Architecture as interface: a constructive method for spatial articulation in architectural education

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ABSTRACT: This paper proposes a discussion of the problems with the conventional design process having representation as paradigm and argues for an alternative process based on architecture as interface. It then presents a design course proposed for twelve students at the School of Architecture, Universidade Federal de Minas Gerais, Brazil. The students were required to create a constructive method for spatial articulation to be used by different groups of people to produce spaces suitable for their wishes and contexts. The main discussion concerned the possibility of architecture as interface (process) instead of finished space (product), in which the role of architects is no longer that of controllers of a finished form but that of designers of interfaces with which people are able to engage in the production of their own spaces.

1 THE DESIGN PROCESS IN CONTEXT: FROM THE PARADIGM OF REPRESENTATION TO DESIGNING INTERFACES
Architecture students are socialised in their field by reproducing that which Pierre Bourdieu (1990) calls habitus. Architectural habitus might be described according to Reyner Banham (1999) as the reproduction of unsaid and unquestioned prescriptions, a black box that determines a modo architectorum. In the case of architectural education, Banham’s critique applies to ‘some secret value-system’ that determines what architecture is, drawing it in ‘the right style’ (Banham, 1999). The main problem is that it is in schools that ‘architects are socialised into the profession ... acquiring attitudes, work-habits and values that will stay with them for life’ (Banham, 1999). In other words, architecture students reproduce the modo architectorum, which is nothing more than ‘the making of drawings for buildings in the manner practised [sic] in Europe since the Renaissance’ (Banham, 1999). This implies the division of labour, in which the architect is responsible for the conceived (abstract) space and builders and users responsible for the lived (concrete) space (Lefebvre, 1991). Architectural design is understood as merely conceived space and taught as a set of codes that aim to develop competences and skills to use drawings as means to represent and play with known solutions to problems. Bryan Lawson (2005) describes such a drawing practice as the puzzle trap, which reinforces the tradition of representation and formalism. Such a process praises the final appearance of buildings, separating design conception from building and use.

Looking back to a brief history of architectural representation it is no difficult to understand its main problems. Alberto Pérez-Gómez (1994) points out the importance of depth as the first dimension until perspective became a paradigm. With the perspectival paradigm length and width made depth become merely one among the three dimensions. The process of representation, then, reduces the three-dimensional object to a two-dimensional medium. In the case of representation of architecture, it is not just about presenting a three-dimensional object by means of a two-dimensional medium. The gap between architecture and its two-dimensional representation is not just of one dimension. We cannot take architecture as a three-dimensional object; we can be certain of at least two more dimensions – time and behavior – and, therefore, perspectival representation is three dimensions behind architecture (Baltazar, 2012).

Moreover, the problem of representation resides not only in its reductionist character but in its procedure. Olkowski says that ‘the system of representation, whether in the realm of philosophy, psychology, social and political theory, ethics, or aesthetics, operates by establishing a fixed standard as the norm or the model’ (Olkowski, 1999). Architectural drawings are no different. Although the devices used enable architects to freely draw whatever they wish, architectural drawings are not as free as the devices enable them to be. They reproduce the modo architectorum. On one hand there is a clear standard for technical drawings as the norm to be reproduced, which has not changed much. For instance, the plan
drawings of Palladio or Durand are easily understood today as technical architectural drawings. On the other hand is a more inventive tradition of architectural drawings which, though not explicitly agreed, defines a sort of code. For instance, many architects today use collage in their drawings perhaps inspired by Archigram; others have as their models Zaha Hadid, Lebbeus Woods or other precursors of a certain kind of architectural drawing; a few also try to establish their own style of architectural drawings. Because of the establishment of a standard to be followed, these drawings are recognised and accepted by the current modo architectorum.

The main problem with such modes is that they are not valid for minorities, as ‘the very meaning of minority is associated with falling below the standard of that norm, failing to represent that standard in all its perfection and completeness’ (Olkowski, 1999). Nevertheless, as de Certeau (1984) argues, contemporary society is made up of minorities, which he calls ‘universal marginality’. He says that marginality is becoming universal, though the group or society composed by this universality is not homogeneous. In this view, what was before based on averages is now permeated by differences. Once the majority is composed of marginalities, it is no longer possible to represent the majority, as representation implies a homogeneous standard. So Olkowski’s argument that the ‘ruin of representation’ is ‘the ruin of hierarchically ordered time and space’ (Olkowski, 1999) can be extended to most practices, including the design of buildings. A design process based on fixed norms of representation might therefore be replaced by a non-predictive, non-prefigurative, non-normative design process.

Olkowski (1999) links the ruin of representation to the practice of ‘difference’. She stresses that difference is not the mere fact of being different, being part of a minority group, but a practice. She criticises the definition of ‘individual’ by generalisations in which any member of a minority is unrepresented and thus excluded. This definition presupposes equality rather than difference and fixes the nature of the individual. Even in a society that defines human beings primarily according to their sex, nobody would claim that all men or all women are the same. She draws from Gilles Deleuze’s idea that representation, the dominant way of seeing and thinking in the west, ‘has been constituted ... in terms of the Aristotelian framework’ (Olkowski, 1999) which implies the inscription of all difference in a general concept, as ‘Aristotle is completely unwilling to count as differences those differences that ... do not begin with something in common.’ (Olkowski, 1999). This common ground of difference is similar to the standard of representation, based on the generalisation and crystallisation of what is otherwise particular and in movement.

The practice of difference proposed by Olkowski, brought about by difference itself, can be seen in a new inventive process which does not reproduce a fashionable standardised kind of drawing or even intend to establish a new standard. This new practice will have value not because it differs from others, but because it fits the intrinsic conditions of the project; it emerges from the project, and not from other drawings. We can think of difference in the architectural design process without attaching it to different styles of the same standard of representation, its current basis. As Olkowski states, difference is in fact a practice. Such a practice of difference presupposes the ruin of representation and points towards designing interfaces rather than finished spaces.

The ruin of representation, though, does not presupposes give up representation all together. Representation ‘is a valuable tool and should not be excluded from the production of architecture as interface, but it should be seen as a tool, not a paradigm’ (Baltazar, 2012). In other words, one needs to be careful not to conclude that representation is to be replaced by interfaces. The conventional representation-based process and the architecture-as-interface approach do not belong to the same logic and are not analogous. As I have written somewhere else:

While the conventional design process is based on defining and solving problems, the architecture-as-interface approach aims at problematising situations, leaving it open for users to give continuity. There is no clear separation between design, construction and use, but the proposition of an interactive repertoire, which can either be a combination of physical, digital or hybrid parts, or a set of rules. The process of production of interfaces obviously uses drawings, but there is a shift in representation from its central, paradigmatic role and an emphasis on interactivity. (Baltazar, 2012)

The design of interfaces might be guided by that which Cedric Price (1996) calls ‘value-free architecture’, i.e., a structure with no meaning prior to users completing it temporarily. In other words, a structure which is carefully designed in order to enable users to decide the final spatial organisation. In this case representation is no longer inscribed in the building predefining its meanings. On the other hand, the design of interfaces might also let go of the European Renaissance manner of designing that gives continuity to the current modo architectorum. In this case representation is no longer that which Sérgio Ferro (2006) calls an instrument of domination, division of labour, and separation between design, building and use.

In order to develop further what is meant by architecture-as-interface, I draw from John Chris Jones, Vilém Flusser, Ivan Illich and Siegfried Zielinski (Baltazar, 2009). From Jones it is important to learn his proposal of designing designing (Jones, 1991), which started to be developed in his
He proposed that modules, such as words, bricks and playing cards, ‘is perhaps THE way of designing independently of any exact knowledge of aims, purposes, functions (the things which, in designing, as we’ve known it, get fixed at the start)’ (Jones, 1992). In order to design the design process—designing designing—Jones emphasises process-orientated design and responsible structures, proposing continuity and obstacles for future design. For Flusser (1999) every design is an object of use which is in itself an obstacle designed to remove a previous obstacle. ‘And if this “object of use” is not to become a greater problem, it must be dialogical, intersubjective, proposing continuity and obstructing as little as possible those coming after us’ (Baltazar, 2009). Flusser (1999) calls this ‘responsible design’, the one that responds to others. The main challenge is to escape from designing objects of use that obstruct instead of opening possibilities for people. The concept of ‘post-historical structure’ (Flusser, 2002) is very useful to cope with this challenge. For him, we are now living in a post-historical world, ‘in the midst of images that order concepts (in ‘structure’)’ (Flusser, 2002). This is radically different from pre-history (the mythic world of images) and history (the world of linear conception). However, we are still designing our post-historical world with old tools: we base most of our designs on representation predicting their final appearances in a pre-historical manner (starting from the present towards a predictable future), or using representation to organise the uses of space in a historical manner (investigating past uses and crystallising a present possibility of use). We are not usually designing responsible ‘structures’ in a post-historical manner, open for those coming after us, as proposes Flusser (1999). The design of structures with open possibilities of organisation also defines interfaces as proposed here.

Illich (1973), on his side, adds to the discussion of object-orientated design and responsible structures, by proposing tools for conviviality. He is worried about how people will interact with each other and with the world considering that the tools used for that ‘are never neutral but consistent with a certain mode of production and its corresponding social formation’ (Kapp, Baltazar and Morado, 2008). The capitalist mode of production, which dominates Western culture, finds a prolific way to reproduce the social relations of production by means of the production of space (Lefebvre, 1976). Thus, the production of space is implicitly related to the reproduction of capitalism and its unfair distribution of wealth. In order to escape such a relation one should move beyond merely changing the ownership of the means of production (promoted by classical Marxism) and change its very constitution. For that Illich opposes industrial (manipulatory) tools with convivial tools.

Convivial tools are those which give each person who uses them the greatest opportunity to enrich the environment with the fruits of his or her vision. Industrial (manipulatory) tools deny this possibility to those who use them and they allow their designers to determine the meaning and expectations of others. Most tools today cannot be used in a convivial fashion. (Illich, 1973)

Illich does not define how to design convivial tools, but indicates that one should avoid ‘overprogramming’ and should also ‘simplify the tools’ in order to ‘enable the layman to shape his immediate environment to his taste’ (Illich, 1973). So, the convivial constitution of the interface, as opposed to the manipulatory industrial constitution, is also a feature to bare in mind.

Moreover, for Zielinski (2000) ‘an interface is something that separates and connects at the same time’. It works as a mediator without the presence of who designed it and without determining even the nature of the mediation it enables (separation or connection). It is a structure that depends on interaction to temporarily define spatial organisation. So, an interface in the sense proposed here is also a structure that mediates the organisation of spaces without determining them.

Drawing from such a discussion of interface and the design process that might give rise to it, a design course was proposed for twelve students at the School of Architecture, Universidade Federal de Minas Gerais, Brazil. The students were required to create a constructive method for spatial articulation to be used by different groups of people to produce spaces suitable for their wishes and contexts. The main drive for that was Segal Method (McKean, 1989; Segal, n.d.), which is not a constructive system, but a method for selfproduction with which a single person or a couple of people are able to design and build a two stored house with materials found in a DIY shop. The main discussion concerned the possibility of architecture as interface (process) instead of finished space (product), in which the role of architects is no longer that of controllers of a finished form but that of designers of interfaces with
which people are able to engage in the production of their own spaces.

2 EDUCATING ARCHITECTS AS INTERFACE DESIGNERS

2.1 From didactics to mathetics

Before discussing the structure proposed for the course I will introduce the pedagogical approach, based on mathetics (the art of learning), and also the students’ motivation to engage in such a course. Seymour Papert (1980), a constructionist that defends mathetics instead of didactics (the art of teaching), was inspired by the Brazilian schools of samba. For him it was inspiring how people ‘learned by doing’ in the process of producing their costumes, their instruments and simultaneously prepared the carnival’s big day by learning to sing, dance and play. There is no need for heteronomous teaching; Brazilian schools of samba set an example for autonomous learning (of course resorting to all kinds of information and material needed for that). In other words, there is a strong structure supporting different possibilities of organisation, which encourages creativity and independence. Of course Papert romanticised the schools of samba’s procedure, as it is in fact dominated by capitalism and not as free as it seems at first site. However, we might learn from Papert’s insight regarding mathetics. Instead of working with didactics, teaching students predetermined contents, we can create a structure for students to develop and try by themselves their own critical perspectives on architecture. This is not an easy task, as the structure needs to be well designed to induce autonomous critical thinking and at the same time enable students to engage with contemporary historical and theoretical thinking (they are not supposed to invent the wheel). Moreover, the learning by doing approach, which is usually misunderstood with any sort of practical exercise, needs to be faced in the light of mathetics, in which the student ‘learns how to learn’ benefiting from a practical perspective, not only a discursive one.

At our School of Architecture we have been running an introductory course based on mathetics for more than a decade. The students are required to learn by themselves having a carefully designed structure to orientate them in their learning process. In a cybernetic way, the pedagogical structure works as a meta-approach to be used in their design processes. After going through a range of information, they are required to propose and build an interactive intervention in an urban area, taking into account the current uses of the space, the shortages of the community and the features of the space. As this is their first exercise in architecture, they propose amazing interfaces with which people can play and modify the spaces temporarily. It must be said that representation only comes after the intervention is built and used, as their creativity must not to be limited by their initial lack of skills. After building their interventions, the students are required to develop their own language to represent them for future building without their presence. This is a clear learning of how to deal with representation as a tool, not as a paradigm.

However, this happens only in the introductory course. After that the students enter into the traditional design process mode, most times with a didactical demand, and are not able to formulate by themselves that the interfaces they produced in the first semestre might also inform other design processes. We came to realise that even if they experiment an alternative process which is usually quite successful, they are not able to oppose that to the traditional design process. First because they do not know such a tradition at the time; second because they are not encouraged to try it again in more advanced design projects; and third because architecture-as-interface is an attempt to move beyond normative conventional processes, which makes it non reproducible (each project needs to be invented from its own demands) and thus much more difficult to ‘apply’. So, from this findings came the idea of proposing in the second semestre of 2015 an advanced design course based on designing interfaces rather than finished spaces, having as outcome a constructive method for spatial articulation in order to stimulate students to work with a practice of difference.

The twelve students who joined the course were already questioning, in different ways, the traditional design process. Eleven of them had already done our introductory course but were not able to discuss and overcome the conventional design process. They came from different years and all of them were enthusiastic to discuss and experiment a process that would not lead to a finished formal product. All of them were curious about participatory processes, as this word has been widely spread even if meaning anything but people’s engagement in the whole process of production of space. In this context, the challenge of creating a constructive method for spatial articulation, treating architecture as an interface, was very well accepted.

2.2 Deconstructing the brief of the design competition

The course took as its theme the ‘KYM Field Schools for Tropical Savanna Climate of Africa International Architectural Concept Project Competition’ (kimfieldschools.com). It was proposed by the Turkish NGO Kimse Yok Mu (KYM) Solidarity and Aid Association to design a rural school to be placed in a variety of countries in Africa (they mentioned that it would be possible to build more than 1,000 schools in different countries in the tropical savanna
climate). The brief of the competition was very conventional, presupposing a final product which would be also presented in a conventional manner. The architectural program predetermined that the school would occupy an area of 100 m² (plus or minus 10%) with at least 200 m² outdoor and semi-outdoor areas for surrounding landscape accommodating every outdoor activities and equipments needed (water well, sewerage, power supply, garden, playground, etc.). The brief also predicted indoor space for 60 students to be educated (divided in one, two or three rooms), a teacher room for two teachers (with toilet and shower), girl and boy student toilets and a small material storage. That is, the brief almost defined the pieces for the students to play with them in a puzzle (Lawson, 2005).

The aim of the design course was to depart from the brief of the competition and challenge the students to move beyond the puzzle making trap (which would possibly lead to amazing formalist results) towards questioning the design of a single project to be replicated in a variety of physical, cultural and social contexts. For that, the ideal would be a participatory process taking into account the physical features of the site as also the desires and constructive knowledge of local people. The challenge was then to join a replicable design with a participatory process accommodating local differences. In order to orientate the students the course was structured in an open way, but orientating their thoughts towards designing a constructive method for spatial articulation. This means, the students were not blind in their attempts to overcome the conventional design process, but had a very open requirement to work with, proposing a practice of difference.

The course was set to work in two ways: seminars and design workshops. The seminars were very important in the beginning to make the students acquainted with different architectural alternatives to traditional design processes (ranging from Walter Segal, John Habraken, Yona Friedman, Cedric Price and many others) and also to understand the African diverse context (cultural, religious, climatic, geomorphological, etc.). In both cases, the students were induced to investigate by themselves, exchange information in small groups (up to three people) and present their finds in collective seminars to inform the design workshops.

3 ARCHITECTURE AS INTERFACE: DESIGNING A CONSTRUCTIVE METHOD FOR SPATIAL ARTICULATION

3.1 Knowing the context

Starting the course, the students were required to read a paper that synthesises a keynote lecture Silke Kapp and I gave in a conference on alternative practices in Sheffield in 2007 (Kapp, Baltazar and Mo- rado, 2008). This paper presents critical exercise, design of interfaces and mediation as three alternatives to conventional architectural practices. Moreover, a range of participatory practices dealing with these alternatives were presented, both in the mentioned paper and in the site spatial agency (Awan, Schneider and Till, 2011) and the students were required to choose a practice to investigate further and present in a seminar for the whole group. The practices were chosen having in mind the main idea of the course, which was to propose a constructive method for spatial articulation. So, the students decided to investigate further the Segal Method (Mckean, 1989; Segal, n.d.), Habraken’s support and infill (Habraken, 1972), the practice of Friedman (Friedman, 1986; Friedman, n.d.) and the practice of Price (Price, 2003; Obrist, 2003).

Segal Method was very inspiring, as already mentioned, because it is not a constructive system, but a method for self designing and building affordably. Segal developed a set of rules for people to decide on the design of a house and build it with materials found in DIY shops. Differently from the pillar and beam structure, Segal’s method proposed a timber frame structure combining porches that worked independently, so anyone would be able to put it up with a simple foundation. One of the advantages of Segal Method might be seen in the self-built houses that are going through easy transformations over more than 30 years. The walls are not structural, so they are very easy to be displaced and assembled again, making it easy to expand the house or even rearranging its interior. As the porches work independently, it is also easy to give continuity to the structure, even with different materials, such as in one of the self-built houses that was expanded with metal porches. From that the students reinforced the idea that it is possible to design an interface, in this case having a sort of constructive method able to receive different materials and also enabling local people to decide on the spatial articulation.

Habraken was also an important contribution, as he deals with planning with future uncertainties enabling diversity in mass production. For that he separates support and infill, the support being not necessarily the structure of the building, but that which is of collective decision, and the infill being those parts that are left for individual decision. From Habraken the students learned the possibility of defining the support, which might be reproduced, and leave it open for local people to decide on the infill, which is specific for each space.

Friedman was also helpful for his general proposal of collective planning, even if it were more applied to the collective plan of the city and to his ideas of mobile architecture. The students investigating his works were more concerned, though, with his flatwriter, which proposed a machine programmed with parameters to enable users to define their own
apartments and also check its placing in the urban environment. Such an interface was inspiring as it enabled the students to understand a structure, very carefully designed with a range of parameters, opening up possibilities for users to try by themselves their own spatial articulations and see the outcome of it.

The ideas of Price were also quite inspiring. For him architecture should not be faced as monument and should not be an instrument of power. He proposes that buildings be ordinary spaces to reconcile working and leisure with dwelling (a separation that was consecrated with Corbusian modernism). The students focused on analysing his 24 hour houses and the Fun Palace, designed together with the theatre director Joan Littlewood. The 24 hour houses are good examples of ordinary value-free architecture promoting a simple but carefully designed permanent structure enabling users to easily accommodate different activities in the spaces over the 24 hour period. The Fun Palace, though, is a more complex structure, open by means of cranes and mobile structures, with which the public might play and decide the configuration of the space for different days and performances. The students were very impressed by the concept of ‘enabling’, as it opens up a range of possibilities in architecture beyond foreseeing possibilities of use. They learned from him the possibility of proposing ordinary ‘value-free’ structures ‘enabling’ people to invent their own uses.

As the students had not gone through Christopher Alexander’s patterns in the seminars, the Assistant Lecturer Guilherme Arruda has presented them with The language of school design: design patterns for 21st century schools (Nair, Fielding and Lackney, 2013), which is inspired by Alexander’s patterns for school design. From that the students learned different patterns to enable a broader range of uses of school spaces, such as niches that work as intimate spaces or soft sitting areas inside rooms, which would also add to inform the interface to be proposed opening possibilities for local people to engage in decisions regarding their local rural schools.

Giving continuity to the seminar series, the students were required to raise data on the African region subject to the competition. The brief only mentioned that the rural school to be designed was supposed to be reproduced in the tropical savanna climate, which encompasses ten countries from West to East of Africa (Senegal, Burkina Faso, Niger, Chad, CAR, Sudan, Ethiopia, Uganda, Kenya and Somalia). So the students divided themselves in groups to understand these countries diverse contexts (cultural, religious, climatic, geomorphological, etc.). From the point of view of objective features, even if considering the savanna climate, there is the dry and the wet tropical savanna, having different average rainfall. The wet tropical savanna rates 1,500 to 2,000 mm rainfall against a lesser rainfall in the dry tropical savanna. This is very relevant if one is required to propose a water supply system. Another important information raised by the students was the geomorphological map, showing the ground water table in different locations. Again, the variation was relevant, as in some places one can find water almost in the surface and in others they are very deep, needing a sophisticated harvesting system. The students also learned that the people would build in very different ways in each place (even within the same country). They raised a range of types of spatial articulations and also the use of materials and constructive techniques. Apart from that, the students also found out that cultural habits are completely different. Sometimes in the same country they have identified more than ten languages being spoken and a variety of religions (ranging primarily from Muslim to Catholic). Moreover, the education is influenced by range of issues. After colonisation an imported European system was implemented by missionaries, ignoring the local culture of the tribes in which the youngsters learn from the elders as they perform everyday tasks in a sort of ‘learning by doing’ natural pedagogy. In the urban areas the private system is nowadays based on Montessori and Feinet pedagogy, which even if reproduced in the rural schools is mixed with the missionary traditional system and with the poor conditions (it is said that a table supposed to accommodate two students in the formal educational European system, is sometimes used by four students, making it impossible for them to use the infrastructure as predicted in the educational system). Finally the distance from the house to the school (most children walk to school), seems to be responsible for the poor attendance and high rates of abandonment. From what the students have investigated, they were able to say that the diversity was so great that it would be impossible to replicate one single project in all contexts.

The finds of the seminars led to the discussions in design workshops. The students, then, were convinced that an interface was needed to articulate such a diversity and also to enable local people to engage with the design and building of their local schools. So, the design workshops served to trigger a process of discussion amongst the students under Guilherme Arruda’s and my orientation. At first they thought of creating two or three groups and develop different proposals, as some of them were more inclined to emphasise local’s participation in the decision making (thinking of proposing a game and not an architectural project), as other were more inclined to propose structures that enabled a diversity of uses but were predefined by them (thinking of at most arriving at Habraken’s idea of support and infill). As the ideas started to take shape, they realised that it would be possible and more fruitful to join their ideas in different stages of a single design proposal. The interface for a constructive method of spatial
articulation started to take shape with the whole group (the twelve students) working on it.

3.2 Proposing a constructive method for spatial articulation: a game-interface in three stages

The students then agreed to design a game for local people to conceive and build their own school. Such a game starts by setting the plot and its context and then stimulates people to open their imagination about the future school with cards narrating different events for them to deal with articulating the spaces in plan and volume, internally and in its relation with the external space. It also proposes that people define the structure, openings and materials to be used, according to their constructive knowledge, traditions and climate. People are invited to experiment with a series of preset events proposed in a set of cards to finally be able to articulate their own school. At the end of the game, each community is expected to have one school designed specifically to meet its context and demands. The final outcome results from discussions arisen during the playing of the game as the players engage with the design of the school.

The first stage of the game was proposed as a quiz in which players are invited to acknowledge physical aspects of the site such as the size of the plot and climatic features that will determine water supply, sewerage, orientation of the openings of the building, etc. Players are then required to unfold the game board to fit the size of the plot and place the fixed elements, which range from water well, rain catchment system, septic tank, power supply system, garden and playground). The students defined that ‘the sizes of the water well and rain catchment system will depend on groundwater storage and rainfall index. The definition of the septic tank depends on sewage, water access, geomorphology and possible reuse of water. It might be combined with a sinkhole, and/or an anaerobic filter, and/or an evapotranspiration system. The energy supply will depend on wind availability and solar incidence to locate pre-dimensioned residential wind turbine and solar panel’ (Blind competition material, 2015). Moreover, players are also able to locate playground structures they wish (the quiz provides a set of structures inspired in Aldo van Eyck’s structures designed for children’s bodily engagement. From that the board is ready to play with different spatial articulations.

The second stage of the game was set to open players imagination by trying out spatial articulations to accommodate different events that might happen in the school. This stage counts with five important instruments. First are the events’ cards, presenting the players with fictitious situations that might happen in the school and inviting them to articulate spaces to accommodate such events in 2D, 3D and also thinking about materials to be used, structural system and openings. Second are a set of different modulated shape options for rooms supposed to match the competition brief and include circulation areas (that might also become meeting spaces between rooms), which combination is designed to sum between 90 and 110 m². Third, directly related to the modulated shapes, is a spaces’ catalog, presenting the main benefits of each shape to help players to decide on which to use. Such a catalog is based on patterns for school design (Nair, Fielding and Lackney, 2013). Fourth is the structure, which is an articulated 3D frame manipulable by players in angles of 30, 60 and 90 degrees in all of its articulations. This enables players to cover their plans with a flexible frame that can be thought of with different structural systems, use different materials to close and leave different openings, according to the event card. And fifth is a decisions’ catalog, which is a volvelle (wheel chart) that presents tips for using different sorts of walls, roofs, openings and furniture. Such decisions are directed by the event cards concerned with spatial quality for shape articulation, its possible connections, thermal comfort and lighting and ventilation. At each event card taken, the player in charge needs to negotiate with previous players that had already set a design in the board to make changes according to the cards requirements.

After playing with the event cards players will have a final card, the third stage of the game, which asks them to design their own local school having in mind what they have learned from the game. The main task is to define the main events that might happen in the school and respond to that having in mind the positive and negative aspects of the solutions they proposed during the game and also resorting to the same instruments used in the game (but the event cards).

4 CONCLUSION

The game-interface designed as a constructive method for spatial articulation of rural schools in Africa was an exercise that brought together a previous theoretical critique of the current design and an inventive response from the students drawing from little pointers that appears in alternative practices. Such an interface started from Segal Method, having an articulated structure based on porches, but developed it further towards manipulating the modulated 2D room shapes and the 3D structure, inviting players to define collectively that which will become the support and the infill. Such a carefully designed interface is also inspired by Friedman’s parameters programmed for collective decisions drawing from Price’s ‘value-free’ and ‘enabling’ structure opening possibilities for different local organisations. The students have also orientated their design towards process (not product) observing the logic of the ob-
ject not that of use. It also presented players not with industrial tools or preset decisions about techniques or materials but stimulated them to resort to their own constructive knowledge and materials in a convivial manner. As for Zielinski’s definition of interface, that which separates and connects without defining the nature of such a separation or connection, the game-interface is an attempt (not completely accomplished) as it is too much assertive regarding its aim to connect local people with its context.

The role of architects was certainly scrutinised by the students beyond the conventional design process and instead of producing a package of drawings representing the final appearance of buildings, they were able to propose a common interface to promote different outcomes. The feedback of the students after the end of the course was very positive, stating how secure they were with proposing interfaces, showing that ‘learning by doing’ worked properly. They said that before this course they already believed in a possible alternative to the conventional design process but were not able to put it in practice abandoning the formalist production of finished buildings. Now they are able to not only defend that architects might be interface designers but also to actually develop a practice of difference.

5 ACKNOWLEDGMENTS

I would like to thank the Assistant Lecturer Guilherme Ferreira de Arruda, who helped me running the course, and also the students who embraced the proposal making this educational experience possible: Alice Rennó Werner Soares, Ana Paula Pitzer Angelo, André Higino Bastos Inoue, Bárbara Madeira Antunes, Larissa Guimarães Reis, Luíz Henrique Marques de Oliveira Silva, Maria Cecília Rocha Couto Gomes, Maria Laura de Vilhena D. e Silva, Mariana Julia Souza Barbosa Lima, Marllon Luiz Oliveira Morais, Ricardo Yoiti Hanyu Junior, and Vinicius Augusto Bicalho Moreira. I would like to acknowledge the funding agencies Fapemig, CNPq, CAPES, FINEP and also UFMG (PROGRAD, PRPQ and PRPG) which provided funds that made my theoretical and practical research on interface possible.

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