

Grand Challenge Problem 1: People Centered Smart “Cities” Through Smart City Learning

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Abstract The increasing smartness of cities and territories is driving the change of all aspects of learning: places, processes, approaches and methods, contents, roles and skills. The grand challenge (GC) is to develop an adequate governance of such transformation and through learning disseminate a “person in place centered” perspective to inspire the design and development of smart cities that are inclusive and supportive of the whole complexity of the human being and where formal and informal learning agencies integrate and cooperate to foster social innovation.

Today’s “Smart Cities” (SCs) models promise to preserve and improve the society’s well-being (Lee et al. 2008; Giffinger and Gudrun 2010). Most models adopt top-down functionalist approaches, aimed at optimizing the consumption of primary resources (energy, water, materials, food, and time through the thinning of **people**-, goods-, and data-flows). Mass education is identified with “transfer of information” to smart consumer-citizens. It is evaluated in terms of advanced infrastructure and the availability of related services (e.g. Internet). Benchmarks are: infrastructures (e.g. schools, universities) and efficiency (e.g. number of people with a university degree) (Giffinger and Gudrun 2010; Hollands 2008). Individuals and communities play no significant role.

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The Grand Challenge (GC) is the integration and fusion of the functionalist top-down vision of the SCs with a more bottom-up vision, a “person in place centered” design to obtain smart cities that are inclusive and supportive of the whole complexity of the human learning. This also requires a stronger coupling between formal and informal learning.

Problems of the European Education System Addressed and Long Term Benefits for Society

Transforming learning according to the increasing smartness of the cities is the core problem of the European Education System. Aspects of this transformation can be found in e.g. in the transformation of places, processes, approaches and methods, contents, roles and skills, in a person-in-place centered,¹ local (Robertson 1997), co-evolutive and social perspective.

We can distinguish three main themes:

1. Place and Content: evolution of contents and of their significance, also as a function of contexts and situations and the integration of the urban spaces with “ad hoc” redesigned spaces of the formal learning² (JISC 2006; Mäkitalo-Siegl et al. 2010). Expected benefits: recovering of the ability to read the territory in all its components; increase of social cohesion; stimulation of inclusion, integration, and sense of belonging; drop-out reduction.
2. Roles and Skills: redefinition of roles and skills of the actors (teachers, students, etc.) taking part in the learning processes. Expected benefits: ability to “manage” more collaborative and “ubiquitous” learning process; acquisition of skills needed to become smart learner and citizen).³
3. Monitoring and Evaluation: switch from predictive assessment to a multi-dimensional monitoring focused on the detection of emergent behaviors. Expected benefits: foster individual motivation, self-confidence, and social awareness and, progressing with the age, a higher degree of self-regulation (Zimmermann 1990); produce a more inclusive and aware society.

¹The origin of the “Person in Place Centered Design” vision is documented in Giovannella (2008) and later in Giovannella and Graf (2010).

²See <http://vittra.se/english/VittraEnglish.aspx> and <http://fcl.eun.org>.

³See http://en.wikipedia.org/wiki/Life_skills and http://disco-tools.eu/disco2_portal/terms.php.

Main Activities to Address the Grand Challenge Problem

Increase the awareness among stakeholders, e.g. policy makers and companies and promote a network among the initiatives supporting a people centered view (not necessarily related to learning⁴). Promote the identification and adoption of smart learning indicators that can contribute to benchmarking⁵ (Giffinger et al. 2007; Quality of Life in Twelve of New Zealand’s Cities 2007).

In more detail:

(A) Related to aspect 1.:

- A.1: Build participatory evolutionary contents, go beyond Web 2.0 practices, foster integration between formal and informal learning;
- A.2: Interlace content to urban spaces, considered as open and interactive “books”⁵ (Iosue et al. 2012; Giovannella et al. 2013), made sensible and responsive by “embedded” technologies (Weiser 1993; Greenfield 2010; Shepard 2010);
- A.3: Study of the cultural mediating role of technologies⁶ (e.g. in removing barriers, stimulate attention and curiosity, etc.), increase social cohesion, integration, and sense of belonging.

(B) Related to aspect 2.:

- B.1: Unified classification of skills needed by actors with different roles (Giovannella and Baraniello 2012);
- B.2: Priorities for skill acquisition.

(C) Related to aspect 3.:

- C.1: Describe learning experiences with the help of a model, to include individual styles, social characteristics, context and process peculiarities (Giovannella 2012);

⁴For a “human smart city” vision see <http://www.periphria.eu/library>, retrieved on August 20, 2013 (get inspiration also from the Human Centered Design Vision by IDEO at https://hcd-connect-production.s3.amazonaws.com/toolkit/en/download/ideo_hcd_toolkit_final_cc_superlr.pdf); for a “human smart city” vision applied to small communities see <http://my-neighbourhood.eu>; for a “citizentric vision” see <http://urban360.me>.

⁵Smart Cities is a North Sea Intereg 4B project (2007–2013) <http://www.northsearegion.eu/ivb/projects/details/&tid=84>.

⁶See papers included in the IxD&A Journal special issues on “Smart City learning”, N. 16 and N. 17, available at http://www.mifav.uniroma2.it/inevent/events/idea2010/index.php?s=102&link=ToC_16_P.

C.2: Identify indicators of/strategies to:

- C.2.1: Monitor relevant dimensions of the learning (Shepard 2010; Giovannella et al. 2011) and skill transformation;
- C.2.2: Detect the increase of social cohesion and critical situations, included drop-out precursors;
- C.2.3: Develop meaningful analysis and representations;
- C.2.4: Barriers related to personal data (balancing of privacy preservation and collective advantages)

Promotion of a worldwide monitoring action aimed at the collection of the best practices and pilots, the elaboration of blueprints, and the sharing of the knowledge. To this end we have created an International Observatory on Smart City Learning and the Association for Smart Learning Eco-systems and Regional Development (ASLERD).⁷

Timeframe for the Grand Challenge Problem

We expect SCL models and blueprints to be developed till 2016 while for the realization of first prototypes and implementation of pilots, the timeframe is likely to be 2017–2020, provided that the issue of Smart City Learning will be soon included in the mainstream activities promoted by the DG Connect and by the National Governments.

Measurable Progress and Success Indicators

The number of:

- stakeholders involved
- events
- number and quality of publications

In detail, regarding the three classes:

1. Redefinition of the format of the learning contents and their integration within technology augmented urban spaces; effects of the people centered Smart City Learning on social cohesion, integration, and sense of belonging and, as well, motivation of learners and the drop-out rate;
2. Definition, acquisition, and/or transformation of the skills needed to become pro-active actor of the Smart City Learning processes;

⁷See International Observatory on Smart City Learning: <http://www.mifav.uniroma2.it/inevent/events/sclo/index.php>.

3. Monitoring of each of the dimensions of the learning experience and of the effects on Smart City Learning on self-regulation.

Attraction of Funding

Currently the main goal is to raise awareness among stakeholders—citizens, policy and decision makers, industries—and attract them by pointing out (through the organization of debates, focus meetings, etc.) the benefits all can have from the integration of Smart City Learning within the mainstream of SC development.

In parallel one could attempt to raise funds: (a) by promoting case studies that engage policy makers, professionals, and entrepreneurs; (b) through the development of an international network interested in technology transfer (e.g. concepts, prototypes, and pilots related to the SCL); (c) through the adoption of targeted crowd-funding strategies.

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