Experimenting With The Design Studio Format By Devising Encounters In Multiple Learning Environments: A Case Study

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Introduction

This study investigates the proliferation of learning environments in a hybrid educational format as applied to an undergraduate urban planning design studio course in collaboration with Professor Nelly Marda at the National Technical University of Athens' School of Architecture. The educational setting involved interaction in-class, online and in-situ. The objective was to increase the number and the quality of encounters between all the agents involved in the process: learners with teachers; learners with learners; learners with content; learners with *topos*.

This particular setup sought to bring together the face-to-face and the online components as complementary to one another in a symbiotic relationship.[1] Hence, online features were integrated as tools to the knowledge formation process within the existing framework of the design studio. At the same time, the course redesign accommodated activities that occurred within the site with the aim to relate the students with one another and with the place by performing a series of acts of sensory and bodily cognition.

Through the diverse ways of entanglement students were invited in a continuous dialogue between tacit and explicit knowledge, while the hybrid educational setting that was created combined the physical and the digital in an interchanging relationship.[2] Each component stimulated the knowledge creation process from a different perspective, but it also helped to establish multiple channels for communicating and amplifying this knowledge among teachers and students.

Principles of format redesign

The focus of the format redesign follows the evolution of educational technologies and the shifts in pedagogical approaches for urban design studios in terms of knowledge construction and the social character of learning. Social learning is the core of any

[1] Martijn Stellingwerff, "The Mooc-Ability of Design Education," in *Proceedings of the 33rd Ecaade Conference* (Vienna, Austria: Vienna University of Technology, September 2015), 58.
[2] Ikujiro Nonaka, "A Dynamic Theory of Organizational Knowledge Creation," *Organization Science* 5, no. 1 (February 1994): 14.

contemporary discourse on education either in the form of interdisciplinary or trans-disciplinary collaborations or through the integration of the web both as a source of knowledge and as a means of sharing. In this framework, the digital medium offers a continuous feed of information by virtually connecting the student designers with a web of social actors and new top down perspectives, while the bottom-up experiences from within the place through active learning and in-filed collaboration with social actors form a semantic web for the interpretation of the urban landscape.[3]

• Interdisciplinary thinking & active experiential scenarios

Contemporary theories of learning focus on the social character of learning originally advocated by Albert Bandura, Lev Vygotsky and Jean Piaget and the individuals' ability to create learning communities among people who share common interests.[4] The basic principle that new patterns of behaviour can be acquired through direct experience or by observing the behaviour of others in the quest of identity and meaning has informed both Etienne Wenger's theory on the communities of practice and D. Randy Garrison's variation on the communities of inquiry (CoI) respectively.[5] Students working in groups, even only once a week, were found to be more engaged in their studies, better prepared, while learning significantly more.[6]

Rich social dynamic and socialised learning in an educational setting form a central plank of the studio-based pedagogy for architectural and urban design, while peer collaboration has the potential to even alleviate the detrimental effects of power that manifest in tutor-student relationships.[7] Despite the fact that the social dimensions of the studio, and the opportunity for collaboration and sharing, act as stimulants to learning[8], the design studio today still resists the integration of peer to peer collaboration and feedback in a structured manner. Creating a constructive dialogue, however, is essential to architectural curricula as a means for internalising the social processes of evaluation and for integrating the norms of community in the framework of individual identity.[9] It is also an essential key to directing the educational process from learning *about* to learning *to be*.[10]

[3] Chris Speed, "Introduction to Field/Work and Site," in *Architecture and Field/Work*, ed. Susan Ewing, et al. (London: Routledge, 2011), 61.

[4] See Albert Bandura, *Social Learning Theory* (New York: General Learning Press, 1971); Vygotsky Lev, "Interaction between Learning and Development," in *Readings on the Development of Children*, ed. Mary Gauvain and Michael Cole (New York: Scientific American Books, 1978); J Piaget, *The Equilibration of Cognitive Structures: The Central Problem of Intellectual Development* (Chicago: University of Chicago Press, 1985).

[5] See Wenger Etienne, "Communities of Practice and Social Learning Systems: The Career of a Concept," in *Social Learning Systems and Communities of Practice*, ed. Chris Blackmore (London: Springer, 2010); D. Randy Garrison, Terry Anderson, and Walter Archer, "The First Decade of the Community of Inquiry Framework: A Retrospective," *The Internet and Higher Education* 13 (2010): 5–9.

[6] See John Brown and Richard Adler, "Minds on Fire: Open Education, the Long Tail, and Learning 2.0," *Educause Review* 43, no. 1 (2008).

[7] David McClean and Neasa Hourigan, "Critical Dialogue in Architecture Studio: Peer Interaction and Feedback," *Journal for Education in the Built Environment (JEBE)* 8, no. 1 (2013): 37.

[8] Rosie Parnell, "It's Good to Talk: Managing Disjunction through Peer Discussion," in *Architectural Education Exchange (AEE) Conference* (Cardiff University, CardiffSeptember 2001).

[9] David W. Shaffer, "Portrait of the Oxford Design Studio: An Ethnography of Design Pedagogy," *Wisconsin Center for Education Research (WCER) Working Paper* no.

The more recent theories for architectural and especially urban design education advocate a systemic pedagogy of explicit collaborative experiential learning.[11] This educational approach, Ashraf Salama argues, adopts interdisciplinary thinking and introduces appreciative inquiry and active experiential scenarios, placing emphasis on learning by experience.[12] In both cases, social learning is at the core of the pedagogy either by direct social interaction as in the explicit case of making students work with experts or by implicitly encouraging them to engage in research and critical reflection about the social system within which they operate. In fact, knowledge in this framework is constituted through their interaction with the community they address. "Higher quality cognitive strategies are needed," claims Rosie Parnell, "if a student is to turn disjunction into a positive learning experience; it is through reflection and exposure to other views and experience, a student might begin to tackle confusion and understand that there can be no 'right' answer."[13] Or as Adapt-r, a training network aiming to develop new knowledge and understanding of Creative Practice Research, claim:

> [B]y thinking about knowledge as socially constructed, something that operates in networks, in relationships between actors, it becomes clear that there is no singular thing that amounts to knowing, instead, there are multiple knowledges.[14]

Adriana Allen and Rita Lambert's educational approach in 'Learning Lima,' a 'co-learning alliance' established by the Bartlett Development Planning Unit with various institutions and collectives of the urban poor in Lima, challenged the individualist epistemic notion of knowledge as 'justified-true belief' by activating 'trans-local learning' as the pedagogical model for urban planning characterised by a plurality of partners and knowledges.[15] To achieve this, they brought together individuals from different backgrounds and organisations who participated in in-field transect walks, mappings, workshops and discussions. The documentation of these activities through the production of related artefacts in turn created new incentives for critical reflection and new framings of 'how we learn the city.'[16]

Interdisciplinary work offers the possibility of correlating the architectural and urban discourse

2003–11 (September 2003): 6.
[10] Brown and Adler, "Minds on Fire: Open Education, the Long Tail, and Learning 2.0."
[11] Ashraf Salama, *Spatial Design Education: Toward a Theory of Transformative and Critical Pedagogies* (Burlington: Ashgate, 2015), 316.
[12] Ibid., 317.
[13] Parnell, "It's Good to Talk: Managing Disjunction through Peer Discussion," 4.
[14] Eli Hatleskog, "Public Behaviours: Why Behave?," in *Relational Knowledge and Creative Practice*, ed. Tadeja Zupancic and Claus Peder Pedersen (Brussels: KU Leuven, 2017), 122.
[15] Adriana E Allen, Rita Lambert, and Christopher Yap, "Co-Learning the City: Towards a Pedagogy of Poly-Learning and Planning Praxis," in *The Routledge Companion to Planning in the Global South*, ed. Gautam Bhan, Smita Srinivas, and Vanessa Watson (Abingdon: Routledge, 2017), 355.
[16] Ibid., 358, 65.

with the knowledge base of other domains giving the students the tools necessary to read and manage city complexity. But engaging in active learning and working with artists in particular, the experience of being in the place can be further amplified:

> [T]o describe a city means to find the very roots of the self; we are the place (or places) to which we belong. By analogy, the place that we inhabit (in reality or even in dreams) becomes an extended, three dimensional page: by moving across it we make marks, invent new codes and find new keys to reading it. Any description of a city is necessarily a description of our presence in it –therefore, it is a conversation between ourselves and the place.[17]

Performing activities such as silent walks or sound recordings triggers the knowing in action, while it enables students to acquire a deeper understanding of the area's intrinsic qualities. The students are confronted with its hidden landscapes, people's behaviours or the more clandestine activities that run in more informal settings. By immersing students in the place, the studio turns into a contextual field of indefinite potential, as deciphering these conflicts, the cultural values and the social dynamics of a place requires a counterintuitive thinking and the creation of new knowledge.[18]

• The integration of the web

As the web technology advances, social learning has dissipated into the web or, as Betsy Sparrow et al. say, "we are becoming symbiotic with our computer tools, growing into interconnected systems."[19] Online learning, however, is grounded in social presence despite the apparent isolation among sharing individuals. In the Canadian Fully Online Learning Community (FOLC) model (an example of the digital evolution of the Communities of Inquiry (CoI) model which originally provided a conceptual framework for studying the potential of computer conferencing based on social, cognitive and teaching Presence[20]), social presence has become so important that the teaching presence is considered obsolete.[21]

In fact, the plurality of web resources and online learning communities induces the learners to take over their learning paths. Online nomad learners are constantly moving in "amorphous, informal spaces

[17] Simoneta Moro, "Peripatetic Box and Personal Mapping: From Studio, to Classroom to City," in *'Mapping Cultures: Place, Practice, Performance*, ed. Les Roberts (New York: Palgrave MacMillan, 2012), 263.
[18] Rob Roggema, "Research by Design: Proposition for a Methodological Approach," *Urban Science* 1, no. 2 (September 2016): 1.
[19] Betsy Sparrow, Jenny Liu, and Daniel M. Wegner, "Google Effects on Memory: Cognitive Consequences of Having Information at Our Fingertips," *Science* 333(2011): 776.
[20] Garrison, Anderson, and Archer, "The First Decade of the Community of Inquiry Framework: A Retrospective," 6.
[21] Roland Van Oostveen et al., "Transforming Online Learning: The Fully Online Learning Community (Folc) Model," accessed 25 June, 2017, http://eilab.ca/fully-online-learning-community-folc-model.

and nonlinear structures where knowledge is a flexible element to be alchemically interacted with."[22] This personal approach to learning is strongly advocated by connectivism – the theory supporting the thesis that knowledge is distributed across a network of connections[23] – or the more radical theories of heutagogy[24] and navigationism[25] where the inquiring individual is considered to be in constant flux, tackling and managing online resources. As a result of that, Jane Gilbert quoting Jean-Francois Lyotard argues that "traditional disciplinary boundaries will dissolve, traditional methods of representing knowledge (books, articles and so on) and expert individuals will be far less important, and new conceptions of learning will develop."[26]

It is exactly this shift in the learners' behaviour in the quest for knowledge creation that calls for the reconsideration of custom practices in architectural education as well as in any other disciplines. The ever-changing nature of research in the web paradigm and the proliferation of individuals that share information online can now support a more open pedagogical model where in the knowledge creation process web resources are considered equal of the architectural studio. These resources can be integrated in the curriculum as complementary to it. Hence, the design studio seen in this context is dilated into the web to allow students' access to more information relevant to their research.

During the past decade, a series of attempts have been made toward the reconfiguration of studio practices with regards to web 2.0 technologies. The new formats thereby produced are referred to either as blended or hybrid learning. Although for most people the two terms are synonymous, Bates makes an interesting distinction between the two by claiming that the term blended learning indicates a range of learning situations using technological features along with class presence, while hybrid learning is mostly used to describe situations where the adopted system is completely redesigned to create optimum synergy between the in-person sessions and learning online.[27]

In architectural education changes in format in relation to web technologies mostly involve the introduction of an e-learning platform that is centrally managed and used to support in-class learning.

[22] Aras Bozkurt et al., "Community Tracking in a Cmooc and Nomadic Learner Behavior Identification on a Connectivist Rhizomatic Learning Network," *Turkish Online Journal of Distance Education – TOJDE* 17, no. 4 (October 2016): 8.
[23] See Stephen Downes, "Connectivism and Connected Knowledge: Essays on Meaning and Learning Networks," (National Research Council Canada, 19 May 2012).
[24] Anderson Terry, "Theories for Learning with Emerging Technologies," in *Emergence and Innovation in Digital Learning: Foundations and Applications*, ed. George Veletsianos (Edmonton: AU Press, 2016), 42.
[25] Tom Brown, "Beyond Constructivism: Navigationism in the Knowledge Era," in *On the Horizon* (Bradford: Emerald Group Publishing, 2006), 187.
[26] Tony Bates, *Teaching in a Digital Age: Guidelines for Designing Teaching and Learning* (Vancouver BC: Tony Bates Associates, 2015), 60. Accessed 25 June 2017, https://www.edcan.ca/wp-content/uploads/EdCan-2007-v47-n3-Gilbert.pdf.
[27] Ibid., 311.

In most of these cases, the platform assumes a repository character where all student and teacher material is collected and hosted on a server accessible to all participants of the studio. A fine example of this approach is Mirjana Devetaković's experimental studio at the Faculty of Architecture of the University of Belgrade. Devetaković developed an urban design studio in 2010, along with Professor Petar Arsić, with the aim to enhance communication between participating students but to also benefit from the significant amount of collected documents that are usually produced in a design studio.[28] To do this, they used the e-learning platform MOODLE where all content was organised both thematically and chronologically in a directory display. One of this format's most important implications was the permanent accessibility to the studio materials not only for the duration of the semester but also for any other future studio use.[29]

Influenced by web 2.0 technologies and their potential to create "authentic learning experiences," Burak Pak and Johan Verbeke introduced in 2012 the concept of the Design Studio 2.0, a format that supports multiple communication modes and styles.[30] Their original research revolved around learning platforms that were used either for educational collaborative projects or for purposes of wide social communication and exchange of knowledge. In both cases, the two studio organisers noticed the development of an increased understanding and wider knowledge base.[31] They ran a design studio using the 'Social Geographic Web Platform,' which allowed the students to interact by overlaying information in order to create collective maps. The platform was also used to gather related data and visual representations of the data retrieved by the students. The character of their endeavour was oriented toward the use of combined communication modes to extend the physical world to a shared virtual one while it also supported novel representations of design information. In their own words their scope was "to augment the urban design learning by remediating and extending the reflective conversation in the design studio and collectively construct a shared memory on urban space."[32]

Blogging is another Web 2.0 affordance that is thought to provide "a space for reflection, a forum for discussions, a portfolio of completed assignments and for opening up courses for a wider group of

[28] Mirjana Devetaković et al., "Integration of E-Learning Concepts in Urban Design Studio: The Case of a Virtual Learning Environment Supporting a Specific Educational Role" (paper presented at the YU Info 2011 Conference, Kopaonik, Serbia, 2011), 29–30.
[29] Ibid., 31.
[30] Burak Pak and Johan Verbeke, "Design Studio 2.0: Augmenting Reflective Architectural Design Learning," *Journal of Information Technology in Construction (ITcon)* 17(2012): 505.
[31] Burak Pak and Johan Verbeke, "Redesigning the Urban Design Studio: Two Learning Experiments," *Journal of Learning Design (JLD)* 6, no. 3 (2013): 46.
[32] Ibid., 48.

participants."[33] Most blogs used in the design studio context are informative, centrally managed and destined to serve classes with very large cohorts where communication by e-mail becomes very difficult to manage.[34] Blog creation however, can be much more creative once assigned to students individually. Asking each student or student group to design and manage a blog helps them establish an online identity and a sense of pride for the work they produce.[35] "What makes weblogs different," say Lilia Efimova et al.," is not the publication per se, but the personalities behind them and they are increasingly becoming the online identities of their authors."[36] In addition, the fact that students are confronted with having to manage the plurality of online resources, argues Richard Coyne, acts as "a stimulus to the interpretative capabilities of the design researcher" in a manner where "reading converges with design. Reading becomes active, synthetic, shared and creative."[37]

Setting up a hybrid format for an urban design studio

In the light of this research, an attempt was made to experiment with the 9th semester urban planning design studio taught in collaboration with Professor Nelly Marda to develop it into a more holistic pedagogical hybrid format. This is the last studio of the undergraduate program where students are confronted with design issues of increased complexity in urban scale. The cohort usually consists of approximately 50 students that work in groups of two or three. They are responsible for determining the site(s) of intervention. The new layout was eventually replicated across three separate learning presences, each complementing the effect of the other two.

Online presence_In the new format, both educators and students were required to have an online presence throughout the duration of the course that would allow the permanent accessibility to all studio content as in the Devetaković studio. The teaching team however, made use of a MOOC-like digital platform, hosted on versal.com, while all student groups used free blogging hosting platforms. Blogging was preferred compared to the use of a central e-learning platform for its ability to distribute the responsibility of communication and exchange to all participants. This way, the teachers' presence served as a reference point for content transmission

[33] Hans Poldoja, Erik Duval, and Teemu Leinonen, "Design and Evaluation of an Online Tool for Open Learning with Blogs," *Australasian Journal of Educational Technology* 32, no. 2 (2016): 64.
[34] Maja Baldea, Alexandra Maier, and Oana A. Simionescu, "Using Blogs As communication Tools for the Architecture Design Studio," *Procedia-Social and Behavioral Sciences* 191 (2015): 2765.
[35] Victoria Farrow and Stephanie Garrison, "A Series of Happy Accidents," in *Proceedings of Aae 2016 International Peer-Reviewed Conference on 'Research Based Education,'* (London: The Bartlett School of Architecture, UCL, 2016), 51–52.
[36] Lilia Efimova, Stephanie Hendrick, and Anjo Anjewierden, "Finding 'the Life between Buildings': An Approach for Defining a Weblog Community," *Internet Research 6.0: Internet Generations (AOIR)*(2005).
[37] Richard Coyne, "Even More Than Architecture," in *Design Research in Architecture: An Overview*, ed. Murray Fraser (Farnham: Ashgate, 2013), 187–88.

but did not monopolise it. Online interconnectedness was further enhanced by the use of web digital tools in relevance to the in-situ workshops. The results of these workshops were communicated in online platforms such as echoes.xyz and open street map respectively. These offered the students the opportunity to collect similar kinds of information in one place so that further to an individual understanding of the data assimilated, a collective one would become possible. This scheme was very close to Pak and Verbeke's aspiration to create a "collectively shared memory" of the place, only it regarded certain aspects of the student readings and particularly the cases where massive assimilation of data collected through multiple players could produce further readings.[38] In fact, these two online platforms were the only two cases where student research was all put in one place. While echoes.xyz gathered all recorded sounds in relation to the area map, allowing the formation of its soundscape, open street map was used in the second workshop to facilitate the collection of student impressions of the place in the form of words on a map, creating a semantic web for the area that was used for interpreting it.

In-class presence_The discussions that occur in tutorials and in reviews tend to be primarily concerned with the details of specific projects. Thus, there is little opportunity for discussion of learning processes and personal experiences in the context of wider issues and objectives.[39] In contrast, in-class time for this course included regular group discussions through live or online encounters with people from other disciplines or institutions related to the studio's objectives or with the area under examination. A series of experts and colleagues from various universities joined the cohort for a series of personal or Skype encounters where they offered their insight on a variety of matters according to their expertise or experience. These systematic approaches created the basis for an intense exchange of information and views on urban design.

In-field presence_The students were asked to work in the de-industrialised derelict area of Elaionas. This is an urban environment of extreme controversy, related to multiple stakeholders and contradicting interests. Informal processes of urbanisation and social practices of adaptation are constantly challenging the area's spatial and social character. Despite its proximity to the city centre, Elaionas is unfamiliar to students;

[38] Pak and Verbeke, "Redesigning the Urban Design Studio: Two Learning Experiments," 46.
[39] Parnell, "It's Good to Talk: Managing Disjunction through Peer Discussion," 5.

but even for locals or regular visitors there exist a lot of uncharted areas, an impression that is further intensified by blurred boundaries between private and public ownership. The students were invited to engage in in-field activities such as interviewing locals and visiting the place on different days and times of day to monitor changes of the area's daily routines. Just like in 'Learning Lima' co-learning alliance project they too had to engage in mapping the boundaries and the qualities of the landscape while it remained up to them to determine the nature of their interventions and thus the direction of their inquiries. The students also participated in two workshops that were realised on separate occasions in collaboration with artists; one organised by an actor, the second by a sound artist. The aim was to draw attention to the unnoticeable and uncountable entities of the landscape and decipher the area's hidden landscapes.

At the intersection of the physical and the digital: evaluating the synergy between the three learning environments in terms of...

• ...knowledge construction

In the case study presented here, there was not a prescribed site or a specific theme to pursue. The students had to recover information about the area, using the web or their in-field experiences to eventually focus on a theme of their own choice. The teachers simply facilitated this process by bringing in experts or artists to expand this network and the variety of reading methodologies. The students took on the role of researchers and the curriculum was largely centred on inquiry-based activities as they mapped the area's uncharted territories and the informal activities currently happening within the area that shape the social and the spatial character of Elaionas.[40] The need to digitise information in order to exchange it triggered the students' creativity toward the visualisation of their research findings. The students' individual approaches were systematically channelled into visual communicable entities among peers. Digital blogging features (i.e. the creation of gifs or the insertion of sound and video to 2D graphics) were used along with diagrams, collages or photographed physical models and scanned sketches as a means to visually express student observations.

The embodied experiences and the sensory maps of the in-field work further enhanced their creativity by

[40] Andrew Roberts, "The Link between Research and Teaching in Architecture," *Journal for Education in the Built Environment* 2, no. 2 (October 2007): 6.

requiring them to express graphically their thoughts and emotions. Many students experimented with ways of communicating rather intimate information. Invaluable information was collected in regard to the area's physical characteristics like the effect of its scale, its materiality, its noise levels (see Fig.1), the human and the traffic flows, as well as the area's material and immaterial boundaries. Through the students' physically engagement with the area, information was also retrieved in regard to their feelings about being in Elaionas, their sense of time, their comfort/discomfort zones, their perception of the natural elements of the landscape or the historicity of the area.

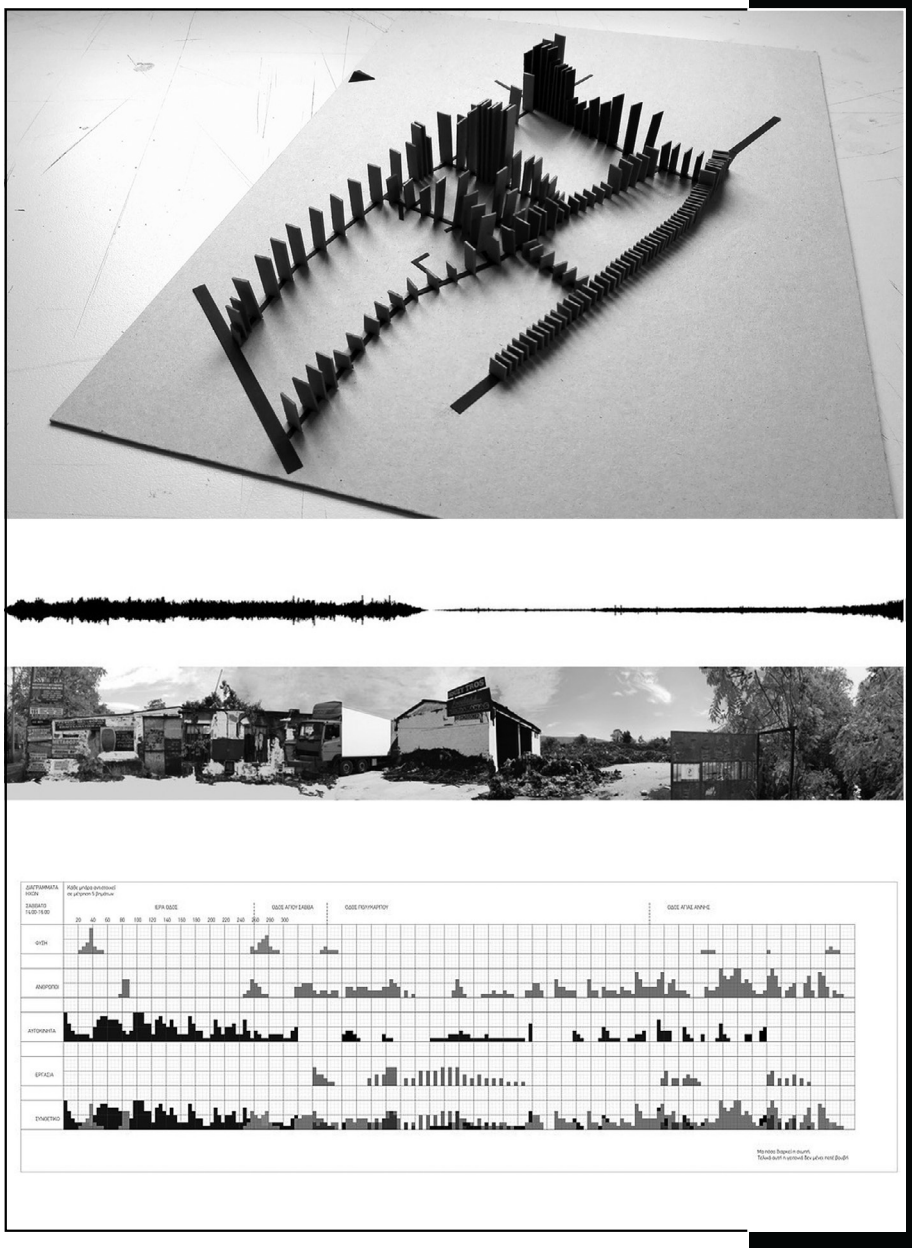

Figure 1: *Sound recordings: A model representing anxiety levels according to sound levels (Design Team 'Binyless': Anna Syrianou, Filio Christou), a collage that connects the sound to the place (Design Team 'Binyless': Anna Syrianou, Filio Christou) and a diagram that isolates the sounds and sound levels according to their kind (Design Team 'MAMA': Andreas Anagnostopoulos, Marina Mersiadou, Giorgos Michailidis).*

The multiple online resources and their features also helped students improve their digital skills. Many of them acknowledged their content in learning how to tackle the software they were required to use. "Now we have other ways to record and transmit knowledge," says Bates, "that can be studied and reflected upon, such as video, audio, animations, and graphics, and the Internet does expand enormously the speed and range by which these representations of knowledge can be transmitted."[41]

As the online co-presence of the design studio comprised mostly of observing the work of others, this provoked a need for students to also verbally explain their work so that the rest of the class who would visit their blog would eventually comprehend the group's intentions and the methodology of their research. In this framework, some of the groups used their blogs as logs where they systematically registered their intimate experiences of the place and their personal encounters with the people who reside or work in the area. Overall, this verbal anchoring of their project helped the individual groups to create a consistent narration of their generative design process while it helped the students keep track of their research activities and the impact that these activities had onto their research objectives.

Knowledge construction for the students consisted of choosing what reading methodologies they would pursue, apply them in the field and then elaborate on the results of this investigation. Meanwhile, during this process they could share their views, discuss their findings and reflect upon their implications. It was this research that would later lead each group to decide upon the course of action and choose the most suitable strategy for intervention.

While everybody recognised the importance of collecting data the students also realised how differently this informed their design decisions. "Learning is conditioned by the individuals' existing knowledge and understanding, against which new information is aligned creating either a deepening of knowledge or leading to previous knowledge being revised."[42] The students pursued a line of inquiry analogous to their personal motivation and priorities. Knowledge construction resulted from contextualising the information to their goals, a model that is concurrent to the contemporary

[41] Bates, *Teaching in a Digital Age*, 60.
[42] McClean and Hourigan, "Critical Dialogue in Architecture Studio: Peer Interaction and Feedback," 37.

connectivist theory where learning "isn't learning new content but rather being able to 'plug into sources' of knowledge and information to acquire the relevant information that is needed."[43]

The mapping of the existing greenery and vegetation for example, was a theme that appeared regularly in student readings. There were at least four groups where this information was presented with the intention of reversing soil pollution in the brownfields. Depending on the additional information these groups had gathered, which included sound levels, the hydrographic network of the area, the ancient street network, the adjacent uses and their personal impressions from the place, the four resulting projects differed in their nuanced interpretations of that data. One group proposed to revive the former olive orchard and street network, another suggested to expand the vines of the Agricultural University that is situated in Elaionas, a third wanted to promote urban farming while the fourth group intended to designate the area as a park for recreational purposes. Each of these decisions influenced the spatial organisation accordingly and their physical manifestations varied dramatically (Fig. 2).

[43] George Siemens, "Connectivism: A Learning Theory for the Digital Age," Elearnspace, accessed 25 June, 2017, http://www.elearnspace.org/Articles/connectivism.htm.

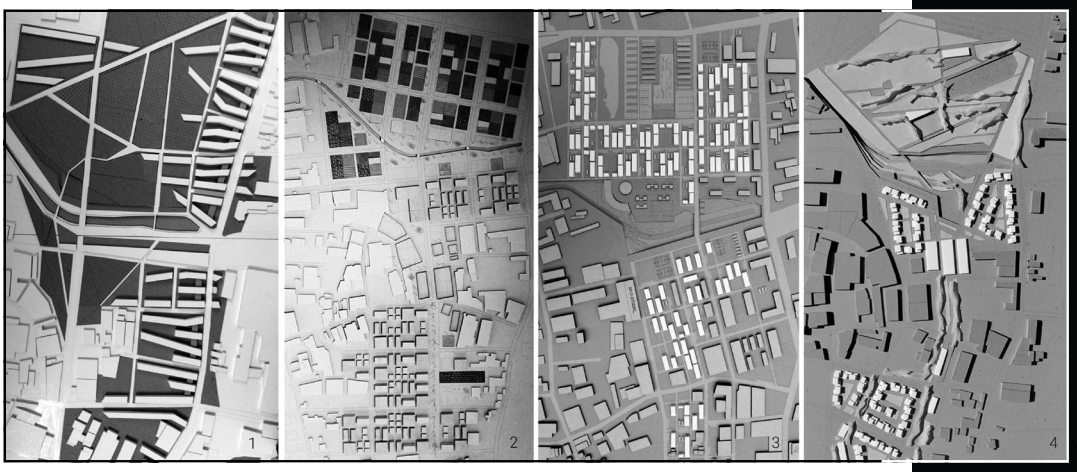

Figure 2: *Four student projects related to restoring the quality of soil in the brownfields (From left to right: Design Team 'Secret Olive Garden': Nektaria Lainaki, Maria Perikleous, Rena Malakou Design Team 'EM-AIL': Athina Ioannidou-Lemonidou, Ioanna-Eleni Bata; Design Team 'KPC-Studio 9': Pavlos Andrianos, Christos Zinelis, Kyprianos Fragkiadakis; Design Team '3 Moires': Lambrina Lyrou, Chrysa-Leda Scordili, Constantina Chamatzoglou).*

Furthermore, these proposals were not elaborated simply as spatial organisations, but they were also related to the area's social activity and its relation to the city. Having already identified the social groups that reside in Elaionas during their research, the students were able to designate the interventions to future users: the expansion of the university's vines would mostly benefit the educational pursuits of the faculty and its students, the restoration of the olive orchard and urban

farming would be a potential profitable activity for the refugees that are currently accommodated in the area while the recreational park would respond to the lack of green spaces in the centre of Athens at a hyper local scale.

• ...the social character of learning

The integration of the web and the group activities in-field or in-class challenged the students' design routines. Some students initially expressed reluctance toward open sharing practices, claiming that it could eventually affect the originality of their projects. Many also admitted to having experienced awkwardness during the in-field workshops as well, not always knowing what they were looking for, sometimes just being overwhelmed by the landscape's diversity. Furthermore, Elaionas was not perceived as a very welcoming place – at least during their first visits – making it almost impossible for them to feel safe enough to wander around for long. Awkwardness accompanied encounters with artists as well, as most students had never participated before in exercises that required them to execute a dictated body movement or to consciously try to regulate their movement in relation to others. Acknowledging the physical presence of other individuals and trying to coordinate their mode of being in the place in relation to them was initially a frustrating experience for many.

Despite their initial reluctance, the new design studio layout helped create a shared pool of relevant data and information regarding the area. Online interaction in particular worked well at this stage as a means of directly communicating research findings. Soon, all student groups became active participants in a discourse that ran parallel to the in-class sessions and was complementary to them. This conversation was further enhanced by the visiting guests offering their insights about either the area's particular characteristics or ways of managing urban phenomena more generally. The fact that information was visualised and/or described enabled the teaching team to compare and use it in class for further discussion and analysis while all students, individually or as a group, contributed to the general discussion and participated in the creation of meaning for the area. This created both an atmosphere of reciprocity and helped form the semantic web that in turn helped the students determine their priorities.

As the studio work progressed, social learning shifted from transmitting and exchanging information and knowledge to monitoring others. By this point, the groups had already decided upon a course of action and their mode of engagement with Elaionas. Therefore, they monitored their peers mostly to check up on how they dealt with their design decisions and perhaps inquire on the means of their representations. The blog activity that was registered during the last two months of the studio, however, was intense. Although in-class revisions gradually became individualised towards the end of the semester, the students' interest in their peers' work never receded.

Conclusion

While there is still a lot to determine, the experimental design studio model presented in this paper implies that there is more than one approach to educational technology or design pedagogy for how to run an architectural or an urban design studio. The weight falls on the instructors to determine what tools they will be using or how they are going to integrate them into their curriculum. In this case, a culture of collaboration was pursued and eventually distilled that permeated all three learning environments: the in-class, the online and the in-situ. The specific format of the design studio channelled the need for continuous research and experimentation, in both the physical and the virtual space, and determined a framework for creating synergies between them. The research that was performed in the field determined the quality and kind of student inquiries. Meanwhile, online presences compelled the students to represent all information in communicable visual or verbal units. The ability to monitor this process through online presences subsequently turned in-class encounters into group discussions or revisions rather than individual crits where the students – having already seen their peers' work online –took on the role of active participants. The collective discourse also transcended the restrictive character of project formation and grew to include a wider range of people – experts and collaborators – and their respective views on urban and social issues. This contributed to a better understanding of urban complexity while many of the issues raised in this context later informed the students' projects.

R E F E R E N C E S

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