



Puente

Intergenerational Learning in Public Spaces, Mediated by Technology

Research Report

Project Partners

University of Barcelona: Mario Barajas, Frédérique Frossard

Futurelab: Martin Owen, Mary Ulicsak

University of Liège: Françoise Decortis, Laura Lentini

University of Siena: Antonio Rizzo, Edith Ackermann, Giulio Toccafondi
(Project Coordinator), Silvia Torsi, Andrea Alessandrini

University of Bucharest: Bogdan Logofatu, Anisoara Dumitrache, Mihaela Gheorghe

CER (Wales): Sue Owen, Martin Owen

Campo Rosso: Rossella Magli (Project Advisor and Evaluator)

Contents

Introduction	2
Literature	2
Aims	3
Background	3
The Action Research	4
IGL in Formal Education	8
The Puente Model	9
Guidelines	9
References	10
Copyright Information	10



Socrates
Minerva



Education and Culture

This project has been funded with the support of the European Commission. This publication reflects only the view of the authors, and the commission cannot be held responsible for any use of the information contained herein.

Puente

European Union Minerva Project
October 2006 – September 2008

Investigating Intergenerational Learning in Public Spaces, Mediated by Technology, in Five European Countries

Introduction

In society today the generations are increasingly kept apart from each other. The needs of older and younger people are perceived as being irreconcilably different. Elderly people have their own clubs and day centres, and often live in communities where there are no young people. Indeed, many older people are nervous of meeting children and teenagers. Equally, young people spend most of their time in the company of their peers. Worries about abuse result in children rarely having the opportunity to mix socially with adults apart from their own families. Both the old and the young are at risk of social exclusion.

The Puente project conducted action research in the area of intergenerational learning (IGL), which was defined as older members of the community learning together with young people in a collaborative way. Puente sought to draw folks who wouldn't otherwise meet do things they couldn't otherwise dream of, so that they could learn from each other, respect each other and broaden their horizons. Puente showed that shared interest is far more important than shared age, and that it is not difficult to create communities of practice that span generations.



Literature

The Puente project was preceded by Piazza, another EU-funded project, in which Futurelab was a partner (Barajas et al 2007; Ackermann et al, 2006). Piazza had three main aims:

- to look at the issue of IGL mediated by technologies in social spaces;
- to progress in the definition of a model for intergenerational learning scenarios enriched by different technological tools and interfaces;
- to define a scientifically and socially sound basis to generate models for the co-design of architecturally interesting social spaces in which technologies are ecologically integrated and where roles of adults and youngsters are defined to support a mutual, socially rewarding learning experience.

The Piazza research identified five areas to consider when designing IGL activities:

- Space and time
- Traces and Trails/Routines and Rituals
- ME++/Self expansion, personal growth
- Togetherness/Relating to others
- Dream space/Opportunities for creativity and imagination

In the Puente project the research partners had the opportunity put some of these ideas into practice and to elaborate on the Piazza model for technologically mediated IGL in social spaces (Decortis et al. 2008).

IGL is usually taken to mean older and younger people learning together for their mutual benefit, for example:

"Intergenerational learning program should bring young and old together in similar numbers so that each may get to know the other, see the other in action and learn from one another"
(Loewen 1960. Page 1).

Puente goes further than this and proposes that the learning should be collaborative in nature, and the community of younger and older people should contribute to the design of the activities, a process of co-design. This gives the participants a strong sense that the activity belongs to them, and it also avoids assumptions being made about the skills, aspirations, social, physical and educational needs of the participants. This is elaborated in Futurelab's handbook on co-design in the formal education sector (Facer and Williamson, 2004).

In Puente the focus was on the informal educational sector. In this context Puente aspires to promote educational practices:

- which are consistent with humanist education principles, valuing and using the knowledge and skills which the participants already have (Rogers, 1983);
- in which learning takes place through interaction in a social context in the Vygotskian tradition (Daniels, 2001);
- which draw people from different generations into a community of practice, created through shared enterprise (Wenger, 1998);
- which ideally take place in a "third place" (Oldenburg, 1999), a place that is not home, work or school, a convivial place where informal exchanges can take place.

Puente seeks to encourage the types of reciprocal encounters that take place in "third places" such as museums, community centres or public squares where people are not constrained by roles such as "pupil" or "grandparent".

Puente was looking for ways to promote "flow", a state of being described by Csikszentmihalyi (2002), in which participants become completely absorbed in a task. "*Concentration is so intense that there is no attention left over to think about anything irrelevant, or to worry about problems*" (page 171). The team concluded that a state of flow can be attained by paying close attention to the key areas identified by the Piazza research, and by having clear, common objectives leading to a tangible outcome.

Aims

The aims of the Puente project were:

- To explore how technology can enhance intergenerational learning in public spaces by organising and observing appropriate activities
- To construct a model to represent the process
- To engage in dialogue with teachers on the potential for using IGL in the formal education sector
- To promote the concept of collaborative intergenerational learning
- To offer advice to managers and practitioners wishing to set up IGL activities in the informal education sector



Background

The Puente project was funded by the European Union's Minerva programme, and involved seven partners across five European countries. It ran for two years from October 2006. Futurelab was one of the partners. Six of the partners carried out at least one piece of action research to evaluate an intergenerational activity. In some cases the activity already existed and the project researchers either made it intergenerational or introduced technology. In other cases Puente instigated a new activity that fitted the bill. Whenever possible the researchers encouraged all the stakeholders, including the end-users, to be involved in the design process.

All the Puente activities took place in public spaces such as museums, community centres and the open countryside. In every case technology was used as a mediator. The technologies ranged from simple pinhole cameras, to websites and podcasts, to location-based media on handheld computers. Most of the action research took place in the informal education sector. After this had been completed, practising teachers were invited to take part in focus groups to explore how the techniques could be adapted to the formal education sector.

The purpose of this article is to describe the activities carried out by each partner and to explain the model the team devised. Details of the partners, reports on each country's action research and booklets describing the model and guidelines can be downloaded from the project website at <http://www.puente.it>

The Action Research

Spain: University of Barcelona/ Museu d'Història de Catalunya (Museum of the History of Catalonia)

Staff from the Museum of the History of Catalonia were working with local schools on a project called El Consell de Savis (The Council of the Wise). The council comprised a group of people who had lived through significant historical periods of the twentieth century such as the Spanish Civil War. They were questioned by groups of students from local schools as part of their history studies. Puente researchers from the University of Barcelona asked the students, council members, museum staff and teachers how they thought the activity could be improved and expanded, and as a result of these discussions the researchers proposed a "Virtual Council of the Wise" which based the activity around a website. Question sessions were recorded so that schools that were not able to be involved in the live programme could still participate. They also experimented with video conferencing, again to widen the audience for the project. Students prepared audio-visual material for the site, for example webquests, blogs and digital storytelling, and submitted this material back to the council members for their comments. The activity was enriched and was made more widely available because of the ICT and the co-design process. In addition the fascinating narratives of the council members are being preserved for the future.



More detail and pdf of research report:

http://www.puente.it/index.php?option=com_content&task=view&id=67&Itemid=72

Museum of the History of Catalonia

<http://www.mhcat.net/>

El Consell de Savis (Council of the Wise):

<http://www.futurelearning.org/puente/>

<http://www.futurelearning.org/puente/consell/>

UK: Futurelab/Windmill Hill City Farm

Futurelab was part of the Mobile Bristol partnership, one of whose projects was to research the use of mediascapes. These are collections of location-sensitive sounds and images that are "placed" in landscapes and then experienced in situ, using a hand-held computer or personal digital assistant (PDA) and headphones. There had been several mediascape-based activities in Bristol, most of which were aimed specifically at adults or children. Puente offered the opportunity to use the technique for an intergenerational activity.

Windmill Hill City Farm is a community resource in the city of Bristol whose land and buildings are used for a variety of different purposes by different groups of the community. It incorporates a farm, gardens, an adventure playground, a computer centre, shop and café. As part of its thirtieth birthday celebrations older and younger users of the farm met together with staff from Futurelab to capture their diverse and shared memories of the place, as mediascapes. Visitors who have appropriate PDAs should be able to access the material made in these workshops at the appropriate places around the farm. The topics the intergenerational groups chose were:

- the impact of the Second World War on the area;
- the farm throughout the seasons;
- the area now and in prehistory;
- a quiz based around images of the location.

Futurelab continued to work with Mobile Bristol, researching and promoting mediascapes, winning a New Statesman New Media award for the software in 2007.



More details and pdf of research report:

http://www.puente.it/index.php?option=com_content&task=view&id=70&Itemid=75

Windmill Hill City Farm: <http://www.windmillhillcityfarm.org.uk/>

Belgium: University of Liège/ Façons de Voir ASBL and other organisations

Artists worked with asylum seekers on a visual representation of their city using pinhole camera photographs. The asylum seekers ranged in age from 6 to 65. They each made a pinhole camera and explored the city of Liège in small intergenerational groups, taking pictures. They developed their own photos, and carried on taking pictures until they felt they had something that represented their relationship with the city. Other workshops took place with local people working in age-segmented groups; children, teenagers and unemployed adults. This was an existing project to which researchers from the University of Liège brought the intergenerational aspect.



This activity brought a group of people together to explore their feelings and expand their identity through art. The technology was very basic and all the participants learned about it together. The asylum seekers also produced personal narratives. Given the nature of the group it is not surprising that some of these were highly disturbing. The work was beautifully displayed in Liège, as part of an international art project and exhibition, which included a computer-generated composite fresco, composed of 15,000 pinhole camera images collected over a period of two years in Belgium and Brazil. This case has particular relevance to combating social exclusion through empowerment. It generated a lot of interest among the teachers who attended the Puente focus groups.

More detail and pdf of research report:

http://www.puente.it/index.php?option=com_content&task=view&id=69&Itemid=73

Territories: Liège Art Exhibition March 2008 <http://www.biennalephotoLiège.be/>

Italy: University of Siena/Nobil Contrada del Bruco (The Caterpillar Neighbourhood)

The city of Siena is divided into contrade (neighbourhoods), each of which has its own identity, traditions and recreational activities, which are passed down through the generations. Puente researchers from the University of Siena observed inhabitants of the Bruco (Caterpillar) Contrada preparing for an annual contest between the neighbourhoods for the best decoration of a tabernacle dedicated to the Virgin Mary. Members of the older generation were teaching the young ones how to make the decorations. The researchers observed the way that the knowledge was shared between the generations. The researchers were not there to try to influence the way the social system operated. They concluded that the contrade were rich in intergenerational interactions, but traditions were strong and resistant to change.

More details and pdf of the research report for all three Siena projects:

http://www.puente.it/index.php?option=com_content&task=view&id=68&Itemid=74

Nobil Contrada del Bruco (The Caterpillar Neighbourhood):

<http://www.nobilcontradadelbruco.it/public/pages/home.asp>

Italy: University of Siena/Unione Astrofili Senesi (Siena Astronomers Association)

The Siena Astronomers Association holds formal and informal educational activities, but they are not usually intergenerational. Under the auspices of Puente, two outdoor nighttime IGL sessions on astronomy took place. In the first one intergenerational family groups observed the stars under the direction of a professor of astronomy. The participants wore light sticks around their necks, and groups made the shape of the Cygnus constellation on the ground. This led to a discussion about distances and perspective. In the second session,

families from the Bruco Contrada (see above) used “Stellarium” software projected onto a wall and compared the maps from the computer with the stars they could see. They also plotted paths of satellites. The children, particularly, enjoyed experimenting with the laptop projection system, but interactivity was limited because there was only one set of equipment. But this was a worthwhile exploration of outdoor, nighttime IGL, on a topic that is an area of science everyone can enjoy. Stellarium is free software so everyone who had a computer at home can download and use it. However, the researchers feel that the software does not support peer-to-peer dynamics well, which limits its use in collaborative contexts (see below).

Unione Astrofili Senesi (Siena Astronomers Association)

<http://www.astrofilisenesi.it/>

Stellarium

<http://www.stellarium.org/>



Italy: University of Siena/Licei Poliziani (Poliziani High School), Montepulciano

The school was holding a “Week of Scientific Culture” in which pupils were able to work outside the formal curriculum. The Puente researchers proposed an astronomical activity for this, which was designed together with the stakeholders. For the activity, groups of pupils recorded interviews with people aged from 3 to 70 years about what the stars meant to them. The pupils then prepared an exhibition, which was open to the public, based on the comparison of the views of children, older citizens and astronomers. Thus the pupils were “scientific ethnographers.” At the public events they also demonstrated the Stellarium software. In order to make it more suitable for discussion and collaboration, games console hardware (Nintendo Wii) was adapted to control it remotely.

The University of Siena researchers felt that from the Puente perspective the third activity was the most successful because it resulted in such rich scientific and emotional interactions between the generations and it generated learning objectives transferable to the formal educational sector.

Sotto Lo Stesso Cielo (Under the Same Sky)

<http://progettopuente.wordpress.com/>

Licei Poliziani (Poliziani High School)

<http://liceipoliziani.com/>

Romania: University of Bucharest/ODL Credis Department Calarasi

Calarasi is a provincial town in Romania. The Credis Department runs educational activities for adults and children. In 2007 they held intergenerational summer workshops for local children, their parents and grandparents in collaboration with Puente researchers from the University of Bucharest. At first the adults, particularly the parents, were suspicious of why they were expected to go back to school with their children and as a consequence few parents attended. However, those who did attend quickly realised how beneficial this approach was. Some of the grandparents, who normally played a passive, supportive role within the family, were nervous about being the centre of attention.



There were classes in English, Art, Science and Computers. The science classes included computer simulations of physics and chemistry experiments. ICT was also extensively used in the English classes to show audio-visual clips. The researchers took pictures and posted them on a website. There were competitions and performances. The activities were far more “hands-on” than normal school lessons, and there was no formal testing. In fact most of the children felt that this was not like school at all. They enjoyed having their families there and felt that they learned new things from them.

The university researchers concluded that “Learning is a two-way exchange: grandparents support the growth of children’s linguistic, cultural and scientific knowledge. In return, interaction between children and grandparents stimulates learning for the older generation, for example concerning ICT or English as a second language. Grandparents play an important role in passing on linguistic and cultural heritage, including family history, which supports children’s sense of identity and self esteem.”

More details and pdf of the research report:

http://www.puente.it/index.php?option=com_content&task=view&id=72&Itemid=70

UK: Centre for European Research (Wales) (CER)/Cyngor Cefn Gwlad Cymru (Countryside Council for Wales)/ Comisiwn Coedwigaeth Cymru (Forestry Commission Wales)

The Countryside Council for Wales and Forestry Commission Wales have a mandate to consult the public before making changes to the environment, for example to plan how land that is currently forested should be utilised in the future. These bodies tend to segment their consultation by age, often ignoring the young, and often fail to reach the majority of people whose views they are seeking. CER organised and hosted a co-design session with representatives of these organizations together with specialists in computer visualization and in handheld data recording equipment. The participants agreed that visualization, particularly 3D, was a very useful tool in getting members of the public to build a common vision for the future environment, and that using handheld computers could help inspire a new generations of people to record scientific data in situ. Unfortunately CER was not able to follow any of these ideas through into practice in the timescale of the project.

More details and pdf of the research report for all three CER activities:

http://www.puente.it/index.php?option=com_content&task=view&id=71&Itemid=71

Cyngor Cefn Gwlad Cymru (Countryside Council for Wales)

<http://www.ccw.gov.uk/>

Comisiwn Coedwigaeth Cymru (Forestry Commission Wales)

<http://www.forestry.gov.uk/wales>

UK: Centre for European Research (Wales)/Prosiect Menai (Menai Project)

The small town of Menai Bridge in North Wales has a museum to celebrate the history of the area, particularly the two bridges across the Menai Straits, both of which are significant engineering achievements of the nineteenth century. The museum hosts school visits during which retired engineers and other trustees of the project show groups around the bridges and discuss and explore bridge design, encouraging them to become interested in the engineering aspects. CER organised a workshop where local teenagers got together with knowledgeable museum trustees, to exchange stories about their experiences of the area and to discuss how mobile and audio-visual technologies could help in the museum’s work in the future. They experimented with podcasting, which could be used to create village quizzes or to deliver information to people on their mobile phones as they visited the area. This type of approach would preserve the knowledge and enthusiasm of the trustees for future generations, and could bring in revenue to maintain and develop the museum.



The workshop participants enjoyed themselves enormously, and said that they learned a great deal from each other. The trustees realised that the co-design approach was different from their normal “school trip”. They are hoping to secure funding to continue this work.

Prosiect Menai, Menai Bridge Community Heritage Trust: <http://www.prosiectmenai.co.uk/>

UK: Centre for European Research (Wales)/Band Arian Frenhinol Dyffryn Nantlle (Nantlle Vale Royal Silver Band)

Nantlle Vale Band is a brass band based in the former slate-quarrying village of Talysarn in the mountains of Snowdonia, North Wales. It was included in the Puente project because it possesses many of the features of an IGL community that the project is seeking to promote. It is also in the area of music, which is not addressed elsewhere in the project. The key features of the band are that:

- It is a well-established organisation, well known in the community.
- It has a relatively stable membership from year to year.
- Membership is defined by a common interest rather than a common age.
- There are roughly equal numbers of older and younger members.
- Musicians of different generations learn together as equals in a spirit of cooperation.
- There is a strong sense of belonging.
- The band has its own premises, a convivial place where everyone feels comfortable.

CER's role was to observe this example, and not to try to increase its use of technology. However, the band already has its own website and a performance broadcast on the Internet. There have also been experiments with recording, as a good way of improving playing, and of advertising the conductor's original compositions.

Band Arian Frenhinol Dyffryn Nantlle (Nantlle Vale Royal Silver Band)

<http://www.bandnantlle.org.uk/>

Band playing "Pirates of the Caribbean" at the Welsh National Eisteddfod in 2005

<http://www.youtube.com/watch?v=Gzyt95rOH0g>

IGL in Formal Education

The Puente activities were all in the informal education sector, even though some of them involved schools, and some involved groups of school pupils. One of the objectives of the research was to explore how IGL activities taking place in public spaces could be of use in the formal education sector. The research teams held focus groups with primary and secondary teachers in six European countries. They discussed how the sort of activity Puente has been promoting could be adapted to the formal sector.

In all the countries the researchers were delighted by the enthusiasm shown by teachers. Many countries have education policies promoting objectives that IGL explicitly supports, such as community development and social integration, so teachers are already having to think about how they can implement these policies. Some described activities they have already organised or taken part in. There was some anxiety about the behaviour of pupils and older participants in IGL. Indeed, there were accounts of inappropriate behaviour by both generations!

Most appreciated that IGL was much richer than inviting an elderly visitor into school or interviewing grandparents for homework. But there was very little debate about the nature of the social space in which IGL takes place. It is suspected that many of the teachers did not appreciate the significance of the notion of a "third place" in facilitating meaningful interactions between people who would otherwise be constrained by the conventions of the location (home, school or workplace).

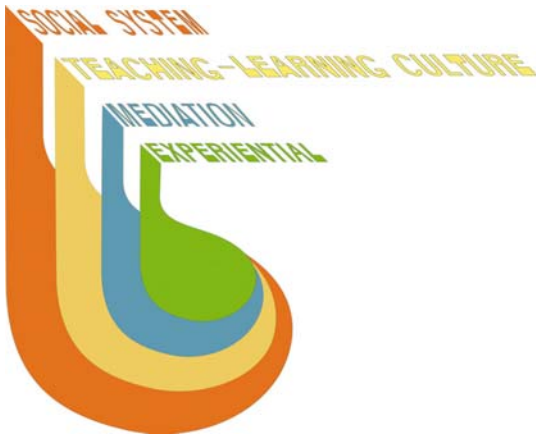
Surprisingly, there was not a great deal of debate about ICT and IGL. Some of the teachers clearly took the role of technology for granted, others admitted that the ICT infrastructure in their countries was not yet sufficient to support IGL in a meaningful way.

Obviously in the formal sector teachers have to fit activities in with the prescribed curriculum, include assessment procedures and address issues of child safety and protection. In general the teachers in the focus groups saw these as administration issues to be tackled rather than insurmountable obstacles.

The full report is available from the Puente website:

http://www.puente.it/images/PDF/transferability_report_final1st_part.pdf

http://www.puente.it/images/PDF/transferability_report_final2nd%20part.pdf



The Puente Model

The Puente partners analysed the results of the action research and proposed a model for IGL in public spaces, mediated by technology.

This model is based on four linked dimensions:

- The Social System
- The Learning Culture
- The Mediation
- The Experience

The Social System is subdivided into social context and social organisation. The social context is the factors that IGL designers need to take into account but cannot modify, for example the nature of the community and its cultural and architectural infrastructure. Social organisation is those aspects that designers can control and can negotiate together with the stakeholders, for example where the activity will take place, who will take part. The beneficiaries of IGL can range from neighbourhood groups, which have been established for centuries, to people who get together for an afternoon for a specific purpose, to a worldwide interest group mediated by the Internet.

The Learning Culture explores the differences between formal and informal education practices, and the opportunities that are offered by not having to adhere to a strict curriculum, and not having to be driven by the need for assessment. This is linked to the Social System because it is about creating communities of practice. In the research, the more successful activities were those that broke away from traditional teaching methods such as lectures, and those that were co-designed by the learners together with other stakeholders.

The Mediation is about the ways in which activities are structured around the inputs of resources. These resources can be physical, for example location, money and equipment, or input which does not have a physical form, such as expertise, values, organisation and time. Puente had a specific interest in technological mediation, but that cannot be considered independently of all the other processes. The mediation is partly determined by the decisions made about social organisation and learning culture. But it is still the area in which organisers of IGL have the most decisions to make.

The Experience is about maximising the positive experience of participants in IGL. This dimension builds on the theories proposed by the Piazza project. It is about the output of IGL, concentrating on the intangible outputs of how people and communities are changed by their experiences. IGL should offer:

- New understanding of space and time
- New senses of self
- New opportunities for social cohesion
- New opportunities for creativity

If these are combined with clear, realistic objectives and effective but unobtrusive facilitation, then the participants are likely to become deeply absorbed in their task, and experience a state of "flow". At the experiential level this is the ultimate objective of IGL.

A fuller description of the model is available from the Puente website:

<http://www.puente.it/publications>

Guidelines

Based on this model, the researchers compiled a set of guidelines for funders and organisers of IGL activities. Some key recommendations are:

- It is easier to develop IGL with groups that have a shared interest rather than a shared locality.
- People's age is less important than common interest.
- IGL is best if the people involved have clear, common objectives leading to a real, tangible outcome.

- By working together different generations come to understand each other's reality, past and present, and learn to value each other's skills and experience.
- IGL can work well if it is designed with the target groups (co-design).
- People mediating IGL should have facilitating skills. They should be committed to activating others rather than "telling" them.
- Existing communities are different from communities brought together for activities.
- There are legal and ethical issues to consider, such as inclusion, health and safety, child protection.
- Organisers need to be aware of ethical and legal obligations when publishing or displaying work by IGL groups.
- Many types of location can become good IGL places providing they are welcoming and comfortable.

There is a booklet on the Puente website promoting IGL, explaining the model and listing all the advice the research partners are offering at <http://www.puente.it/publications>

References

Ackermann E, Chabert-Ramon F, Decortis F, Magli R, Napoletano L, and Owen M (2006) "La Piazza" - Convivial Spaces for Inter-generational Learning: What places for the digital age? *Current Developments in Technology-Assisted Education* [www] <http://www.formatex.org/micte2006/pdf/1359-1363.pdf> (13th March 2009)

Barajas M, Magli R, Owen M, Toccafondi G, Molari G and S. Safin S (2006) "La Piazza" – Convivial spaces for inter-generational learning: Which role can learning technologies play? *Current Developments in Technology-Assisted Education* [www] <http://www.formatex.org/micte2006/pdf/217-222.pdf> (13th March 2009)

Csikszentmihalyi M (2002) *Flow: The classic work on how to achieve happiness* London: Rider

Daniels H (2001) *Vygotsky and Pedagogy* London: Routledge Falmer

Decortis F, Ackermann E, Barajas M, Magli R, Owen M and Toccafondi G (2008) From 'La Piazza' to 'Puente': How place, people and technology make intergenerational learning, *Int. J. Technology Enhanced Learning, Vol. 1, Nos. 1/2* [www] <http://inderscience.metapress.com/media/4g1kvnmxqm0nj7unfv5g/contributions/t/0/1/6/t016464207217830.html/fulltext.html> (13th March 2009)

Facer K and Williamson B (2004) *Designing educational technologies with users* Bristol: Futurelab [www] <http://www.futurelab.org.uk/resources/publications-reports-articles/handbooks/Handbook196> (13th March 2009)

Loewen J (1996) *Intergenerational learning : what if schools were places where adults and children learned together?* EDRS Report [www] http://eric.ed.gov:80/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED404014&ERICExtSearch_SearchType_0=no&accno=ED404014 (13th March 2009)

Oldenburg R (1999) *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community. 3rd Edition* New York: Marlowe and Company

Rogers CR (1983) *Freedom To Learn for the 80's* Columbus, Ohio: Bell & Howell Company

Wenger E (1998) *Communities of practice: Learning, meaning and identity* Cambridge: Cambridge University Press

Copyright Information

Except where otherwise noted, this work is licenced under <http://creativecommons.org/licenses/by-nc-sa/2.5/>

All photographs and Puente graphics © the Puente Project 2008

This report is available online at <http://www.futurelab.org.uk/projects/la-piazza/research>

