kinaesthetic and embodied. Practical experience in developing the... ReactTickles was one of the applications they valued the most for the most severely autistic and low functioning children.

Conclusion

inventions and fugues of J.S. Bach and the repetitions of motives and sequences in the classical forms of Haydn, Mozart... and Narcissus to the 20th century when popular musicians and producers began realizing the expressive potential of echo... "time machine" - what is expanded is temporal - present/past/future is occurring simultaneously with transformations. What... future while I am still playing, is transformed and becomes a part of the past. This situation keeps you busy listening.

The EIS consists of modules that can be configured in the interface... processed with up to 40 variable delays, modulated with fluctuating waveforms, layered and spatialized. Sounds may be... delay system of the beginnings of EIS. Timed delays range from milliseconds to one minute or more depending on CPU power.

The EIS is fun! Acoustic input from an instrument or voice now can be... the entry points depending on timing and attack so that richly changing timbres could emerge from the delays.

The Expanded Instrument System (EIS) is an evolving electronic sound-processing environment. EIS is dedicated to providing improving musicians' individual performance control over a variety of parameters that can transform the output to the system being used. EIS is still evolving and will be... Acoustic sounds are generally far more complex that electronically generated ones.

Performers each have their own setup that includes their own microphones, control devices, a computer with sound card and audio interface. The computer provides the digital signal processing that includes variable delay, ambience and modulation, and translates and displays control information for this processing from midi controllers, foot pedals and switches. The musicians and their instruments are the sources of all the sounds, which they pick up with their microphones and subject to several kinds of pitch, time and spatial ambience transformations and manipulations.

The Expanded Instrument System (EIS) has undergone continual development since 1965 - forty years - from tape delay with tape machines to computer based systems. The early development of EIS was characterized by... Echoes are a perceptual phenomenon - is created with electronic processing within an actual physical space. Simulated walls or reflective surfaces may cause a listener to perceive differences in room size and the tonal quality of a musical instrument”.

These virtual acoustic are also part of the expansion of EIS. Virtual acoustics gives the improvising performer new possibilities.

“With the advent of signal processors and sophisticated sound systems, it is possible to tamper with the container of music in imaginative ways. The walls of a virtual sound space created electronically can expand or contract, assume new angles or virtual surfaces. The resulting resonances and reverberations continue during the course of a performance creating new musical ideas. These ideas can be expanded or shaped by the performer and... the EIS environment of the future to ensure that they can easily adapt to individual capabilities and assist transition.
Matrix Mixer

Control Mapping Interface

Looper (1-4)

Delay (1-2) include modulation functions and 20 delays each.

Reverb (1-2)

Looper (1-4) analog input can be recorded or input from any other module by linking other loopers. The speed control parameter allows the input to increase pitch with + values and play backward with - values. Button speed and volume can be varied manually, or algorithmically with a random event generator, chaos generator or with learned behaviour.

The default VIBAP configuration uses eight speakers evenly spaced in a circle. Speakers can be arranged in any circular position. Minimum speakers are four.

Five variable functions can affect the path of the sound sources and amplitude. These functions affect radius, spread, modulation (modulation affects Radius and speed), spread, modulation (modulation affects the size of the sound sources in the speaker field). The functions can be controlled manually or by the REG, Chaos or Learn controllers.

The default VIBAP configuration uses eight speakers evenly spaced in a circle. Speakers can be arranged in any circular position. Minimum speakers are four.

Future of Creative Technologies

Notes


Discography: Recordings using EIS


Primavera Sett (1998) for electric cells, cello/valce, violin, harmonium, accordion/EIS, sampler, see Frequency oscillator OS-C 22-31

Deep Time Histo-Drama, Deep Listening 2005


Pauline Oliveros, Centre Links Brand and Bas Thruemant with Pauline Oliveros, Torin Hanks, Deep Listening 2003


Live in Atlanta - The Carrier Brand - Boston Multimedia Institute of Electronic Music, Pauline Oliveros, CD, LPR-001


Puria Golite, Electric Orchestra, CD, LPR-001

Deep Sleep Flight - 1986; Music and Arts CO3100 (Deep Listening) Band, Recorded at Wits College Park Dormitory, Wits University, Johannesburg, South Africa. CD, LPR-001

Pauline Oliveros, Boston, MA, CD, LPR-001

Pauline Oliveros, Beaufort-West, South Africa, CD, LPR-001

Pauline Oliveros: Beaufort-West and Elephant Living, Long Live, Recorded at the Candy Factory in Audín, The Netherlands

Tao's Room (Deep Listening, 3 CS-1995)

A sampler of nineties and performances. 1992 Wits Deep Listening Band in a variety of settings, and using the expanded instrument system. It is a valuable processing of acoustic sounds and the possibility of changing the apparent acoustic of the performance space.

Pauline Oliveros & John Cage 1989

A fourth recording by the Deep Listening Band with Pauline Oliveros, David Camper and Stuart Dempster. Recorded by Bob Bielecki in the acoustically beautiful
Spatial annotation has emerged in the last three years as a major internet phenomenon, particularly with the growth of Google Maps and social photo-sharing sites such as Flickr. In spatial annotation projects like "Yellow Amber" and "Neighbourhood", and in my own project "It's Electric", the techniques for locating and tracking physical spaces and their interactions are becoming well established. It is clear that, if anything, social networking sites and other location-dependent environments are creating new kinds of spaces and relationships that are of interest to artists.

Space and Place

Social networks to date have been dominated both by narrative and by its modes of framing. Dispersed modes of interaction raise a series of questions about the development of new media art forms, particularly in relation to an audience's changing modes of participation and reception. The characteristics of new social networking methodologies are creating a world where information-rich layers can be mapped directly onto urban spaces, and where social networking spaces open up a series of interrogations around changing concepts of place and space and new perceptions of urban space for a wide range of traditional disciplines from art and architecture to cultural studies. The blurring of the boundaries between physical and virtual demands a new theory capable of explaining the changing concepts of the "real", and, with the growth of hybrid experiences, the concomitant changes in sociality and communication patterns.

The nature of audience interaction is responding to a sociocultural change in which, although yet far from fully quantified, demonstrates a desire for a greater degree of participation. Explored in popular broadcast television e.g. Big Brother and Urban Investigation, and in the networked expansion of social networking sites such as MySpace and Facebook. Such examples, however, fail short of the requirements of serious art.

What is therefore the potential for the emergence of new visual and auditory languages and strategies that might develop into a new paradigm of location and pervasive media? Analysing and redrawing the emergent and emerging visual and auditory languages required to enable the realisation of new interactive narrative and art forms, urban and site-specific environments is a huge challenge. But not only in such understanding of the new and evolving forms of visual media can we attempt to map change in sociality and communication patterns and new forms of collaboration.

How can we extend this interaction between technology and intervention that, although yet far from quantified, demonstrates a desire for a greater degree of participation, evidenced in popular broadcast television e.g. Big Brother and Urban Investigation, and in the networked expansion of social networking sites such as MySpace and Facebook. Such examples, however, fail short of the requirements of serious art.

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At first sight it seems contradictory that such engaging locative works tend to be characterized as an illusion, rather than the truth. After all Paul Virilio identified new media as promoting the change from considered defiance to continuous and automatic present: the user creating the narratives both as subject and object; the visual subject becoming transformed to a technical effect, which forms a sort of ‘pan-scientific’ turning of our most ordinary acts into movie action. However where these locative works succeed in overcoming the user’s sense of a continuous present with the user’s immediate perception of a contiguous past.

The ever increasing technological and enclosure of urban and public spaces is a phenomenon associated with the growth of ‘narrative’ space and what Mark Augé has termed the growth of «no place». (The anonymous random place or, Stephen Graham refers to his «places» being increasingly constructed through consumer decisions which in turn, are influenced through the...surveillance, and cities of...)

Such cities, increasingly "hosted" through software and networking, highlight a related political question about the embedding of previous relations of power, class and ownership in the new infrastructures and whether this perpetuates ancient divisions or raises further questions related to the potential for community and individual empowerment.

Mapping as Critique

Apart from the arguments that the technology is intrusive and very commercial and is being "sold" to us via arts projects, there are those who take the role of Situationist ideology in locative media (something about which I am personally deeply sceptical), mainly because so few artworks succeed in the ‘detournement’ of the (original) movement. The GPS, mapping practice of modern psychographics (see http://www.gpsvisualizing.com and http://socialinstallation.org) are seemingly related to the settings of Guy Debord and his practice of the ‘Derive’ but in reality seldom appear to achieve anything identifiably subversive. 

To quote one cultural critic, ‘Locative media is: Psychogeography with a Hertzian touch’, and I am not their only critic. (http://socialinstallation.org) but I believe that this use of GPS mapping practice today shows:...

The "Derive" or "drift" was a method for subversion, of remapping the world with ‘uncontrolled’ clarity, for identifying...of two different regions”, has been successfully adapted in several locative works. Jen Southern and Jen Hamilton in their work "...Can only assign them to the realm of the barbaric or irrational: that which lies outside of its license on reason.

Many GPS mapping projects tend to forget this and even revel in the act of remapping without context. The increasing importance of maps in defining space within these projects appears to be a conscious attempt to redefine the way we understand the world, to coordinate interactions of audience and performers in both real and virtual space.

Surveillance and Sousveillance

In a C-Theory (online publication) article entitled ‘Operational Media’, the Venezuelan psychologist and architect, Juan Carlos Crandell puts it this way: ‘The technology is embedded in phones released by NTT Docomo in Japan and allows gamers to move the phone, forward and backward, shake it, and tell the device to control action on the screen’.

Fears of surveillance are undoubtedly real and relate to the imperative of the State in an age of counter-terrorism, to quote Manovitch “to make the map equal the territory”. Of course this...to coordinate interactions of audience and performers in both real and virtual space.

The technology is embedded in phones released by NTT Docomo in Japan and allows gamers to move the phone, forward and backward, shake it, and tell the device to control action on the screen.'
About the Contributors to this Issue

Claudia Eckert is a Senior Research Associate, Engineering Design Centre, Cambridge University, UK. She joined the Engineering Design Centre in January 1999 as a Research Associate on the Signposting Project, concentrating on knowledge acquisition and the use of design guidelines. Her previous work concentrated on intelligent support systems for knitwear design, beginning with a simple prototype for her MSc thesis. In her PhD thesis, entitled "Intelligent Support for Knitwear Design," she looked at how automatic design can overcome communication difficulties in multidisciplinary design teams. The work included a large ethnographic study of the knitwear industry in Britain, Germany and Italy, which produced a detailed design process model and an analysis of the causes of communication problems within design teams. From 1996 to 1998, she initiated and conducted an ESRC-funded research project entitled Mechanisms of Inspiration in Knitwear Design, studying how sources of inspiration are used in knitwear design. In 1998 the Open University funded her project to develop a prototype garment shape design system.

Wendy Keay-Bright is a Reader on Inclusive Design at Cardiiff School of Art and Design, University of Wales Cardiff, UK. A graduate of Graphic Design and Animation, Wendy began her career at Studio Animation on the popular children's TV series, SuperTed, before becoming a freelance animation producer. Clients included BBC One, MTV Video and 4JC. Her teaching career has developed alongside animation and new media production, and has provoked challenge and energy. Her influences are filmmakers Len Lye, Norman McLaren and Osiek Fischinger and digital artists John Maeda and Scott Snibbe. It is their use of technology as a medium for sophisticated, time-based experiences that reflect personal expression and performance that has provided inspiration for Wendy's work.

Bruce Mason is a Post-Doctoral Research Fellow at the Institute of Creative Technologies, De Montfort University, UK. He is a specialist in innovative methods for social research, and has worked on projects investigating new media, online culture and ethnography. He is the co-author of Qualitative Research and Hypermedia (2005).

Pauline Oliveros' work has as a co-founder, performer and improvisational musician is about opening her own and others' sensibilities to the many facets of sound. Since the 1960's she has influenced American Music: profoundly through her work with improvisation, meditation, electronic music, myth and ritual. Many credit her with being the founder of present day meditative music. All of Oliveros' work emphasizes musicianship, attention strategies, and improvisational skills. She has been celebrated worldwide. During the 1960's John Cage invited her to work Bye Bye Butterfly as one of the most significant of that decade. In the 70's she represented the US at the World's Fair in Osaka, Japan; during the 80's she was honored with a retrospective at the John F. Kennedy Center for the Performing Arts in Washington DC; the 90's began with a letter of distinction from the American Music: centre presented at Lincoln center in New York. In 2000 the 50th anniversary of her work was celebrated with the commissioning and performance of her Lunar Opera: Deep Listening For, tuiors. Oliveros work is available on numerous recordings produced by companies internationally. Sounding the Margins (as it were) – a forty-year retrospective will be released soon in a six CD boxed set from Deep Listening.

"Through Pauline Oliveros and Deep Listening I finally know what harmony is...it's about the pleasure of making music" (John Cage 1989)

Martin Rieser is Professor of Digital Creativity in the Institute of Creative Technologies and the Faculty of Art and Design, De Montfort University, Leicester, UK. He is a media artist and theorist working in a range of media from the Internet to Locative Media and Interactive Installation. His work is trans-disciplinary and is particularly concerned with the combination of interactive poetry, sound, narrative and performance in still and moving image. He has exhibited internationally in Europe, Australia, America and Japan. His books include New Screen Media (BFI/ZKM, 2002) and The Mobile Audience (Routledge, 2005). His recent research includes an Arts and Humanities Research Board funded project held in Bath Abbey in 2006 and Rosamond, 2007 part of a Fellowship at La Trobe University, Melbourne.

Howard Rheingold is Visiting Professor to the Institute of Creative Technologies, De Montfort University Leicester, UK; Lecturer, University of California, Berkeley, and Visiting Associate Professor, Stanford University, USA. His lifelong fascination with technology led to his writing Tools for Thought in 1985, a history of the people behind the personal computer. Around that time he first logged on to The WELL, an influential early online community he explored the experience in his seminal book, The Virtual Community. In 1991, Rheingold wrote Virtual Reality: Exploring the Brave New Technologies of Artificial Experience and Interactive Worlds from Cyberpace to Telelectronics. After a stint editing the Whole Earth Review, Rheingold served as editor in chief of the Millennium Whole Earth Catalog. Shortly thereafter, he was hired on as founding executive editor of HotWired, one of the first commercial content web sites published in 1994 by Wired magazine. Rheingold left HotWired and soon founded Electric Minds in 1993 to chronicle and promote the growth of community online. In 2002, Rheingold published Smart Mobs, exploring the potential for technology to augment collective intelligence. Shortly thereafter, in conjunction with the Institute for the Future, Rheingold launched an effort to develop a broad-based literacy of cooperation. As of 2008, Rheingold was teaching courses at University of California Berkeley and Stanford University.

Sue Thomas is Professor of New Media in the Institute of Creative Technologies and the Faculty of Humanities at De Montfort University, Leicester, UK. Her most recent book is the non-fiction monograph of cyberpace Yello World: Travels in virtuality (2004). Other publications include the novels ‘Correspondence’ (shortlisted for the Arthur C. Clarke Award for Best Science Fiction Novel 1992) and ‘Water’ (1994): an edited anthology Wild Women: Contemporary Short Stories By Women Celebrating Women (1994), and ‘Creative Writing: A Handbook For Workshop Leaders’ (1995). She has published extensively in both print and online, and has initiated numerous online writing projects including The Neon Quill, now an iconic image of the early days of the web. She founded the Belize Online Writing Centre in 1995 where she was Artistic Director until going to De Montfort in January 2005. She is Programme Leader of the Online MA in Creative Writing and New Media, which she teaches with Kate Pullinger, and leads the Production and Research in Transliteracy group (PART). Her research interests include transmedia, collaborative media, and psychogeography. She is currently writing The Wild Survivors, a study of the relationships between cyberpace and the natural world. http://suethomas.net/.

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