

## “Educational Urbanism” –

The strategic alliance between educational planning, pedagogy and urban planning

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### 1 ABSTRACT

Global transformations taking place in economic, technological, social and political realms are exerting increasing pressure on our educational institutions to instigate fundamental reform policies. This paper claims that behind the complex trajectories of disparate reform processes in educational planning, there is a discernable pattern that shows the beginning of a strategic alliance between educational planning, pedagogy and urban planning.

Besides reforming curricula and introducing new teaching and learning methods, educational institutions are trying-out broad varieties of socio-spatial planning strategies, which the author interprets as a new ‘spatial turn’ in pedagogic practice. This spatial turn has led to the emergence of various types of new educational spaces on different scales – from transformed old classrooms to ‘schools without classrooms’, from constructions of urban ‘knowledge moments’ to virtual learning networks, from local ‘learning pathways’ to global de-territorial spaces of learning; from inclusive educational facilities for all citizens to exclusive mega projects for high-tech knowledge workers. Many of these projects are purposefully trying to fold in pedagogic moments across the urban fabric. The blurring of lines between *work*, *live*, *learn* and *play* display today’s planning logic of new urban districts. The rationale behind this new extension of learning spaces into the urban landscape is understood by the author to be a result of the widely shared dogma of ‘life-long learning’. To be successful, the concept of life-long learning needs, in addition to institutional reform, the ubiquitous presence of spatial, medial and psychological attractors, that will incite *everybody* to make ‘learning’ a part of their daily lives. The deeply entrenched, centuries old quintessential notion of the western educational model, the ‘classroom pedagogy’, is today challenged by what the author calls the ‘urban pedagogy’. ‘Educational Urbanism’ is the title suggested for the crystallizing point of what may be an emerging discipline, at the crossroads of urban planning, educational planning and pedagogy.

This is a preliminary report about the author’s ongoing research on designing an analytical framework that outlines the converging ground between these three disciplines.

### 2 INTRODUCTION

Despite the fact that a growing number of projects across the globe display deliberate planning incentives in strategically inserting educational facilities and subtle spaces of learning within the urban fabric, there is almost a complete lack of a theory behind these endeavours. This paper attempts to fill the gap by outlining the conceptual cornerstones of such a theory. It knits together relevant driving forces, theoretical fragments, new practices and different strands of imaginaries into a preliminary analytical framework – exemplifying it through several characteristic case studies.

The key underlying assumption behind this research is the author’s identification of seven drivers of change affecting our educational systems. They are:

1. Rise of the knowledge economy: shift from a product-based industrial economy to a knowledge-based service economy.
2. The rise of the knowledge worker: global and local labour markets are demanding a workforce equipped with new skills, new mind-sets and new social experiences.
3. The Internet and the advance of new information and communication technologies (ICT).
4. The cognitive shifts and behavioral changes taking place in humans resulting from the use of new ICTs.
5. The ‘deluge’ of information: unprecedented expansion of information in the internet.
6. Unprecedented acceleration of global changes and new forms globalisation.
7. The political claims arising from the notion of ‘education-for-all’ (EFA).

The paper starts by defining these seven assumed driving forces with a special focus on the first two - the rise of the *knowledge economy* and the *knowledge worker*. The author argues that the configuration of the

work places of the knowledge economy, particularly that of the knowledge workers, exercises the biggest influence on the design of learning spaces of schools and educational institutions. The spatial and communicative settings of these new spaces, for both work places and educational spaces, are determined partly by the changing needs of the knowledge workers and partly as an instrument to shape the minds of tomorrow’s workforce. Then follow the theoretical underpinnings of the alleged ‘spatial turn’ in pedagogy which can be read in two new paradigmatic shifts: a) away from the communicative model of transmitting knowledge in classrooms to constructing subject oriented *learning pathways* and b) away from an architecture of bricks to an *architecture of social-spaces* and *social relationships*. The imaginaries and concepts of new classrooms, community schools, ‘life-long learning, the ‘Learning City’ and the mental model of ‘Knowledge Moment’, introduce a collection of theoretical fragments in educational planning. Finally six international case studies bring the evidence of the proposed thesis that educational planners, urban planners and pedagogues are indeed on their to become strategic allies.

### 3 DRIVING FORCES BEHIND EDUCATIONAL REFORM

#### 3.1 Rise of the Knowledge Economy

Defining the knowledge economy is a difficult task because the very ‘commodity’ it rests on, knowledge, is itself difficult to define (Brinkley 2006). In 1967, Michael Polanyi published a book that marked the beginning of a theoretical discourse about the economic, commercial, managerial and epistemological aspects of knowledge. In *The Tacit Dimension* (Polanyi 1967) he proposed a structure of human knowledge as a continuum with two different poles, ‘codified’ and ‘tacit’. “Codified knowledge can be applied, expressed and standardized. Hence, it is a marketable good that can easily be distributed over time and space. Tacit knowledge, in contrast, refers to knowledge that cannot be easily transferred. It comprises skills based on interactions and experiences”.<sup>1</sup> However, it was Peter Drucker, the doyen of management theory, who started to popularize the concept of ‘knowledge work’ and the ‘knowledge worker’. In *Age of Discontinuity - Guidelines to our changing society*<sup>2</sup>, a book also published in 1967, he argued that knowledge will become the key resource of the future, and that the largest group of workers will be build up of with what he called the *knowledge workers*.

Knowledge has always been an intrinsic building-block of all societies of all times. Yet, the present emphasis on ‘knowledge’, serving as a prefix for many domains (Knowledge-Economy, Knowledge-City, Knowledge-Society etc.), reflects the anticipation of a major socio-economic transition. For the last two hundred years, neo-classical economics knew two factors of production: *labour and capital*. Today, *information and knowledge* is increasingly replacing labour and capital as primary wealth-creating assets, just as the latter two replaced *land and labour* 200 years ago. Various economic, technological and political changes in the 20th century have led to the transformation of the majority of wealth-creating labour from physically-based to knowledge-based.

The term *knowledge based economy* was coined by the OECD (OECD 1996) and defined it as an economy “...directly based on the production, distribution and use of knowledge and information”.<sup>3</sup> The famous *Lisbon Strategy* (2002) which had the ambitious goal (non-binding) to turn Europe into “the most competitive and dynamic knowledge-based economy in the world...”<sup>4</sup> by 2010, opened the report with the following sentence: “The European Union is confronted with a quantum shift resulting from globalisation and the challenges of a new knowledge-driven economy. These changes are affecting every aspect of people's lives and require a radical transformation of the European economy.”<sup>5</sup>

However, the term remained disputed. Keith Smiths of the United Nations University notes six years later in 2002, “The weakness or even complete absence, of definition, is actually pervasive in the literature...this is one of the many imprecisions that make the notion of “knowledge economy” so [much more] rhetorical

<sup>1</sup> THIERSTEIN, Alain, LÜTHI, Stefan, KRUSE, Christian, GABI, Simone and GLANZMAN, Lars: Changing Value Chain of the Swiss Knowledge Economy - Spatial Impact of Intra-firm and Inter-firm Networks within the Emerging Mega-City Region of Northern Switzerland'. *Regional Studies*, 42:8, pp.1116, Zürich 2008 [http://www.raumentwicklung-tum.de/upload/Publikation/pdf/170\\_2\\_1224679065.pdf](http://www.raumentwicklung-tum.de/upload/Publikation/pdf/170_2_1224679065.pdf) (18.4.2010)

<sup>2</sup> DRUCKER, Peter F.: *Age of Discontinuity - Guidelines to our changing society*. Harper and Row, New York, 1967

<sup>3</sup> OECD/GD(96)102: *Knowledge Based Economy*. OECD Paris 1996 [www.oecd.org/dataoecd/51/8/1913021.pdf](http://www.oecd.org/dataoecd/51/8/1913021.pdf) (12.4.2010)

<sup>4</sup> EU, LISBON EUROPEAN COUNCIL (23-24.3.2000), Presidency Conclusions popularly known as the “Lisbon Strategy”, [http://www.europarl.europa.eu/summits/lis1\\_en.htm#b](http://www.europarl.europa.eu/summits/lis1_en.htm#b)

<sup>5</sup> Ibid.

rather than analytically useful”<sup>6</sup> *The Kok Report*<sup>7</sup> further reinforced the rhetoric in an otherwise gloomy update of Europe in 2004: “the knowledge society is a larger concept than just an increased commitment to R&D. It covers every aspect of the contemporary economy where knowledge is at the heart of value added – from high tech manufacturing and ICTs through knowledge intensive services to the overtly creative industries such as media and architecture”<sup>8</sup>. UNESCO finally gave a socially sensitive view of this complex period of transition in 2005: “Our time is the stage of transformations and upheavals so momentous that some people claim we are in the throes of a Third Industrial Revolution – that of new information and communication technologies – associated with a change in knowledge systems and patterns. For decades, the magnitude of those technological transformations has been affecting the means of creating, transmitting and processing knowledge, and suggests that we may be standing on the brink of a new digital knowledge age.”<sup>9</sup> Further: “The idea of the information society is based on technological breakthroughs. The concept of knowledge societies encompasses much broader social, ethical and political dimensions. There is a multitude of such dimensions which rules out the idea of any single, ready-made model ...”<sup>10</sup>

Despite varying perspectives and assessment methods (see Brinkley 2006) it is broadly agreed today that one of the most important drivers of innovation and economic competitiveness is experience based on scientific, technical and creative knowledge and its economic deployment. Highly skilled people add more on average per person to the development and performance of an economy.

Both advanced economies, and increasingly developing economies, are becoming more and more aware of the potentials and fresh opportunities of knowledge as the new basis of wealth creation. However, there is still little political awareness about the potentials of loss. As in all major socio-economic transitions, there will be winners and losers. Addressing those groups of people negatively affected by this transition, will be a major challenge of educational planning.

### 3.2 Rise of the Knowledge Worker – From the factory worker to creative innovator

To understand the spatial and communicative settings of our changing educational models, it is helpful to look into the changing paradigms of knowledge, work and the mind-sets of today’s workforce.

For centuries, human beings applied knowledge to improve working *tools*. Frederick Winslow Taylor and his contemporaries were the first to apply ‘scientific management principles’<sup>11</sup> to improve work *processes*. He defined new elements of management (Taylor 1911) like time studies, functional or divided foremanship, standardisation of tools, planning room etc. The key idea was the division of work into a *doing level* (the worker) and the *management level* (the foreman and manager). The worker was assumed to do what the foreman instructs, without much thinking on his part (although suggestions for improvements were welcome). In other words it was about the optimisation of the work process where the worker was “picked to suit the type of work” (Schütt 2003), individual capabilities or knowledge mattered less. This model proved to be enormously successful for the growth of industrialisation (‘Taylorism’). Productivity grew yearly by 3.5 percent, that is a factor of 50 in hundred years (Drucker 1993). All management theories of the last century were modifications of this model, e.g. Total Quality Management, Business Process Reengineering (Schütt 2003) etc. In fact, till today, scientific management applies very well to manual tasks.

The problem started with the emergence of ‘knowledge work’. Studies by The Delphi Group (Delphi 1998) and the Giga Group (Rasmus 2002) have shown by that roughly 80 percent of the knowledge of a firm is personal, which means *individuals* own the knowledge of a firm. The efforts to manage, codify and retain the knowledge of the new generation of workers, through various forms of knowledge management tools is a persistent challenge till today (Nonaka 1991, Schütt 2003). Thus it is not sufficient any more to pick workers suited to his work but individuals with the right knowledge. Already in 1999, IDC’s analyst Gerry Murry forecasted for that year that 40 percent of the workforce of an average Fortune 500 company would consist

<sup>6</sup> SMITH, Keith: What is the Knowledge Economy? Knowledge Intensity and Distributed Knowledge Bases. Institute for New Technologies Discussion Paper, The United Nations University 2002

<sup>7</sup> Wim Kok, Prime Minister of the Netherlands initiated and chaired the conference

<sup>8</sup> EU: The Kok Report. Robert Schumann Centre for Advanced Studies, European University Institute, Florence 2004

<http://www.iue.it/RSCAS>;

[http://ec.europa.eu/enlargement/archives/pdf/enlargement\\_process/past\\_enlargements/communication\\_strategy/kok\\_pr\\_en.pdf](http://ec.europa.eu/enlargement/archives/pdf/enlargement_process/past_enlargements/communication_strategy/kok_pr_en.pdf)

<sup>9</sup> UNESCO 2005, *Towards Knowledge Societies*, United Nations Educational, Scientific and Cultural Organization, Paris, pg. 24

<http://unesdoc.unesco.org/images/0014/001418/141843e.pdf>

<sup>10</sup> *ibid*, pg. 17

<sup>11</sup> SCHÜTT, P.: The post-Nonaka Knowledge Management. *Journal of Universal Computer Science*, Vol. 9, Issue 6, pp. 451-462. Stuttgart 2003, pg 454

of knowledge workers. This is supported by a study of Human Work Foundation<sup>12</sup> in 2006, which says 42% of Great Britain’s workforce comprises knowledge workers, and Netherlands as far as 48%<sup>13</sup>. The central challenge of today’s management practice therefore lies in how to increase the productivity of the knowledge worker. In the debate about the knowledge economy and the changing conditions of work, the new word is *creativity*. What is expected of today’s knowledge workers is that they create new values, new products new solutions (ISOCARP 2005). “Peter Drucker’s attempt to do so is to impose the responsibility for individual productivity on the knowledge workers themselves ... The most important is to constantly answer the question: ‘What is the task?’ The big difference of his model to Taylor’s is the self-organising principle, where the worker himself has to answer the question as to what the task is. In Taylor’s Scientific Management the worker’s key question was always ‘how?’, whereas the ‘what?’ was given by the management. In knowledge work the workers have to answer both questions themselves”.<sup>14</sup> This implies that the growing workforce of today has to be trained not to reproduce but to invent and innovate. This, indeed, also seems to be a key driving force in the reform of our educational systems. Many of the innovative schools today (see 6.2 and 6.4.3) are trying to instil the attitude of self-organization in young students. Complexity is today the domain of a knowledge worker, and so it is for students.

### 3.3 The internet and the advance of new technologies

The single most important driver of change today is the internet. Nothing in human history could transform so many realms in human life with such speed like the internet. The internet can carry information instantaneously to every little village in the world, and potentially connect every person with every other person in the world. Along with the possibility of exchange of text messages through the internet came the possibility of exchanging photos, videos and sound. Coupled with new communication technologies, known as web 2.0 tools or also social media, these new technologies are not only creating new forms of cognition but also creating new forms of learning that are embedded in virtual social networks.

### 3.4 Cognitive Shifts and behavioral changes resulting from the use of new technologies

After several centuries of text oriented production, representation and management of intellectual knowledge, it is evident today that we have to come to terms with a number of new, rapidly emerging visual media popularized through advancement in audio-visual technology. The following, by no means complete list of cognitive changes, are essential ingredients of our new models of education. In terms of spatiality, they not only have a decisive effect on classroom culture, but also feed the virtual and de-territorial aspects of the emergent educational spaces. The social experiences in digital spaces, and its interlinkages with physical spaces is creating new constructions of both augmented virtual and physical reality.

John Seely Brown, one of the first Protagonists of ‘Learning in the Digital Age’ has outlined the following dimensions of cognitive shifts:<sup>15</sup>

1. The first dimensional shift encompasses the evolving nature of literacy, which today involves not only text but also image and screen literacy. The ability to comprehend multimedia texts and to feel comfortable with new, multimedia genres is decidedly nontrivial. Digital students have developed their own vernacular, a *screen language* for their digital culture. The ability to communicate and express oneself with texts, images and sound is a crucial aspect of the new literacy.
3. The next dimension shifts learning from an *authority-based* lecture model to *discovery-based* learning. Young learners are constantly discovering new things as they browse through emergent digital libraries and other web resources.
4. The third shift, pertaining to *reasoning*, connects to discovery-based learning in an important way. Classically, reasoning is linked with the deductive and abstract. Yet young learners working with digital media seem to focus more on the *concrete*. They suggest a form of *bricolage*, a concept having to do with one’s abilities to find something (perhaps a tool, some open source code, images, music, text etc.) that can be used or transformed to *build something new*.

<sup>12</sup> BRINKLEY, Ian: Defining the knowledge Economy. The Work Foundation, London, 2006, pg 19

[http://www.theworkfoundation.com/assets/docs/publications/65\\_defining%20knowledge%20economy.pdf](http://www.theworkfoundation.com/assets/docs/publications/65_defining%20knowledge%20economy.pdf) (12.4.2010),

<sup>13</sup> Ibid, pg 19

<sup>14</sup> SCHÜTT, P.: The post-Nonaka Knowledge Management. Journal of Universal Computer Science, Vol. 9, Issue 6, pp. 451-462. Stuttgart 2003, pg 455

<sup>15</sup> BROWN, J.Seely: Learning in the Digital Age, <http://www.scribd.com/doc/21945604/Learning-in-the-Digital-Age-by-John-Seely-Brown-Aspen-Institute> (19.11.2009)

5. The final dimensional shift has to do with a *bias to action*— to try new things without reading the manual or taking a course. This tendency shifts the focus to learning *in situ* with and from each other. *Learning becomes situated in action*; it becomes as much *social* as *cognitive*. It's *concrete rather than abstract*, and it becomes intertwined with judgment and exploration.

### 3.5 The 'deluge' of information: unprecedented expansion of information in the internet

The fantastic growth of information is changing our lives in fundamental ways. Educational institutions will have to find ways in providing students with orientation systems to deal with this profound source of change. Beyond this, information *navigation* is a key component of literacy in the digital age.<sup>16</sup>

### 3.6 Unprecedented acceleration of global changes and new forms globalisation

As complex changes continue to sweep across the globe, educational institutions have to create devices that will enable them to swiftly react to them and permit them to constantly reform their structures.

### 3.7 Political Claims: 'Education for all' (EFA)

While the World Bank, the UN and other development organisations display a rhetoric that sees education as a social 'equalizer', the predominant economic and political regimes tends to recreate inequalities in various ways. A rich, critical, global discourse is taking place today around equity, identity, democracy and the politics of access to education. "The convergence of participatory media culture, diverse diasporic movements (the formation of dispersed populations that share common roots and identity), and frameworks for creating new commons (bottom-up means of managing shared resources) set the stage for re-articulating identity and community in a global society. Education will find itself a contested resource in the crossroads of these forces of change. It will become part of the civic discourse in multiple kinds of public forums and spaces as *educitizens* make visible the status of schools and of educational decision-making, resources, and activities in their communities. School administrators, district level staff, and teachers will need to learn how to communicate and interact in a bottom-up world of engaged *educitizens*."<sup>17</sup> While the rhetoric of the demands of the knowledge economy is seemingly straightforward, the existing social reality shows extraordinary complexity. Both in developed or developing countries, political self-organisation and bottom-up initiatives seems to be an essential ingredient in the reform of educational systems.

## 4 THE NEW WORK PLACE AND ITS INFLUENCE ON SCHOOLS

### 4.1 The common design principle of new working places and learning spaces

"*You cannot manage knowledge like you cannot manage love, patriotism or your children. But you set up an environment where knowledge evolves*".<sup>18</sup> This unprinted part of an interview (Schütt 2003) with Laurance Prusak (founder of IBM Institute for Knowledge based Organisations), summarizes the fundamental design and planning principle of all working and learning environments of today. What companies can do at best is to try to offer the best possible working conditions to leverage their knowledge worker's productivity. The quality of space has become a strategic psychological resource. The debate about the features of these environmental conditions has led to various assumptions about what makes a good working place. Moreover, it has deeply influenced ideas about learning spaces. The assumptions about what constitute a good working place and a good learning space points at the heart of a significant change occurring in our everyday life. One of these changes is the blurring of *work, live, learn* and *play* (see 6.1, Barcelona 6.4.1 and Copenhagen 6.4.2). Work places are blending into spaces of living, recreation and learning – thus becoming a part of people's *life-styles*. Within this bigger shift, we can particularly observe the blurring of working and learning. Work places of knowledge workers can become learning spaces and learning spaces of some educational institutions can become work places of production. Therefore, schools and work places look more and more alike. In fact, sometimes, companies learn from schools - like the Ørestad Gymnasium, in Copenhagen enjoys streams of human resources planners from the private sector analyzing their 'school without classrooms'. (see 6.4.2)

<sup>16</sup> See THE ECONOMIST: Data, Data Everywhere-Special Report. London, February 27<sup>th</sup>, 2010

<sup>17</sup> KNOWLEDGE WORK FOUNDATION: A New Civic Discourse, <http://www.futureofed.org/driver/A-New-Civic-Discourse.aspx>, 19.11.2009)

<sup>18</sup> SCHÜTT, P.: The post-Nonaka Knowledge Management. Journal of Universal Computer Science, Vol. 9, Issue 6, pp. 451-462. Stuttgart 2003, pg 455

## 4.2 The Work place

The main features of evolving work-places of today’s knowledge workers are:

- *Enabling Spaces*<sup>19</sup>: provision of unusual spaces designed to enhance cognition and performance (relaxation, communication, concentration etc.).
- *Flexible hours*: 9 to 5 is replaced by 9 to 9 with flexible options.
- *De-territorialization of work*: work need not exclusively take place in an office.
- *Clustering*: the need for physical proximity of diverse enterprises, government, educational institutes, research centres etc
- *Face-to-face contacts*: despite mobile technologies, this is more crucial than ever before.
- *collaboration: communities of practice* (Such a community is a group of individuals who share mostly on a voluntary basis, knowledge in a business relevant area of expertise).<sup>20</sup>
- *Entertainment*: need of places where people from diverse professional backgrounds can meet and relax informally (networking, exchanging etc.)
- *Life-style*: blurring of *work-live-play-learn* in a 24-hour city.
- *Connectivity infrastructure*: best possible provision of digital and physical infrastructure.

## 5 EDUCATIONAL URBANISM – TYING TOGETHER NEW SPATIAL IMAGINARIES OF EDUCATIONAL SPACES

### 5.1 The new socio-spatial turn in pedagogy - From classrooms to ‘learning pathways’

The traditional spatial setting of the classroom catering to a teacher-led, institutionally driven pedagogy has remained unchanged for centuries. The deeply entrenched idea of the classroom as a spatial setting where teaching and learning transact, makes it easy for educators take it for granted. However, the changing requirements of the labour market and other driving forces that have challenged us to rethink the very foundations of our pedagogic imaginaries, also includes the challenge to question the powerful notion of the classroom. The wide range of experiments in designing new types learning scapes around the world shows growing realization that our formal classroom environment, with the curriculum inherently tied to its design, curtails certain pedagogic activities.<sup>21</sup> How to reinvent the classroom in schools, universities and other educational institutions has become a central question in educational planning and pedagogy. What are the new imaginaries? What are the new educational ideas?

New theories of ‘space’, i.e. ‘relational space’ or ‘social space’, that started emerging in social theory in the 1970s attacked and successfully challenged the prevailing notions of ‘absolute space’ or ‘container space’. They have been exercising profound and ongoing influence on other disciplines like economics, geography or even spatial planning which until then had little or no spatial understanding of phenomena. If and how these new spatial concepts had influenced pedagogic theory remains to be researched systematically, however, the new trends in pedagogic practice and rhetoric clearly display their rising influence in the design of educational spaces.

The rhetoric of the British think tank *Futurelab* supports the thesis of a socio-spatial turn in pedagogy in their publication *Opening Education - Re-imagining learning spaces*. They understand the function of education as “...fostering *learning relationships*, not just combining bricks and mortar. If these are going to work, we need to know what sort of educational interactions and practices we want to take place in them, and to build from that vision the designs, the spaces, resources and environments to support them. For these reasons, we need what Turin Monahan calls the ‘built pedagogy’, the educational vision to underpin the design principles for the learning environment.”<sup>22</sup> In other words, it is about having a clear idea about the

<sup>19</sup> PESCHL, F. Markus, WILTSCHNIG: Emergente Innovation und Enabling Spaces - Ermöglichungsräume für Prozesse der Knowledge Creation. In U. Lucke et al (Eds.) Proceedings der Tagung Mensch & Computer, DeLFI und Cognitive Design, 2008, pp.446-45.

<sup>20</sup> SCHÜTT, P.: The post-Nonaka Knowledge Management. Journal of Universal Computer Science, Vol. 9, Issue 6, pp. 451-462. Stuttgart 2003, pg 455

<sup>21</sup> See JAMIESON, P. DANE, J. LIPPMAN, P.C.: Moving Beyond the Classroom – Accomodating the changing pedagogy of higher education. In Proceedings of 2005 Forum of the Australasian Association for Institutional Research, 2005, pg 17 <http://www.aair.org.au/Forum2005/Jamieson.pdf> (14.6.2010)

<sup>22</sup> FUTURELAB, *Opening Education - Re-imagining learning spaces*. Bristol, 2006 , pg. 1

processes that are supposed to take place first, and then design the spaces where these can unfold. The *Futurelab* further recommends building networks of *learning pathways* connecting various educational institutions in the community, and not placing the classroom as the sole sight for learning.<sup>23</sup> The popularity of computer-based home learning in the US also fits into this trend. Home-learning leaves extensive freedom in choosing the places where learning can take place, it merely prescribes the interactions, processes and content of learning. Thus, the new types of schools are not primarily concerned about creating spaces, but primarily about *creating conditions* or a *milieu* where ‘learning can happen’ like interactions, experiences or spontaneous learning.

Seemingly radical theories about dissolving the four walls of the classroom, as the quintessential place of learning since centuries, is gaining support by some very down-to-earth institutions. They suggest, sometimes in a provocative way, that if the aim of education lies in maximising the learning efficiency of an individual, then the model of the traditional classroom is not necessarily the best. “Imagine going to school doesn’t mean going to a classroom”, this suggestive vision stems from the Ministry of Information and Communication in Singapore, a city-state with the reputation of having one of the best educational systems in the world. They send this strong message in their *Vision 2015* (see 6.3.3).

To sum it up, the pedagogy of a hierarchic knowledge transmission in a classroom is getting replaced by new forms of learning processes taking place in a variety of ‘learning pathways’. We can define ‘learning pathways’ as physical, social, urban, virtual and deterritorial spaces and places where structured and unstructured modes of learning, social interactions and re-presentation of knowledge is orchestrated largely in a self-organized manner. The spaces where such transference and organization of knowledge can take place can be anywhere anytime, depending on the deliberate construction of its ‘pathways’.

#### 5.1.1 The new classroom

In both countries with developed or emerging economies, we can witness large investments in the building or redesigning of schools. They are to re-equip their basic educational institutions for the 21<sup>st</sup> century. E.g. two billion pounds in Britain for refurbishing *every* secondary school of the country (BSF Program - Building Schools for Future)<sup>24</sup> or the eight billion dollar investment alone in the State of California for the NSBN Program (New Schools, Better Neighborhoods)<sup>25</sup>. The discourse unfolding around new theories and imaginaries of learning spaces are far from having reached a global consent, however, we do see some converging ideas.

The following features characterize the direction in which the spatial constituents of our new classrooms are heading towards (*see parallels in 2.2 - Rise of the Knowledge Worker, and 3.2-Work Places*):

- Shift from *teacher-centred* to *student-centered* classroom-culture: Many schools have adopted spatial configuration of chairs and tables that allow students to sit in groups. The teacher no longer stands in the front imparting knowledge (transmission theory)<sup>26</sup>, but rather plays the role of a ‘facilitator’.
- Varieties of *spaces*: *Individual spaces* (for concentration), *incubator spaces* (for group work), *presentation spaces* (re-production of knowledge)
- High degree of *self-organization*: students have greater freedom to design their own strategies to meet the needs of an assignment; they also want to choose their learning and work spaces (see parallels in 2.2 - *Rise of the Knowledge Worker*)
- High degree of *team work*: emphasis on *collaborative learning* - therefore the rising need for a) small rooms for more interactive classes, or b) large factory like spaces to create a *buzz* with many other students.
- *Social media*: Deploying new ICTs to organize and collaborate. Digital portals of encounter can be facebook, blogs, wiki, delicious, etc. (*‘communities of learning’*).

<sup>23</sup> Ibid.

<sup>24</sup> PRICEWATERHOUSCOOPERS: Evaluation of Building Schools for the Future (BSF) - 3rd Annual Report Final Report, February 2010

<sup>25</sup> NSBN -New Schools, Better Neighborhoods, What Next?: New Study Finds Billions of Dollars in LAUSD that Could Be Spent on Revitalized Schools and Neighborhoods, Planetizen, Los Angeles, May 9, 2010 <http://www.planetizen.com/node/44140>

<sup>26</sup> FUTURELAB, Opening Education-Re-imagining learning spaces. Bristol, 2006, pg 9

- ‘*Learning pathways*’ - Learning pathways are understood to be not spaces but as structured or unstructured social processes (see definition above).
- *virtualization* and *de-territorialization*: technologies offering the possibilities of digitally connecting with other people, cities and countries have led to a shift from physical restraints. “Going to classroom doesn’t mean going to school”. Learning is not confined to the classroom - it can take place outdoors, in libraries, in museums, at unusual places, at home or in global social networks.
- *contextualized learning*: new educational models are trying to *re-contextualize* learning, which entails embedding all learning in a real world by integrating the physical and social surroundings in a purposeful way. (see 2.4 - *Cognitive Shifts #5*)
- *City as Classroom* – The city with all its complexities is seen both as a resource, place and object of study. It offers ample opportunity of contextualized learning

## 5.2 ‘Life-Long Learning’ - Pedagogy meets urban planning

An educational paradigm which had broad implications on the spatial turn in pedagogy is the concept of *life-long learning*. If we can talk about a global consensus about anything in educational planning, then it is this concept – or even dogma. If *innovation* is the dominant concern in economic planning, then *life-long learning* is the central concern in human resources and educational planning. Inferring from this, a future employee will have to fulfill two essential requirements: He/she will have to be an *innovative worker* and a *life-long learner*.

In traditional society it was assumed that learning came to an end with adulthood. By and large the entire system of education was based on this assumption. Today, most vocational knowledge becomes obsolete after five to ten years (Drucker 1993). Thus, schools are only „launching pads“ (Drucker 1993) for individuals. After these albeit formative years, every individual will have to take over the responsibility of further learning and relearning.

The concept of life-long learning goes back to the 1960s. “The original UNESCO concept of lifelong education, as expressed in the late 1960s and early 1970s, was based in the humanistic tradition. That tradition saw increased education as a means of equalising individual earnings, linked education reform with social demands for greater opportunity, and emphasised personal fulfilment.”<sup>27</sup> The meaning of the concept as social equalizer and medium of democratisation expanded in the 1990s: “The key 1990s reports on lifelong learning are influenced by a broader mix of economic, employment, social, cultural and educational objectives reflecting the uncertain and rapidly changing contemporary times. This breadth of objectives further highlights the interdependencies between the economic, technological, community, equity and organisational contexts. However the early reports concentrate their focus on the economic benefits of education reform.”<sup>28</sup>

After thirty years of going strong, a recent call for a EU proposal<sup>29</sup> released in March 2010, shows its unremitting importance. This time it articulates a multi-scalar, spatio-territorial ambition aiming at: “raising national awareness of lifelong learning strategies and of European cooperation in education and training...” and “...support for transnational cooperation in the development and implementation of national and regional lifelong learning strategies”. The objectives of the call for proposals are to “support the establishment and implementation of coherent and comprehensive lifelong learning strategies and policies at national, regional and local level, covering and inter-linking all types (formal, non-formal, informal) and levels of learning (pre-school, primary, secondary, tertiary, adult, initial and continuing vocational education and training)”<sup>30</sup>.

This extraordinarily broad program reinforces and reflects the belief that success will depend not only on talent, but on a particular kind of individual and territorial awareness that will help individuals *and* regions to steer through a complex world of perpetual changes, constantly inventing and reinventing themselves along the way. It seems, life-long learning is seen for first time seen as the key to meet the economic challenge on the grounds of a transnational and territorial logic.

<sup>27</sup> BROWN, Tony: Life-Long Learning - Making It Work. Adult Learning Discussion Paper, Jamieson, 1999, pg. 6

<http://www.ala.asn.au/public/docs/MakingItWork.pdf>

<sup>28</sup> *ibid.*

<sup>29</sup> EU: Support for European cooperation in education and training (23.3.2010), CALL FOR PROPOSALS EACEA/10/10 UNDER THE LIFELONG LEARNING PROGRAMME (2010/C 73/09)

<sup>30</sup> *Ibid.*

The central challenge in initiating life-long learning, besides its institutional aspects, lies in a subject oriented change in educational engagement. Going back to the urban level, it can be argued, that if life-long learning has to become an essential *mind-set* of all citizens, it has to become a part of our values and norms, our political frameworks, our communication models and our life-styles. To create a life-style and a climate conducive to that end needs new cognitive, pedagogic, institutional and architectural impulses in addition to the other agendas in urban planning.

### 5.3 Learning Cities

All projects in the direction of community involvement and ‘urbanisation’ of education are inflections of the big idea of *Learning Cities*. Building local community capacity by facilitating ‘learning-for-all’ is at the heart of the Learning City program stemming from an OECD project on ‘Educating Cities’ from the 1980s.<sup>31</sup> “A Learning City is any city, town or village which strives to learn how to renew itself in a time of extraordinary global change. Using life-long learning as an organizing principle and social goal, Learning Cities promote collaboration of the civic, private, and voluntary education sectors in the process of agreed upon objectives related to the twin goals of sustainable economic development and social inclusiveness...”<sup>32</sup> The idea swept across the globe leading to projects in hundreds of cities. After 30 years, new technological developments have enhanced its methods by adding new ways of multidirectional communication giving birth to new virtual communication models like the *communities of practice* or *communities of learning*.

#### 5.3.1 Community Schools

The transformation of the classroom is closely connected to the general change taking place in the setting of the school within the city. The integration of schools in the community seems to be the growing strategy applied by educational planners in many countries. U.S. Secretary of Education, Arne Duncan, while CEO of Chicago’s Schools, embraced the community school facilities agenda with the following words: “For public education to really reach its potential, you have to rally the entire city behind the effort. You have to have the parks, the police, the private sector, the philanthropic community, the not-for-profit, social service agencies, and religious leaders backing you. Again, rallying the whole city, you can do some things differently . . . I think the problem is that public education has been an island....”<sup>33</sup> And Los Angeles County Director of Public Health, Dr. Jonathan Fielding, summarizes the social and accessibility question applicable to most countries today: “Neighborhoods most in need of more school seats are also the neighborhoods most in need of access to family health care, green space, affordable housing, and early childhood and adult education. We also know that the social and physical environments of neighborhoods contribute to the ultimate success of students and their families.”

Educational institutions are moving away from their insular existence towards stronger embeddedness in the social and urban context. This necessitates the involvement of communities, civil society, public and private actors as stakeholders in a broad discourse. This is only possible with the design of new models of *educational governance*.

### 5.4 ‘Knowledge Moments’ – Socio-Spatial model of learning in an urban setting

Ron Dvir’s model of *Knowledge Moments* is a helpful tool to frame the socio-spatial aspects of learning in an urban setting. It also offers a helpful reference in constructing a conceptual framework of *educational urbanism*.

Dvir defines the *Knowledge City* as “a milieu which triggers and enables an intensive, ongoing, rich, diverse and complex flow of Knowledge Moments.”<sup>34</sup> While defining the ‘knowledge moment’ as “spontaneous, or planned human experience in which knowledge is discovered, created, nourished, exchanged, and transformed into a new form”,<sup>35</sup> he puts knowledge moments at the intersection of *people, place, process* and *purpose*. In essence a knowledge moment “is a conversation between people in a particular place, using structured or unstructured processes aimed at explicit or implicit purpose”<sup>36</sup>. Here we see a reflection on

<sup>31</sup> LONGWORTH, Norman: Making Life-Long Learning Work-Learning cities for a new century. Kogan, London, 1999

<sup>32</sup> CANDY, Janet: Planning Learning Cities. ISOCARP Congress 2003, pg 1

<sup>33</sup> NSBN -New Schools, Better Neighborhoods, What Next? New Study Finds Billions of Dollars in LAUSD that Could Be Spent on Revitalized Schools and Neighborhoods. Planetizen, Los Angeles, May 9, 2010 <http://www.planetizen.com/node/44140>

<sup>34</sup> DVIR, Ron: Knowledge City, seen as a collage of Human Knowledge Moments. In Carrillo, F.J. (ed.) Knowledge Cities; Approaches, Experiences and Perspectives, Elsevier, Oxford 2006, pg 245

<sup>35</sup> Ibid., pg 245

<sup>36</sup> Ibid., pg 246

Nonaka’s cycle of four modes of knowledge conversion: socialisation, externalization, combination, and internalization (Nonaka 1998).

Dvir suggests analyzing the idea of a *Knowledge City* from the perspective of the individual who lives and works in the city.<sup>37</sup> He sees a Knowledge City as a “*collage of Human Knowledge Moments*”.

He asks the following questions:

- What is the *individual experience* in the knowledge city?
- What are the *personal benefits* belonging to such a city?
- How is the concept related to the citizen’s *daily life*?

Further, he defines four corners of intersection – *people, places, processes* and *purposes*:<sup>38</sup>

*People*: Knowledge Moments are human experiences which could involve the full range of any human being acting in the city – citizens and visitors; city officials, business people and artists; local people and other cities’ men and women; young and old.

*Places*: Knowledge Places are the spaces in which knowledge moments happen. For example, a city might redefine the roles of the library or museum to become knowledge creation places. Traditionally, the term refers to physical places but virtual urban knowledge spaces such as an urban citizens’ portal can also be a part it. Places can be libraries, exhibition venues, the stock exchange, the town hall, piazzas, cafes etc.

*Processes*: Knowledge Processes can be well planned (for example a structured decision-making process) or un-planned (e.g. a spontaneous encounter). The more complex processes might involve many people, places and Knowledge Moments.

*Purposes*: All Knowledge Moments involve intrinsic motives of the actors such as joy, engagement and personal growth. Some are also related to specific, predefined external purposes (e.g. promotion of an economical objective of an individual, group of people or the whole community).

In the next chapter, particularly the small scale interventions (see 7.3) will illustrate examples of planning of such *knowledge moments*.

## 5.5 Educational Urbanism – Tying the strings together

The elaborations above have shown the interrelatedness between the shift in economic activities, the need of new skills at workplace, the spatial configuration of the workplace, the spatial reorientation in the design of educational spaces and the the urban dimension of educational planning. By knitting together the relevant driving forces, incoherent theoretical fragments, diverging practices and new imaginaries into a preliminary analytical framework – we can see a pattern that shows by and large the convergence of three planning disciplines: pedagogy, educational planning and urban planning. The converging ground between these fields can be called *Educational Urbanism*. The following case studies will further exemplify the potential scope of this new discipline.

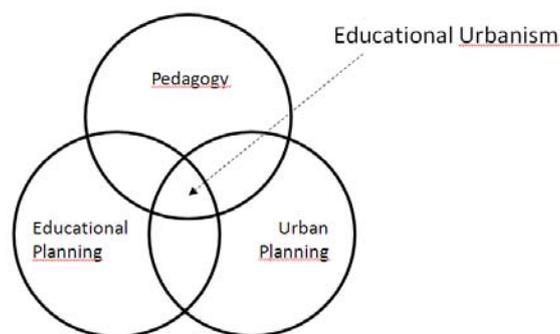


Fig.1: “Educational Urbanism”: the converging ground between pedagogy, urban planning and educational planning (source: Author)

<sup>37</sup> DVIR, Ron: Knowledge City, seen as a collage of Human Knowledge Moments. In Carrilo, F.J. (ed.) Knowledge Cities; Approaches, Experiences and Perspectives, Elsevier, Oxford 2006, pg. 245

<sup>38</sup> Ibid. pg. 245

## 6 URBAN, VIRTUAL AND DE-TERRITORIAL ASPECTS OF NEW EDUCATIONAL SPACES

The following examples and concepts offer the evidence how educational planners, urban planners and pedagogues are ...

### 6.1 Small Scale Projects: Inclusive spaces of learning in urban context

While the exclusive projects entertain the interests of an exclusive minority (see 7.4), we can see growing number of projects focusing on large groups of people working in areas that are not necessarily part of the hyped economic sectors. Tapping the talents of these groups is a challenge not only for the sake of social cohesion but also for the local economy, which can involve a variety of local businesses, services or even manufacturing.

#### 6.1.1 Curitiba - Lighthouses of Knowledge

An unprecedented educational project exemplifying the potentials of the urban dimension of pedagogy, are the 'Lighthouses of Knowledge' in the Brazilian showcase city of Curitiba. The famous library and the lighthouse of ancient Alexandria found a mutual rebirth in Curitiba after 2400 years as small libraries in the form of lighthouses. Forty-six of them, each named after a writer, are dotted across the city as neighbourhood library modules working jointly with public schools. The books are stored on the first level, the second level is the reading room with internet access and at the top, a municipal guard keeps a watchful eye on the surroundings (security being an issue in Brazil). The libraries maintain books on Brazilian culture, poetry and fiction, maths etc. It also has collections of 'Lessons of Curitiba' - a series of educational books illustrating the planning principles of the city in an entertaining way. Urban education is a compulsory subject for young students in Curitiba. Some of the lighthouses have specialized on subjects like urbanism or sustainability, collecting books and information on these subjects from around the world.

The libraries are used as venue for educational purposes making it an excellent example for a socially inclusive place where knowledge moments can happen. The architectural and psychological signals emanating from these structures have become an integral part of the city's (sub)consciousness.

Curitiba, once a city on the verge of economic and social decline, managed to set-off a much acclaimed turn-around-story that made it one the most cited reference models in the world. One of their keys to success was educational planning. A network of functionally and physically perceptible institutions, placed at strategic points in the city, made a substantial contribution to incite its inhabitants to invest in *life-long learning*.



Fig. 2: Lighthouses of Knowledge: 46 neighbourhood library modules are dotted across the city

#### 6.1.2 São Paulo – Using open source (OS) software in *Telecentros*

This example illustrates how a critical project addresses the accessibility question with an urban bend to it. In some of the poorest slums of the financial centre of South America, São Paulo, an urban educational project has created more than a hundred free community computer centres called *telecentros*, that are frequented by over 250 000 people. They are changing the lives of the locals by connecting them to the

internet. Residents use them to learn new skills, hunt for jobs, access community services or just connect to relatives and friends. The success of the project lies in an alternative way of using software and the construction of social spaces. Coordinator of Brazil’s open software project Marcelo D’Elia Branco explains: “Every license for Office plus Windows in Brazil ... means we have to export 60 sacks of soybeans”.<sup>39</sup> Therefore, instead of using licensed software they use free open source software. Branco: “When a country goes OS it gets something more important than a free code - it gets a native software industry. When people learn how to install, maintain and modify the software they are using, they aren’t just getting better tools, they are learning new, highly marketable job skills and gaining the ability to create still more tools that work even better in the local market...it changes that country’s relationship to the world economy.”<sup>40</sup>

### 6.1.3 Mexico-City - Micro-Interventions in the Metro<sup>41</sup>

This project tries to initiate shared knowledge moments in everyday life. In a program in Mexico-City, free books are given out in the subway system. The stories and poems (written by Mexican authors) are short enough to finish on an average subway ride. The readers drop the books off as they leave the metro. This is a typical project that tries to create the conditions ‘where things may happen’. It may create moments of exchange between strangers, it may invite people to think about issues or it may simply make people enjoy the trips. A side effect of this project was that local authors became better known in the country, thus contributing to cultural discourse, local identity and intellectual activity.

## 6.2 Large scale projects: Integration of educational spaces in districts for the creative economy

While the *Learning City* concept builds mainly on social inclusiveness (learning-for-all), there are large-scale urban projects that build predominantly on exclusivity. The following examples will show some characteristics of these emerging places where educational spaces play an integral role.

The dynamics of globalization and inter-urban competition have given birth to a type of space that can be depicted as exclusive clusters of ‘creation, transfer and attraction of knowledge’<sup>42</sup>, which act as nodes in global networks, inhabited by highly educated members of a global elite. Many large-scale urban projects with integrated educational infrastructure have appeared around the globe exhibiting their spatial strategies for the growing knowledge economy. Their precedents go back to various types of Technopoles<sup>43</sup> of the 1980s and 1990s, however they show a number of new characteristics. The most significant of these is the incorporation of life-style elements. They all display a blurring of the functions of *work, live, learn* and *play*.<sup>44</sup>

In the theory of the milieux innovateurs developed by the Groupe de Recherche Europe´en sur les Milieux Innovateurs (GREMI), firms are seen as part of a milieu with an innovative capacity. In the current research agenda, the GREMI stresses the importance of *learning*, which enables firms to perceive changes in their environment and helps them to adapt their behaviour accordingly.<sup>45</sup>

### 6.2.1 “22@Barcelona”- Hi-tech upgrade of old industrial district

22@Barcelona stands out as one of the most ambitious projects in the world, creating a 200 ha urban district for 130 000 the hi-tech workers of the knowledge economy. In 2001 the Barcelona City Council approved a new urban planning ordinance aimed towards transforming the old industrial area of Poblenou, with its obsolete factories into a magnet for new activities. This new ordinance allowed for a new land designation called 22@, which substituted the old designation 22a. The iconic landmark ‘Torre Agbar’ was built by the French Architect Jean Nouvel to visually mark the emerging area behind it.

Its new design is characterized by mixed use (*work, live, learn, play*), high density and state-of-the-art infrastructure (including energy from renewable sources). It is built on the Triple helix idea and offers various support centres like intermediate bodies between research and business to effectively transfer knowledge into the productive economic system. The key sectors are media, biotech, sustainable energy and ICTs. The new inter-university Campus for Technology and Business is specialized in mobility, energy and

<sup>39</sup> STEFFEN, Alex (ed.), *World Changing*, Abrams. New York, pg. 301

<sup>40</sup> Ibid. pg. 301

<sup>41</sup> Ibid. pg. 285

<sup>42</sup> ISOCARP (2005), *Spaces for the Creative Economy*, Madrid, pg 168

<sup>43</sup> CASTELLS, Manuel: *The Rise of the Network Society*. Blackwell Publishers, Oxford, 1996

<sup>44</sup> ISOCARP (2005), *Spaces for the Creative Economy*, Madrid, pg 21

<sup>45</sup> MOULAERT, F./SEKIA, F. Territorial Innovation Models-A Critical Survey. *Regional Studies* 37, 2003

water technologies, as well as architecture, urban planning and architecture.<sup>46</sup> To show a gesture of inclusivity, the project has allocated 10% of the land for the construction of 4000 subsidized housing units.

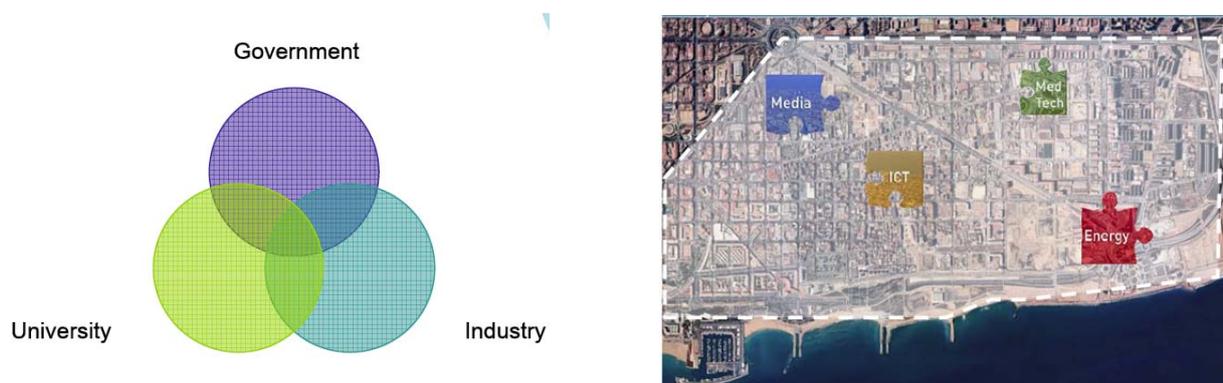


Fig.3,4: The Triple-Helix Innovation model and the core functions of 22@barcelona  
(source: Website of 22@barcelona)

### 6.2.2 “Ørestad”– New city for knowledge workers in Copenhagen

The idea behind the new urban development called Ørestad is to speed up the transformation of the Danish economy from industrial production to knowledge intensive productions/services. In an area of 310 ha (0.6 km by 5 km), Ørestad will have three million indoor square metres, house 20 000 inhabitants, provide 60,000 jobs and offer education to 20,000 students. Parts of Ørestad already appear as fully developed and around 5000 people had moved in by 2009.

The interesting aspect about Ørestad is the spatial juxtaposition of media, education and business organizations. The IT-University, specializing in multimedia, is in close proximity to a student’s hostel and the new large building complex of the Danish Broadcasting Corporation DBC. The students of the IT university (a building whose architecture reflects the intention of the architect to create the conditions and spaces preferred by knowledge workers), have jobs at the DBC while still at school. They take less than three minutes to go over to work. Some companies also have their seats at the top floor of the university, where students can make their first encounter with the professional world. An attraction for the students is the growing strength of the media sector in the city. DBC comprises four large buildings and a public concert house build by Jean Nouvel, which houses world class recording studios in the basement. Together with the film-cluster mushrooming around film director Lars van Trier, Copenhagen is ambitiously positioning itself as a world ‘Media-City’.

One stop from here, riding on the driverless Sky-Train along the spine of Ørestad, we can reach the *Ørestad Gymnasium*. The upper secondary school with experimental pedagogical approach, is the architectural translation of the new Danish school reform initiated in 2004. Its striking feature: it has almost no classrooms. Students and teachers decide where to work and what to work (organizing there learning program) on a day-to-day basis. If the weather permits, classes can also be held in the open public spaces around the area with an attractive artificial waterfront. High priority is given to the use of multimedia and new technology. After three years, the school has become the most popular in Denmark. Curiously, many private companies go there to study its spatial and institutional organization.

<sup>46</sup> ISOCARP (2005), Spaces for the Creative Economy, Madrid, pg. 180

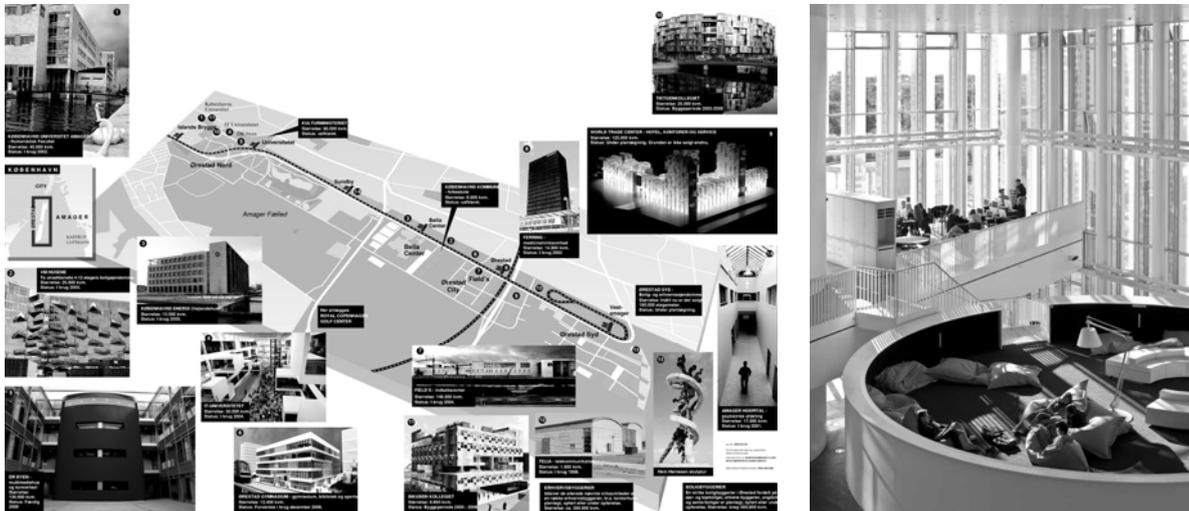


Fig. 5,6: Copenhagen - Plan of Ørestad and Ørestad Gymnasium  
(source: Website of Ørestad)

### 6.2.3 Singapore: Seamless connectivity within urban, virtual and de-territorial spaces of learning

The complete absence of any natural resources has led Singapore to invest in the only resource they can nurture: human capital. The multilingual, multicultural city-state has shown some remarkable success in this - within a generation it has managed to become a developed nation, taking top ranks in many fields. Singapore’s vision of integrating education and learning in all spheres of life is probably the most radical in the world. Learning should take place everywhere.

A 152 page report called “Imagine Your World 2015” of Infocomm (Info-Communication Development Authority of Singapore), produced in June 2008, it presents the vision of ubiquitous learner’s world. It shows an all encompassing presence of information and communication technology (ICT) as the medium and lever to catapult the country into the future. An image (see below) depicts the seamless flow between work, school, hospital, recreation, home, government etc.

In “Imagine Your World 2015”, we see a series of highlighted ‘visions’ collected at a nationwide competition.

The following narrative illustrates the imaginary Singapore is looking toward:

*“Half the time we’re doing lessons outside the classroom. And we’ve got all these new classmates too. Do you know they’re not even in Singapore? I’m working now with girls and boys from India, Finland and the US. It’s easy! All we have to do is go to this learning portal and we can all touch base there. We leave messages for each other. Sometimes I pick up their messages in school, sometime at home. Wherever I feel like it, because we can use broadband everywhere now. It’s like you’re not going to school.*

*The portal is pretty cool. It allows you to get information from all over. Once I got stuff from the Smithsonian Library in the US. And guess what, we don’t have to carry books to school anymore. You just carry this thing called the Personalized Learning Device. Everything is there. Your Maths books, your English books, whatever. My teacher sends me notes and stuff on it also. And guess what – I can download music on it too, like those gadgets my big sis used to have. It’s so cool!” (Vision of Renee, 10, Primary School Student)<sup>47</sup>*

<sup>47</sup>INFOCOMM: Imagine Your World 2015. Singapore (22.11.2009)

[http://www.ida.gov.sg/doc/About%20us/About\\_Us\\_Level2/20071005103551/01\\_in2015\\_Main\\_Report.pdf](http://www.ida.gov.sg/doc/About%20us/About_Us_Level2/20071005103551/01_in2015_Main_Report.pdf)

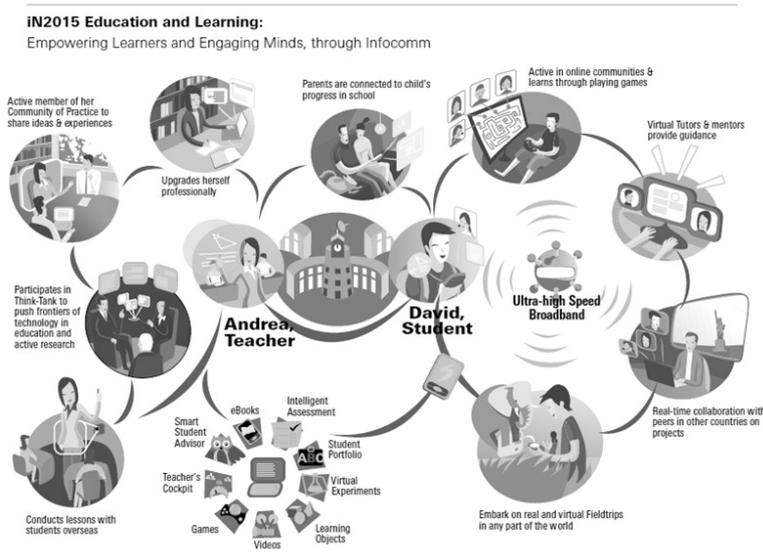


Figure 3-10. Possible learner's world in 2015

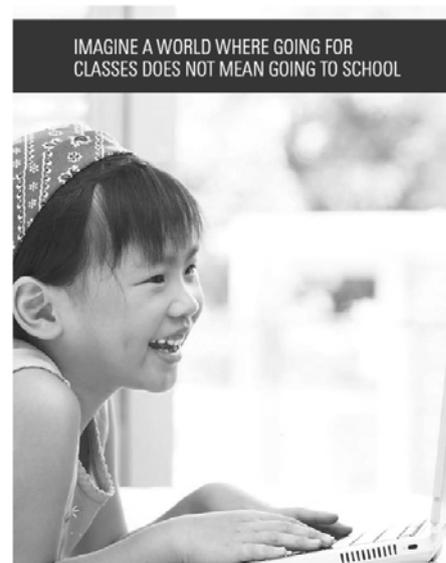


Fig. 5.6: Singapore -Seamless connectivity and the notion of learning spaces beyond classrooms.  
(source: Website of "Imagine your world in 2015")

## 7 CONCLUSION

The elaborations above have shown the interrelatedness of the shifting of economic activities, the need of the configuration of the workplace the spatial reorientation in the design of educational spaces

This paper showed the mutual relationship between the growing knowledge economy, its work places and new types of schools and classrooms. It presented an overview of the imaginaries of urban, virtual and de-territorial educational spaces, putting them on the map of a theory of spatial turn in pedagogy. It offered the cornerstones of a possible conceptual framework for a strategic alliance between urban planning, educational planning and pedagogy, suggesting for it the umbrella term 'educational urbanism'.

On a broader level, it concludes with the following thesis: The labour market has so far been the driving force behind education, today, and in the future, it will be the other way round - education will become the driving force behind new labour markets. A preliminary report of the OECD (a report to be published this year) speaks about the requirement of a 'pedagogic industry' to meet the challenges of the future. It will be the challenge to meet the unprecedented thirst for new ideas, new jobs, new markets and new solutions for all human needs.

An alliance between urban planning, educational planning and pedagogy will make an important contribution to this end. By nature of its agenda, the alliance is a provider for all, therefore it has a mandate to keep an eye on all the larger social and cultural issues beyond the utilitarian immediacy of education and knowledge as commodities; if doesn't, it will lose its function as a social equalizer.

## 8 REFERENCES

- BANERJEE, Ian: Curitiba - Modellstadt für Nachhaltigkeit, integrative Planung und kreatives Milieu. Unpublished Master's Thesis, University of Technology, Vienna 2004
- BRINKLEY, Ian: Defining the knowledge Economy. The Work Foundation, London, 2006  
[http://www.theworkfoundation.com/assets/docs/publications/65\\_defining%20knowledge%20economy.pdf](http://www.theworkfoundation.com/assets/docs/publications/65_defining%20knowledge%20economy.pdf) (12.4.2010)
- BROWN, J.Seely: Learning in the Digital Age", <http://www.scribd.com/doc/21945604/Learning-in-the-Digital-Age-by-John-Seely-Brown-Aspen-Institute> (19.11.2009)
- BROWN, P., LAUDER, H., ASHTON, D.: Education, Globalisation and the Future of the Knowledge Economy". European Educational Research Journal, 2008

- BROWN, Tony: Life-Long Learning - Making It Work. Adult Learning Discussion Paper, Jamieson, 1999, pg. 6  
<http://www.ala.asn.au/public/docs/MakingItWork.pdf>
- CASTELLS, Manuel: The Rise of the Network Society. Blackwell Publishers, Oxford, 1996
- DELPHI GROUP (Ed.): Knowledge Management Report. Boston MA 1998
- DRUCKER, Peter F.: Age of Discontinuity - Guidelines to our changing society. Harper and Row, New York, 1967
- DRUCKER, Peter F.: Post Capitalist Society. Harper Business, New York 1993
- DVIR, Ron: Knowledge City, seen as a collage of Human Knowledge Moments. In Carrillo, F.J. (ed.) Knowledge Cities; Approaches, Experiences and Perspectives, Elsevier, Oxford 2006
- De CASTRO, Moacir Werneck: From Alexandria to Curitiba.  
[http://www.rafaelgreca.org.br/blog1/wp-content/entrevistas/from\\_alexandria\\_to\\_curitiba.pdf](http://www.rafaelgreca.org.br/blog1/wp-content/entrevistas/from_alexandria_to_curitiba.pdf)  
(16. 3. 2010)
- EU: Support for European cooperation in education and training (23.3.2010), CALL FOR PROPOSALS EACEA/10/10 UNDER THE LIFELONG LEARNING PROGRAMME (2010/C 73/09)
- EU: The Kok Report. Robert Schumann Centre for Advanced Studies, European University Institute, Florence 2004  
<http://www.iue.it/RSCAS;>  
[http://ec.europa.eu/enlargement/archives/pdf/enlargement\\_process/past\\_enlargements/communication\\_strategy/kok\\_pr\\_en.pdf](http://ec.europa.eu/enlargement/archives/pdf/enlargement_process/past_enlargements/communication_strategy/kok_pr_en.pdf)
- FUTURELAB, Opening Education-Re-imagining learning spaces. Bristol, 2006
- EU, LISBON EUROPEAN COUNCIL (23-24.3.2000), Presidency Conclusions popularly known as the “Lisbon Strategy”,  
[http://www.europarl.europa.eu/summits/lis1\\_en.htm#b](http://www.europarl.europa.eu/summits/lis1_en.htm#b)
- INFOCOMM: Imagine Your World 2015.  
[http://www.ida.gov.sg/doc/About%20us/About\\_Us\\_Level2/20071005103551/01\\_iN2015\\_Main\\_Report.pdf](http://www.ida.gov.sg/doc/About%20us/About_Us_Level2/20071005103551/01_iN2015_Main_Report.pdf)  
(22.11.2009)
- JAMIESON, P. DANE, J. LIPPMAN, P.C.: Moving Beyond the Classroom – Accomodating the changing pedagogy of higher education. In Proceedings of 2005 Forum of teh Australasian Association for Institutional Research, 2005  
<http://www.aair.org.au/Forum2005/Jamieson.pdf> (14.6.2010)
- KNOWLEDGE WORK FOUNDATION: A New Civic Discourse, <http://www.futureofed.org/driver/A-New-Civic-Discourse.aspx>,  
19.11.2009)
- MOULAERT, F./SEKIA, F. Territorial Innovation Models-A Critical Survey. *Regional Studies*, 37, 289-302. 2003
- NONAKA, I., KONNO, N.: The concept of “ba”- Building a foundation for knowledge creation. *California Management Review*, Vol. 40, no.3, pp 40-54. 1998
- NSBN - New Schools, Better Neighborhoods: What Next? New Study Finds Billions of Dollars in LAUSD that Could Be Spent on Revitalized Schools and Neighborhoods. Planetizen, Los Angeles May 9, 2010 <http://www.planetizen.com/node/44140> (18.5.2010)
- OECD/GD(96)102: Knowledge Based Economy. OECD Paris 1996 [www.oecd.org/dataoecd/51/8/1913021.pdf](http://www.oecd.org/dataoecd/51/8/1913021.pdf) (12.4.2010)
- PESCHL, F. Markus, WILTSCHNIG: Emergente Innovation und Enabling Spaces - Ermöglichungsräume für Prozesse der Knowledge Creation. In U. Lucke et al (Eds.) Proceedings der Tagung Mensch & Computer, DeLFI und Cognitive Design, pp.446-45. 2008
- POLANYI, Michael: The Tacit Dimension. Routledge & Kegan Paul, London 1967
- PRICEWATERHOUSCOOPERS: Evaluation of Building Schools for the Future (BSF) - 3rd Annual Report Final Report, February 2010
- RASMUS, D.W.: Collaboration, Content and Communities: An Update. Giga Information Group, 2002
- ROBERT SCHUMANN CENTRE FOR ADVANCED STUDIES: The Kok Report. European University Institute, Florence, 2004  
<http://www.iue.it/RSCAS;> (12.4. 2010)  
[http://ec.europa.eu/enlargement/archives/pdf/enlargement\\_process/past\\_enlargements/communication\\_strategy/kok\\_pr\\_en.pdf](http://ec.europa.eu/enlargement/archives/pdf/enlargement_process/past_enlargements/communication_strategy/kok_pr_en.pdf)  
(12.4.2010)
- SCHÜTT, P.: The post-Nonaka Knowledge Management. *Journal of Universal Computer Science*, Vol. 9, Issue 6, pp. 451-462. Stuttgart 2003
- SMITH, Keith: What is the Knowledge Economy? Knowledge Intensity and Distributed Knowledge Bases. Institute for New Technologies Discussion Paper, The United Nations University 2002
- STEFFEN, Alex (ed.), *World Changing*, Abrams. New York, 2008
- TAYLOR, F.W.: *The Principles of Scientific Management*, Harper & Bros, New York, 1911 (republished by Dover Publications 1998)
- THIERSTEIN, Alain, LÜTHI, Stefan, KRUSE, Christian, GABI, Simone and GLANZMAN, Lars: Changing Value Chain of the Swiss Knowledge Economy: Spatial Impact of Intra-firm and Inter-firm Networks within the Emerging Mega-City Region of Northern Switzerland'. *Regional Studies*, 42:8, pp.1113 — 1131, Zürich 2008 [http://www.raumentwicklung-tum.de/upload/Publikation/pdf/170\\_2\\_1224679065.pdf](http://www.raumentwicklung-tum.de/upload/Publikation/pdf/170_2_1224679065.pdf) (18.4.2010)
- UNESCO: Towards Knowledge Societies, United Nations Educational, Scientific and Cultural Organization, Paris 2005  
<http://unesdoc.unesco.org/images/0014/001418/141843e.pdf> (23.3.2010)