BUILD OUR NATION INTERNATIONAL PROJECT: AN INNOVATIVE EDUCATIONAL MODEL FOR SYSTEMS THINKING IN DESIGN

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Abstract

Ethical decision-making models grounded in ethical frameworks comprehend elements of systems thinking such as holistic language and value-guided systems. This paper proposes an innovative educational model for systems thinking in architectural design.
Academic members, students, and future users work together as an international architectural design studio team to improve specific real-world living conditions. The model of *Build Our Nation* aims at reconsidering the whole design process by focusing on rethinking design and rethinking construction. In response to the current global crisis in designing and building, the paper argues that more than a responsible behaviour has become necessary. Starting from the educational stage an ethic of resilience should be pursued and that represents the core of the model proposed by Build Our Nation.

Keywords: innovation, iterative process, system thinking, ethics & practice.

1   AN OVERVIEW

In all the current talk concerning the need for know-how in dealing with difficult problems and radical change it has become urgent also in the field of architectural design to explore deeply the potentialities of *design thinking.* The territory opened by recent publications and papers suggests that the cross-disciplinary engagements around this topic are transportable beyond the core of the design disciplines [1], [2]. This paper argues that the on-going model of Build Our Nation is already challenging the boundaries of *design thinking* and it may be considered an innovative experiment of *system thinking.*
The main frameworks for the argument are the J. Gharajedaghi`s notion of *system thinking* and its application as an educational model in the architectural design context. In the opinion of one of the original contributors to the development of the third generation of *systems thinking* and INTERACT, The Institute for Interactive Management, the interactions among the four foundations of *system thinking* (*sociocultural systems*, *holistic thinking*, *operational thinking*, and *design thinking*) are able to deal with the complexity and engaging potency of the phenomenon known as *culture*. `The depth and beauty of interactive design and the magic of holistic thinking (iteration of structure, function and process) when combined with the power of systems dynamics, create a competent and exciting methodology that goes a long way in dealing with the emerging challenges of our time by responding to the operating principles of openness, purposefulness, multidimensionality, emergent property, and counterintuitive behavior of sociocultural systems` [3].

One possible application of this challenging notion is under investigation in the model of Build Our Nation. It consists of an international project and research group focusing on the promotion of innovative educational processes linked to the design studio activities. There are several partcipants comprising students, academic members and future users. They work together in an international design studio and perform interchangeable roles of leadership in order to develop a specific real-project. Workshops, blogs, performances, exchanges and live events are mainly led by students in a highly motivated and ethical environment. The design process requires that designers learn how to use what they already know, learn how to realise what they do not know, and learn how to learn what they need to know. *System thinking* is the art of simplifying complexity; it is about seeing through chaos, managing interdependency and understanding choice. In the meantime, in our *liquid modernity*, where social forms and relationships no longer have enough time to solidify [4], the possibility to get involved in a real-world project requires a matter of competence. Competence implies knowledge and both skills are some of the best powers of *culture*.

As the Italian philosopher U. Galimberti has pointed out, the general nihilism of the young generation in the Western society is more a common cultural issue, rather than an individual psychological problem [4]. The model of Build Our Nation aims at promoting cross-cultural, problem solving through value-guided architecture. Power is enhanced when it is shared, when the individual `disappears` in a collaborative team group and students are more likely to implement an idea when they have had a hand in shaping it. Moreover the highly sensitive social context of the proposed real-project challenges the architecture in terms of professional ethics and practice.

Two main trajectories are under investigation, both strongly linked to the extra-curricular nature of the actual framework: on the one hand the educational contexts, with the aim to rethinking design; on the other hand the environmental-oriented contexts, with the aim to rethinking construction.Based on these objectives the panel of academic members of Build Our Nation has identified a set of three `target issues`:

- **Ethical standards and social equity**. The project must adhere to the highest ethical standards and sense of responsibility. The aim is to support social equity at all stages, from the design process to the construction.

- **Contextual impact and holistic thinking**. The project must convey a high standard of architectural quality in the way it addresses cultural and physical factors. The aesthetic impact must `interfere` with the surrounding environment.

- **Innovation and transferability of knowledge**. The project must demonstrate breakthroughs and trend-setting educational approaches and must be transferable to a range of other applications.

2 THE CORE OF BUILD OUR NATION

Build Our Nation is establishing an iterative and generative process: from rethinking design to rethinking construction, back to rethinking design and rethinking construction. While the global community stands before the challenge to reorient itself economically, socially, and ecologically, the members of the Higher Education have the responsibility to reinvent the teaching and learning praxis and to align them with the principles of sustainable development. In particular the educational framework must change significantly in order to guarantee an empathetic civilization for the next generations. Concerning the future architects, if architecture will still play a major role in the practice, they should be in the position to meet their needs [6]. Because the fundamental problem of *architecture* and of *culture* is that of *freedom* [7], the educational contexts must be able to help students in pursuing an ethic of resilience capable of returning to the original shape, as after having been `compressed` by external forces. That is quite problematic for a design research community that cherishes multiple oversimplifications of its object of study and delegates many tasks to other disciplines especially in the practice.

The vision of Build Our Nation is `to set up` highly equipped students by instilling confidence in their own skills as future professionals and by strongly challenging the core foundation of their education. The nature of this project brings together volunteer people, who are enthusiastic about challenging themselves and the limits of architecture as a discipline outside of the mandatory curricular framework. It represents a unique opportunity within the academic education for a wider perspective view of architecture in a true mutual-learning environment with the outcome of a fuller knowledge of architecture and its place in the world. It might be argued that these kind of goals are very common in the Design Studio. However, the core of Build Our Nation is foremostly defined as a sort of big *playground* grounded on some experiments of the Situationist International during the 1960s [8], [9], [10]. The launched message is: "This is a *playground*. We all together are the players. Once agreed the rules, the *game* must go on!". In the following paragraphs these passages are described step by step. Build Our Nation opens by introducing immediately the ground and explaining that every space (i.e. room for game) requires establishing some limits (i.e. prohibitions and opportunities for the player). Consequently Build Our Nation becomes a *playground* and the players are transformed into *inhabitants* of a new territory [11]. Because there is a specific ground there is also an unpredictable transformation under the pressure of the forces that cross it. The spatial and virtual forms of the *playground* must be constantly redefined, by creating interfaces and/or giving form to a set of rules. It should also be noted that a relaxed and competitive but playful context helps students to gain knowledge out of additional pressures. The space in Build Our Nation, where the game of reality is taking place (i.e. real project`s issues), requires the players to improve their critical thinking,

competence, flexibility, counterintuitive behavior, and many others operating qualities related to *system thinking* [3].

Build Our Nation includes pattern of consciousness of how arbitrary the rules and the unwritten but tacitly obeyed conventions are. It clearly shows the limits society has drawn for us in terms of designing and building. The players have the power to question these rules and, if necessary, to propose new ones. In this process it becomes important the emotive challenge of the brief, with the focus on addressing deep social issues through architecture. That highlights the limits but also the ethical approach [12] in a way no assessed studio projects can do. The first application of Build Our Nation is the real-world project Taifa Letu Tujenge, which consists in designing and building a communitarian centre for women in the city of Bukavu, in the Democratic Republic of Congo (DRC), in Africa. It should be mentioned that the name of Build Our Nation comes from the first on-going experience Taifa Letu Tujenge. In fact taifa letu tujenge means "build our nation" in Swahili and the intention of the academic members is to reiterate this positive experiment by setting soon a new real-world project, a new "Build Our Nation" translated into the local language. Actually Taifa Letu Tujenge is involving multitudes of students spanning four Schools across Europe. It was set in April 2011 by Silvia Bassanese, Architecture Lecturer of Robert Gordon University, Scott Sutherland School of Architecture and Built Environment (RGU-SSS), Aberdeen, UK and Dr Pascal Nshombo Kataraka, Sociology Lecturer of Universite du Cepromad Bukavu (UCB), Democratic Republic of Congo, Africa with the help of Tesseract, collective of architecture students. According to P. N. Kataraka: "The African nations set up political objectives for the promotion of women's activities. Women have been marginalised for a long time in the DRC. There are many social and professional activities which do not integrate women. We want to change these dynamics locally by creating a space where development is catalysed by the participation of the women themselves. This will improve the social and economic conditions for women in the surrounding areas and throughout the city. General objectives of the present project propose to facilitate interaction between women from diverse backgrounds - rural, urban and suburban. This will develop an area of fundamental change to help reduce the complex inequalities women face regarding income and opportunities". In the complexity of the social, political, and economical contexts of DRC [13], this self-built centre will be a catalyst for social change trough a participatory and innovative action involving about 1,000 women from the province of Bukavu.

By the very nature of the project many people, professionals and students are involved. Since April 2011 four different Schools of Architecture, Built Environment and Engeneering across Europe are working together on this centre with effort and remarkable participation. Practicaly at the present time there are two frameworks, which are running parallel and costantly crossing each-other: on the one side Build Our Nation is going to become an international research group with the aim to explore new trajectories of innovative participatory learning methodologies; on the other side Taifa Letu Tujenge is the first/trial project in the framework of the model of Build Our Nation. It represents also an important test for evaluating the results in the light of the general outcomes of this innovative educational experiment.

The vision of Build Our Nation is that architecture must adapt to people, and not the contrary, as unfortunately still happens often in the present. Having to deal iteratively with the structure of Build Our Nation (i.e. the major participants and their relationships), the function (i.e. the specific outcomes), the process (i.e. the know-how and the sequence of activities), and the context (i.e. the role the system plays in its containing environment) implies seeing the whole and understanding it. In the following four subsections there is an in-depth description of the modularity of the model of Build Our Nation. According to J. Gharajedaghi a complex product (i.e. Taifa Letu Tujenge but also Build Our Nation) is made by smaller subsystems, a set of distinct, but interrelated, platforms. Each platform (i.e. the different stages of Taifa Letu Tujenge), hosts a set of special-purpose modules in relation to the structure, the function, the process and the context of the general project (i.e. Taifa Letu Tujenge does not exist if separeted from the framework of Build Our Nation). In a *system thinking* framework the relationships and the interfaces among platforms must be explicitly defined; the parts operate as independent systems with the ability to be relatively self-controlling and yet act as responsible member of a coherent system [3]. In the final section the paper states that, considering the first results, the parts have already demonstrated the ability to respond effectively to the requirements of the containing whole set by the model of Build Our Nation for *system thinking* in design.

2.1 Structure: the major participants and their relationships

This subsection describes the structure of Build Our Nation and Taifa Letu Tujenge. Because both the frameworks run parallel sometimes it is not so easy to identify the limits and make a clear distinction between the two: on the one hand Build Our Nation, being the origin and the primary matrix has a structure of its own; on the second hand nothing of the first application, the real-world project Taifa Letu Tujenge exists that has not been generated by the main framework. Therefore, every part of Taifa Letu Tujenge is correlated with its other parts (i.e. the progressive stages of the project in Bukavu) and establishes with the whole of Taifa lety Tujenge and Build Our Nation immediate and close relationships.

"Revers the order/layout" of the structure, function, process and context of Build Our Nation means proceeding from the large (i.e. the complex) to the small (i.e. the relative simple). It consists in an action which can be clearly visualised in the space: from the nature to the landscape, the countryside, the hamlets, the outskirts, the urban center and so on to the smaller scale. As exploring a territory and trying to orient yourself, the following subsections of the paper go through this sequence in search of an overall coherence. That represents exactly the experience everybody involved in this project is sharing with the other participants, indipendently from his specific role: an itinerant movement that would touch the territory of Build Our Nation as a whole.

Participants of Build Our Nation. A panel of academic members of four different European Schools set up a Memorandum of Understanding to deal with the actual and the future real-projects and part of them have created an international research-group. The leader and co-leaders of Build Our Nation are: S. Bassanese of RGU-SSS; A. Espanyol of Escola Superior d'Arquitectura de Reus, Universitat Rovira i Virgili (ESAR-URV), Reus, Spain; B. Rodeghiero of Escola Tècnica Superior d'Arquitectura de Barcelona, Universitat Politècnica de Catalunya (ETSAB-UPC), Barcelona, Spain; and M. Tadi of Polo Territoriale di Lecco, School of Building Engineering and Architecture, Politecnico di Milano (PTL-SBEA-PM), Lecco, Italy.

Partcipants of Taifa Letu Tujenge. S. Bassanese of RGU-SSS and P. N. Kataraka of UCB with the help of Tesseract, collective of architecture students devised the initial idea. The academic members of Build Our Nation are invited to take part in the leadership of the various stages of the project. Up to now two stages have been organised and the third is currently on-going. Each stage is arranged by students along with the staff members. The students are co-responsible of various activities and lead the main events. The women of Bukavu (i.e. the users) are involved in the project since the very beginning of the design. There is permanent exchange of ideas between students and women which will culminate in the final construction of the centre through participatory processes (i.e. self-building construction).

Stage 1 Taifa Letu Tujenge (April 2011). The general leadership is by RGU-SSS. The first stage involves about 250 students from four European Schools (80 students of RGU-SSS, 40 students of ESAR-URV, 65 students of ETSAB-UPC, and 50 students of PTL-SBEA) and is led by Tesseract (10 students). Each School works independently in mixed vertical groups of about 8 students from their own institution (i.e. students from year 1 to Masters). During the day of the live-event there are scheduled web conferences and IT facilities to present to each other each School's findings. "Fig. 1", the blog is used also to communicate with P. N. Kataraka in Bukavu.
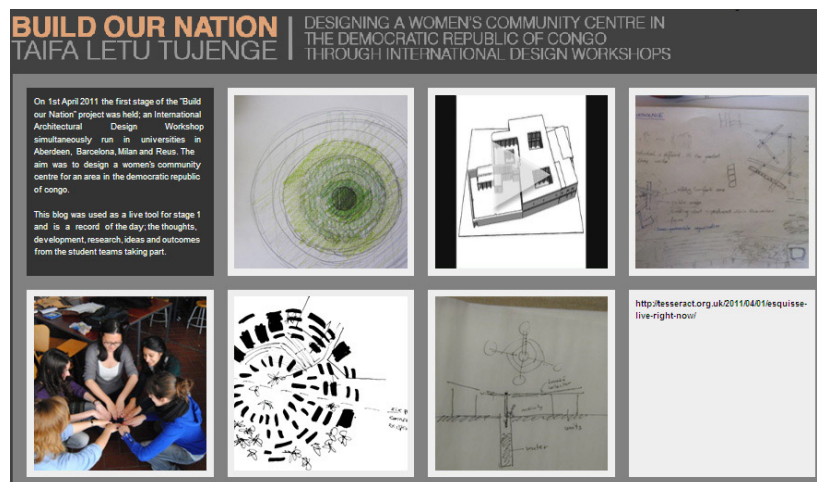

Fig. 1 Blog during the stage 1 (www.buildournation.org)

Stage 2 Taifa Letu Tujenge (June 2011). The general leadership is by PTL-SBEA-PM. After a process of self-selection, about 30 students from the four Schools work together in a two-days intensive workshop in Italy. Four groups of students focus on different topics of the project and engage in their international mixed vertical unit. The process is led by alternate student leaders, depending on the progression of the work. Tesseract students are responsable for creating a short video under the coordination of the film maker F. Macelloni, NANOF production.

Stage 3 Taifa Letu Tujenge (on-going). The general joint-leadership is by ETSAB-UPC and ESAR-URV. This stage is open to a larger number of students (80 in total, 20 of each School). Six groups of students are organised in new vertical units and focus on specific tasks. Two of these tasks are common across the Schools and the entire process is led by various student leaders. The `new Tesseract group` (iteration of process) is dealing with recording and filming always under the coordination of the film maker.

Understanding requires a period of orientation that forces students to think and, in thinking, to exercise their critical faculties. When large numbers are involved, we must always tackle the problem of creating dynamics able to continually re-establish a balance. This equilibrium inevitably changes with the passing of time. Y. Friedman states that the society is deeply grounded in communication and that a utopia could become reality only if the number of the members in one group does not exceed a `critical quantity` [14]. Moreover, one of the big problems that we and the future generations of architects must urgently face is that the mass society is expanding everywhere and to exercise one`s critical faculties becomes increasingly demanding [15]. Build Our Nation is not concerned with large numbers and patronises a large society of small groups forming and reforming according to the circumstances.

2.2   Function: the specific outcomes

This subsection focuses on the specific outcomes of the stages of Taifa Letu Tujenge. As per the previous explanations, the outcomes of the project must be evaluated in relation to the general goals of the model of Build Our Nation, which have been already identified into three target issues: ethical standards and social equity, contextual impact and holistic thinking, and innovation and transferability of knowledge. Since more than ten years A. Rapoport has asserted that architecture should be considered a science-based profession which is concerned with problem solving rather than a purely artistic activity. Then, the main purpose of design is to create users-oriented environments in order to respond to their *culture* [16]. This objective represents the common ground for the entire stages of Taifa Letu Tujenge. As Build Our Nation`s vision is that architecture must adapt to people, and not the contrary, similarly Rapoport strongly highlights that designers have to be  a kind of `surrogates for users`.

Stage 1 Taifa Letu Tujenge. After a general minimal introductory session, the specific outcome of the first stage is to creatively brainstorm ideas and to quickly synthetise them into a visual concept. Due to the large number of students involved (250), the different backgrounds (vertical units), the know-how (various teaching style adopted by each School), and the multiculturalities (different nationalities) the goal of the event is to build a visual dictionary of concepts and informations which can be used in the following stages. A live conference at the and of the day engaged students leaders across Schools to exchange and share initial ideas.

Stage 2 Taifa Letu Tujenge. Between the first stage and the begin of the second stage the women of Bukavu have been asked to select one of four concepts. These four concepts comprise only one selected concept each School and differ to the other three due to the provenience (i.e. indipendently organisation of the teamgroup working in each School) and the selection process (i.e. autonomous self-selection from the multiple concepts of stage 1 in each School). During the workshop in Italy (stage 2), new groups of students initially investigate further variations of the concept chosen by the women. Then, all the students together democratically select the best variation of the concept. Finally they start brainstorming and exploring through models and drawings the first aspects of the now called project for the centre (in architectural praxis not anymore the concept). A final report, made mainly of drawings and sketches, along with a short video on the process by Tesseract synthetise the effort of this stage.

Stage 3 Taifa Letu Tujenge. The third stage is currently focusing more on the economical and management aspects rather than on `pure design` issues. The specific outcome is to build up a stronger link and exchange of opinion directly with the women of Bukavu (stage 1 and 2 were carried

on throgh the linguistic mediation of P. N. Kataraka). That implies of course to deal with a nonverbal communication and with limited economic and technologic resources [17], [18]. Both are challenging *playgrounds*, where the students face realistic constraints and opportunities.

The overall stress on the rule that as much decisions as possible must be *culture*-specific comes from the knowledge that unfortunately in many cases what we, as members of the western society, call `improvements`, in the reality of different environments and post-occupancy assessments have major negative consequences [16]. That often happens because of the complex relationships among *culture*, behaviour and built environment. As the territory shoud be considered just a palinsest (i.e. the results of many overlapping processes and stratifications) [19], similarly there are some important social events, footprints, traces, and signs which constitute vital `latent functions` for every kind of new building. Identify and allocate the proper time to decipher, understand and absorb these kind of `latent functions` is in the architectural practice a gadget. Build Our Nation aims at a common awareness of that problematic issue, which means one additional step in improving the ehical approach to architecture and the built environment.

2.3 Process: the know-how and the sequence of activities

This subsection clarifies the process by focusing on the sequence of activities of Taifa Letu Tujenge. In the section about the core of Build Our Nation the key role of *game* [20] and *playgrounds* [11] in the whole project has been strongly pointet out. Within a minimal set of negotiated rules the importance of the *play*, or rather the performance and the improvisation, become fundamental in its capacity to continuously re-interpret and question the rules themselves.

Stage 1 Taifa Letu Tujenge. Student-led process means that every activity in the frame of the specific stage is led by students. From the beginning they become co-responsible of organising live events, blogs, website, and quick brainstorming sessions. Especially web conferences and blogs are in place in order to guarantee continuous media feedback.

Stage 2 Taifa Letu Tujenge. The use of intensive and short workshops enables students to see and experience the work from a multicultural and international engaging perspective. There are also specific performative actions [21]. "Fig 2", for example, the first activity of the two-day workshop in Italy organised by Tesseract shows the importance of body-performance as self-act of forming new groups.

Fig. 2 Self-formation of groups through performative action during the stage 2

Stage 3 Taifa Letu Tujenge. The goal is to enhance the general know-how of the subjects. It implies `do it yourself`` activities as interviewing professionals in relation to specific project`s issues. The idea is to bring in ever new disciplines as they become relevant. The emphasis is on feeling and testing the reality with as close relationship as possible with the women in Bukavu, the real palinsest of the site, and the environment.

Build Our Nation emphasises the need to know the background of the context in order to understand the local spatial organisations. Space is practice, related to our everyday actions [22] but it is also symbol and imagination [23]. The meanings that are given to places and the spatial order are not fixed or invariant givens and must be invoked in the context of practice and recurrent usage. However, the

capacity to reinterpret and change meanings and ideologies is constrained by the already existing spatial order. In other words, Build Our Nation acknowledges that there are peculiar circumstances not of our own choosing [24], [25].

2.4 Context: the role the system plays in its containing environment

The context plays a critical role in defining the degree of influence the system plays in its containing environment. The easy-to-understand metaphor of cooking is extensively used to make clear to the students that the whole process is a sequence of well organised stages. The combination of the stages along with their specific parts (structure, function, process, and context) might guarantee valuable results. "Fig 3", but, you cannot just take the ingredients, no matter how good they are, throw them in a pot, add heat, and wait for a wonder to happen.

Fig. 3 Diagram of the composition of ingredients

You need a good recipe that tells you which ingredients and in which order are to be prepared and only then will the dish taste good when it is served. As beautifully remarked by C. Price: "One sees architectural responsibility avoiding an involvement with the whole process. Certainly you can see it in the resulting products, whether they are badly designed or badly used, or left to stand around too long…It is they should last an appropriate time, just like the storage of food, the preparation, the eating, and the evacuation" [26].

Stage 1 Taifa Letu Tujenge. The role-play in terms of interchangeable-leadership gives the feeling to the students to be the `chefs` and to deal with the quality of the ingredients, the storage of them and the preparation.

Stage 2 Taifa Letu Tujenge. The opportunity to be toghether in a mutual studio allows the academic members to behave as external observers. "Fig 4", observing the process is interesting and very useful, especially if mixed with a basic degree of intervention, once the dynamics in place are not proactive.
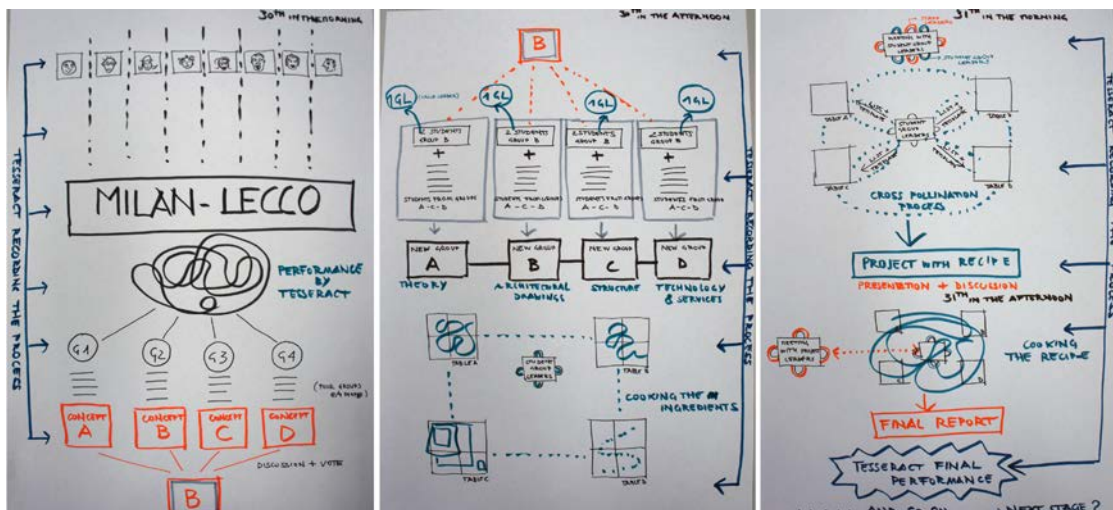

Fig. 4 Layout during the intensive workshop of the stage 2

Stage 3 Taifa Letu Tujenge. The small number of students, who participated in stage 2, are in the on-going stage `professional chefs`. They act with more confidence in a larger group and in a separate kitchen (i.e. Schools), while sharing the recipies via blog. The decision to open the *game* to 80 students (compared to 30 of the stage 2) has been taken in order to guarantee the iteration of the process.

Build Our Nation believes that *culture* must be proposed as an operating system that guides social organisation toward predefined temporary orders. Along with the iteration of the process *culture* is the key for understanding complexity. In the model of Build Our Nation the shift from *design thinking* to *system thinking* consists in designing platforms that could be used to integrate the iterative approach (system dynamics) and the challenge of self-organisation of sociocultural systems into a comprehensive system methodology.

3   CONCLUSIONS IN FORMS OF FIRST RESULTS

 "We can do nothing to change this, so let's do something!…But the fundamental result and achieved goal of this enterprise was the equipping of future architects in the tools of generative design in a spirit of optimistic realism. If even a fraction of the students in this workshop develop these themes in practice, many more people like the women of the DRC will be helped. One of the most valuable times in my education!". The RGU-SSS student`s feedback published in the End of Year Student Book 2011 opens the final section of this paper, which argues that in the light of the first results the whole project of Build Our Nation is already able to show the potentialities of a *system thinking* in design. The two trajectories set as main outcomes, rethinking design and rethinking construction, are crossing the boundaries of the discipline towards new scenarios. On the one side there is rethinking design as reading and tentative design: exploring and understanding with a `designing` mind; then plan tentatively, returning continuously to the reading in a mutual alteration which terminates in solutions valid for as long as the intrinsic situation lasts. On the other side there is rethinking construction as considering buildings as contextual elements: every building must be considered in connection with its function, its users, its surroundings, and the environment, because architecture is slowly shifting from a mechanical paradigm to a biological one.

Ethical standards and social equity. Taifa Letu Tujenge along with Build Our Nation show us that the formation of human identity can only be conceived as a social process and is triggered by the friction with the `other`. Not having a direct conflict with diversity though, is almost impossible because the formation of any kind of identity awareness is created through the process of comparison, meaning that each and every one of us identifies himself through the recognition of what is different [27], [28]. During the entire process and the specific *playgrounds* the students become able to identify the dipole of same and different. It consists in a social field where everyone is involved in a costant *game* of comparison and distinction in the quest of self-definition. Ethical standards imply social equity and vice versa.

Contextual impact and holistic thinking. Build Our Nation states that the real-project must convey a high standard of architectural quality in the way it addresses cultural and physical factors without forgetting the aesthetic which impact must `interfere` with the surrounding environment. A. Branzi during an interview says that aesthetic of the field is the consequence of energies that appears through the diffusion of micro-projects, sub-systems, commodities and services that are managed by design rather than by architecture [29]. In rethinking design, Build Our Nation capitalises processes that are capable of penetrating the domestic interstices of everyday life. Additionally, drawing on P. Bourdieu [30], C. Tonkinwise in his recent paper suggests that the success of a design intervention is often dependent upon its conformability or resonance with existing taste regimes [31]. Build Our Nation challenges the manner of cultivation of this expertise among young designers, because it may be time to focus on the real capital we have, the *culture*.

Innovation and transferability of knowledge. Build Our Nation discusses the actual educational frameworks: the project must demonstrate breakthroughs and trend-setting educational approaches and must be transferable to a range of other applications. One of the visions is that the educational institutions must become more co-productive elements of society. It can be useful to think of a university as a manufacturer, a manufacturing company as an advanced workshop, a workshop as a real-world project, and a real project as an university. Or, at least, it is interesting to experiment with those thoughts. As in some project of contemporary architecture the floor turns into a wall and into a ceiling, similarly Build Our Nation believes in confusing different institutional plans.

As conclusion this last paragraph describes a specific example related to Taifa Letu Tujenge, which may be the best evidence of *system thinking* dynamics with no further explanations. It concerns a communication/conventions` issue between students of Aberdeen and Pascal Nshombo Kataraka, just before the beginning of stage 2. The students were working on the site context and asked Pascal to send a scaled map of the site area for the future centre in Bukavu. "Fig 5", shows the sketchy map, out of scale (note the indication of the scale in the bottom right corner of the page), not oriented and plenty of unknown names received by the students. After many different attempts and email exchanges, Pascal posted some additional pictures of the site with the points of the compass. Again, it was impossible to understand the exact location and, above all the right orientation (i.e. note that West and East are reversed).

Fig. 5 Map and picture of the site in Bukavu by Pascal

Finally, the interesting matter was sorted by telephone: Pascal was asked to drive from a familiar (for us, not for locals) point of the town centre of Bukavu (i.e. near to Kivu lake), mentioning step by step the distances displayed in the mileage indicator, the directions and the names of the places he was passing through (unfortunately, but interesting not official names). A student was virtually following his journey through Google Earth, which is not very detailed around Bukavu.

Here it is not the place to explain in detail the entire sequence of facts, but what it is relevant is to think about the results and the meanings of this experience, which is small if compared to the project`s process, but big in perspective. Several times rethinking design and rethinking construction have been mentioned because in the real-world the space is perceived only as places and not as conventions (i.e. maps in scale, compass points). Through the cultural artefact of a name, undifferentiated space is transformed into marked and delimited place. Also stories and tales may be attached to such places, making them resonate with history and experience [32]. When travelling between two points the distance might be measured in numbers of villages passed, regardless of the mathematical distance between villages. In Bukavu the space might not be considered a homogeneous and isotropic entity which can be measured mathematically, but is categorised in qualitative terms relating to the ordering of experience. We can conclude that the concept of environment is a cultural artefact, as the example of the site location in Bukavu demonstrates. It will be very interesting and challenging to understand how the women will orient in, out and in between out of the future centre. Or the sentence must be reversed and the design of the centre should adapt to women habits, supporting the vision of Build Our Nation that architecture must adapt to people, and not the contrary. We believe that, starting from this `small` *playground* and experience, now the students know well by themselves how to deal with future decisions concerning the spatial organisation, or at least they are aware of this vital issue in terms of designing and building limits and new paths, constraints and opportunities. The power of the territory opened by Build Our Nation is far from exhausted: are we building `their` nation or Our Nation?

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