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ABSTRACT
Introduction and objectives

The way architecture is being practice today has enormous environmental, societal and economic costs. Green Building rating systems like LEED are not enough to address these issues[i]. Responding to these challenges, some architects are trying to search for new ways of practicing architecture that are more responsible and accountable, for example: Regenerative sustainability [ii], the Barefoot Architect approach[iii], the Vernacular Knowledge for Sustainable Architecture[iv], permaculture design, Earthship design principles, socially responsible architecture and others. In 2014 Architect's council of Europe they stressed that the architectural profession has a role in delivering responsible design[v]. But what is responsible design?

Although different solutions have been discussed, there are two main challenges we are facing: 1) a lack of common ground of architectural responsibilities and 2) how to practice these responsibilities for long term changes. As an architect and educator, I saw the need for a tool that stablished this common ground for our architectural education and practice that replies this question. Therefore, my PhD thesis introduces the concept of Responsible Architecture (RA). RA is a design paradigm that has the goal of:

1. to stablish a common ground for architectural responsibilities based in sustainable principles (economy, society, environment)
2. bridge the gap between discourse and practice by implementing behaviour change strategies that raise long-term awareness and sustainable behaviour

Why behaviour change strategies? As architects, we are constantly defining the way people use spaces, communicate, live, feel and behave[vi]. Recent researchers have started to consider how design can influence people's environmental behavior in order to adopt a more sustainable-lifestyle, by including clients in the design process[vii], in a chance to experience sustainable construction[viii] or incorporating behavior change activities into the project[ix]. Therefore, behavior change strategies are an important element that should be included in holistic methodologies to design, evaluate and practice architecture.

The biggest barrier to achieving a sustainable future through architecture is not a lack of knowledge about sustainable architecture, but the gap between people's environmental knowledge and people's environmental behavior[x]. Reaching a common ground is the first step, but what will define its successful implementation is how this tool can influence architects and clients design choices towards pro-environmental behavior. Therefore, Responsible Architecture is an approach to design that stablishes a common ground for the discipline's responsibilities, with long term sustainability as a goal, achieved by behavior change strategies.

Methodology and outcomes

This research will propose a guiding toll with design and building principles to achieve RA (combining environmental, economic, social and behavior change strategies, see figure 1). Through analysis of individual case study reports of examples of sustainable housing projects, this study will show how RA principles can be used in architectural projects. The first phase is to draft RA principles based in information from: literature review, participation and observation in pilot case studies and building practices (already finished) and formal case studies during the PHD (to be conducted).

Figure 1: Wheel of main components of Responsible Architecture

The draft of the tool will then will be applied to a real project in order to test it. A Responsible Architectural project will be conducted as part of teaching dissemination with students from Arhus School of Architecture and local community (not defined yet). During this phase, adjustments will be made to and the final RA tool will be presented. Therefore, My PhD project will have 2 main outputs: an RA tool and a pilot building project with the RA principles applied.

Data collection methods include participant's interview surveys (clients, architects, students), focus group-discussion, observation, workshops and others. Analysis will attempt to evaluate how projects (focusing in participatory housing design) succeeded in building sustainably while impacting participant's pro-environmental behavior (example, by incorporating local and recycled materials, educational programs and community collaborations with local volunteers into building practices, see figure 2).

Figure 2: Case study in Brazil, a self-build sustainable home build collectively.

Responsible Architecture could be able to change people's perception of value and their expectation of what they can do towards building and designing in a sustainable way. With this lesson learned, this study will promote a new way of practicing architecture that reflects the state and values of the society we want to create. This can lead to a great shift in the way we think, practice and teach design and also how we will teach the next generations about our discipline.

References

[i] Grace K.C. Ding, 'Sustainable Construction—The Role of Environmental Assessment Tools', *Journal of Environmental Management* 86, no. 3 (February 2008): 451–64, https://doi.org/10.1016/j.jenvman.2006.12.025; Appu Haapio and Pertti Viitaniemi, 'A Critical Review of Building Environmental Assessment Tools', *Environmental Impact Assessment Review* 28, no. 7 (October 2008): 469–82, https://doi.org/10.1016/j.eiar.2008.01.002; Poston, Anna; Emmanuel, R; Thomson, Craig, 'Developing Holistic Frameworks for the next Generation of Sustainability Assessment Methods for the Built Environment', ed. ARCOM twenty-Sixth Annual Conference 2010, September 6-8, Leeds et al. (Reading: ARCOM, 2010).
[ii] Dominique Hes and Chrisna Du Plessis, *Designing for Hope: Pathways to Regenerative Sustainability* (New York: Routledge, 2014).
[iii] Robert Frost, 'Barefoot College of Tilonia', 2008, 28; Johan van Lengen, *The Barefoot Architect: A Handbook for Green Building* (Shelter Publications, Inc., 2008).
[iv] Correia Mariana, Dipasquale Letizia, and Mecca Saverio, *VERSUS: Heritage for Tomorrow* (Firenze University Press, 2014).
[v] Architects' Council of Europe, 'The Role of the Architectural Profession in Delivering Responsible Design' (Architects' Council of Europe, 2014).
[vi] Mildred Reed Hall and Edward Twitchell Hall, *The Fourth Dimension in Architecture: The Impact of Building on Behavior : Eero Saarinen's Administrative Center for Deere & Company, Moline, Illinois* (Sunstone Press, 1995).
[vii] Renee Wever, Jasper van Kuijk, and Casper Boks, 'User-centred Design for Sustainable Behaviour', *International Journal of Sustainable Engineering* 1, no. 1 (2008): 9–20
[viii] Judith Thomsen et al., 'The Interaction between Building and Users in Passive and Zero-energy Housing and Offices', *Smart and Sustainable Built Environment*, 2013
[ix] UN-Habitat, 'Green Building Interventions for Social Housing' (UN-Habitat, 2015).
[x] Anja Kollmuss and Julian Agyeman, 'Mind the Gap: Why Do People Act Environmentally and What Are the Barriers to pro-Environmental Behavior?', *Environmental Education Research* 8, no. 3 (2002): 239–60