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ARCHITECTURAL SKETCHBOOK AS AN OPEN BOX: SEEING TO DRAW, DRAWING TO UNDERSTAND, AND UNDERSTANDING TO TRANSFORM

Shakil Y. Rahim

PhD, CIAUD/FA-ULisboa, Research Centre for Architecture, Urbanism, and Design, Lisbon School of Architecture, University of Lisbon.

ABSTRACT   This communication examines the potential for expanding the pedagogical use of the sketchbook within the framework of the Bologna Declaration. This extension is based on the principles of autonomy and working time for architecture students, and it takes the form of a unique diary that responds to cross-disciplinary knowledge applied to architectural studies. As an open box, the *Unique Sketchbook* (USB) enables investigation, experimentation, and self-assessment of skills within a continuous process of critical and creative knowledge construction. As a selective filter of visual culture, it constitutes an aggregating directory of data and records for student consultation, crossing curricular units and disciplinary areas of architectural training. This cross-cutting paradigm has multiple functions: personalised search, heuristic transfer, multiplicity of meanings and perspectives, reduction of anxiety of quantity, diagnosis and design solutions, graphic communication qualities, freedom of thought and identity. The *Unique Sketchbook* should therefore be valued as a non-linear methodology for problem solving in contexts of integration and uncertainty, typical of multidisciplinary architectural production. This process is the basis of an 'education through drawing' grounded in the tripod of visual knowledge: seeing to draw, drawing to understand, and understanding to transform.

KEYWORDS : Drawing, Sketchbook, Architecture, Visual Culture, Bologna Process

INTRODUCTION

The famous image from *Caro Diario* (1993)[1], with Moretti on his Vespa, riding through the streets of Rome (deserted in the August heat), shows the discovery of the world through solitary travel. Nani Moretti revisits the past and grasps the unexpectedness of the present in a phenomenology of crossed glances, while emphasising the uniqueness of his vision. A journey that becomes a divergent trip with many destinations and multiple returns. Understanding the sketchbook in this way, as a composition of everyday life, which crosses knowledge on various axes, as a personal and transmissible journal, fits directly with one of the most important vectors of Bologna learning: autonomy (Guedes *et al.*, 2007).

Since the founding of the first educational organisations, from the School of Pythagoras in Croton (570 BC) to Plato's Academy in Athens (387 BC), many pedagogical and scientific principles have emerged for the creation of a univers(al)ity of knowledge. The University of Bologna, in the 11th century, was considered the first university in the world, and all the others that multiplied in the following centuries, already divided their curriculum into subjects (Abelson, 1965). Moreover, this is the general image we have, and have always had, of education: a set of subjects that necessarily need to be separated by disciplinary specificity, with the student and the degree's objectives as common denominators.

However, today we are witnessing a social and financial transformation in the educational paradigm, echoing a community undergoing speed digitalisation and cultural hegemony, which imposes a new definition of the idea of school (Santos e Filho, 2008). The motto 'education for all'[2], applied in Europe and in democracies around the world, serves the universal rights to access education, to equal opportunities, and to the promotion of active and conscious citizenship. Information and knowledge societies seem to multiply this idea of democracy through access to everything by and for everyone (Giddens, 1999).

THE BOLOGNA DECLARATION AND VISUAL CULTURE

In the historical and political context of the late 20th century, a group of European countries, through the *Bologna Declaration* (1999)[3], decided to standardise the different higher education systems into a single common European area. Its main goal was to respond to sustainable scientific and technological development, with the mission of increasing global attractiveness and competitiveness. Cooperation, employability, internationalisation and mobility are the nouns most frequently used in this new educational order defined by the Bologna Process (Simão *et al.*, 2005). A system of accumulable and transferable credits (ECTS)[4], distributed across three study cycles (Bachelor's, Master's and Doctorate), enables the creation of a comparative measure of curricular programmes and learning methodologies. In the broader context of a changing world, it is understood that "Bologna as a promising brand or script within the context of political regionalism and the competition for normative leadership in a globalizing market for higher education" (Enders & Westerheijden, 2011, p.469). A global world in which, in addition to the syllabus content, the roles of teachers and students have also been reorganised.

The speed and current scientific developments require teachers to intervene more at different levels in their pedagogical relationship with students, by monitoring the stages of learning: whether technical, practical, critical, intuitive or creative. For Pacheco (2001), the educational paradigm that placed the teacher at the centre of knowledge transmission has changed. The new order connects students to a knowledge constellation of sources, some near and some far, that allow them to get information and validate their research. Current advances in artificial intelligence have further accentuated this relationship. The teacher has gone from being a star to a satellite.

In the context of the teacher's removal from the centre, the management of learning times has changed. There have been significant changes in contact hours (sometimes reduced by half), and student-centred teaching is promoted, with an emphasis on autonomous working hours in student workload (Guedes *et al.*, 2007). In the new temporal organisation, the sketchbook has the potential to take on a new and central role in Bologna learning, particularly in the mediation of technical and artistic training. The sketchbook is a means of research used in most architecture courses (throughout the world), whose production is commonly framed within the goals of the Drawing and Project curriculum units (or even History, Urbanism or Construction), and in most cases in separate, unconnected notebooks and as part of an assessment task. Therefore, the creation of a *Unique Sketchbook* (USB) can reconcile graphic freedom with joint research in the disciplinary areas of architectural training. Accepting and promoting the unity of the sketchbook as a product and as a process (Campanario, 2012), with the aim of understanding, creating and connecting the multiple aspects of architectural composition (space, morphology, light, colour, scale, proportion, perspective, axonometry, plan, section, elevation, structure, materials, construction systems, circulation, sustainability,

territory, landscape, heritage, etc.) is the path to greater transversality of the sketchbook in the education of the humanist architect promoted by Bologna.

A SEARCH ENGINE CALLED SKETCHBOOK

The strategic positioning of the *Unique Sketchbook* can be understood in its triple function: i) autonomy and creative self-construction of learning by eliminating information anxiety, ii) data aggregator directory and search engine for selective filtering, iii) heuristic transfer [5] between curricular units and fields of knowledge.

Autonomy is understood as an individual process of graphic and architectural research, and as a strategy for developing design, creativity and thinking through visual skills. But autonomy is also understood as the ability to manage anxiety caused by the excess of available information and by the ever-increasing distance between what we understand and what we think we should understand (Wurman, 1991). The directory and search engine, as an accessible repository and database, in analogy to the cloud, allows concentrated access in real time and in a feedback mode.

In the same vein, heuristic transfer allows the interconnection between observation drawings and the experimental and creative combinations of architectural project and practice, with extensions between the different topics of the curricular units. Learning is seen in this context as an active and selective phenomenon that questions training through problem-solving, assimilation processes, and experimentation challenges (Dewey, 1934).

THE PORTABLE LABORATORY

The sketchbook, as a portable laboratory (Salavisa, 2008), should therefore be a continuous and interconnected record of the Architecture student's semester-long research, maintained throughout the different Bologna cycles and formalised in a sequence of books. The creation of a sketchbook course unit is not advocated. This measure would be entirely against the purposes of this methodology, as it would, among other things, introduce the contingency of assessment. This would be unnecessary, as it would impose constraints on the freedom and responsibility of personal and evolutionary learning. The *Unique Sketchbook* is not only made up of course tasks and exercises, but should also include drawings of recreational activities during student outings or trips, which are equally important for architects' training.
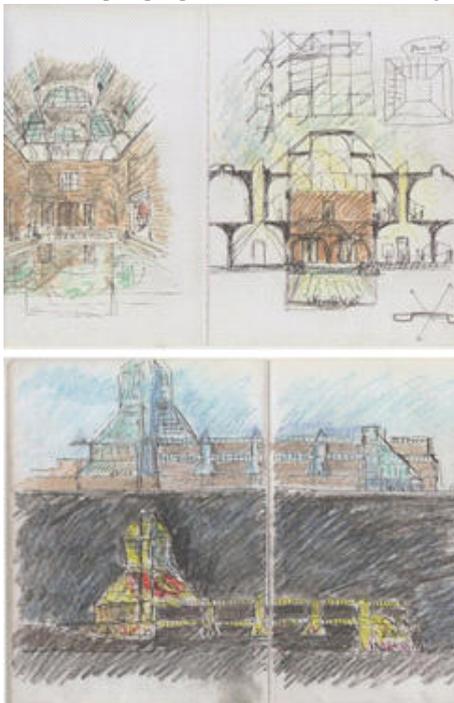

Figure 1: Moshe Safdie. Sketches for the National Gallery of Canada, Ottawa. Source: Jones, 2019.

Regarding the travel drawings of architect Le Corbusier, Giuliano Gresleri, in *The German Carnets: 'triomphe de l'ordre' and 'heureuse évolution'*, writes: "Since travelling for Jeanneret meant being subjected to every kind of experience, he limited himself to recording his own reaction vis-à-vis events, with the detachment of an analyst. He studied himself through the subject he observed. He measured, controlled, and transcribed reactions that consequently became stories and narratives. The notebooks may have seemed obscure coded messages at first, but they did reveal their secrets when other texts and images were carefully studied as well" (Gresleri, 2002, p.13). The sketchbooks of several other architects are well known, such as those of Louis Kahn, Carlo Scarpa, Aldo Rossi, Álvaro Siza, Renzo Piano, Moshe Safdie, Ben van Berkel, and Sergei Tchoban, in which architectural research is related to everyday drawings (Figures 1, 2, and 3). Students participating in the Erasmus Programme [6] can also take advantage of mobility to continue their artistic, scientific, and cultural research in other academic contexts through the *Unique Sketchbook*, which can serve as an institutional bridge.
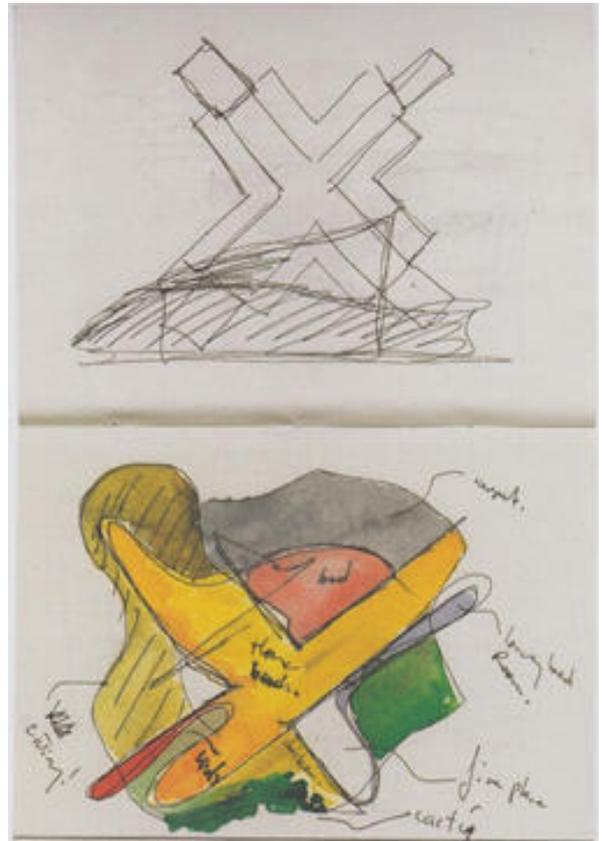

Figure 2: Ben van Berkel. Experimental house sketches. Source: Jones, 2019.

The use of digital media, which today simulates drawing techniques and materials through smartphone or tablet apps, should not be ignored. The *Unique Sketchbook* can have a digital extension that blends with the physical notebook and enables unpredictable architectural solutions. As Kendra Smith points out: "The more these programs increase their speed and ability to manipulate (form and deform) shapes, the more they replicate the creative impulses of hand sketches. Whether they are truly as effective, only their extensive use will determine" (Smith, 2005, p. 208).

My teaching practice [7] has often shown that sketchbooks with

mandatory themes, techniques or number of drawings, with a deadline and quantitative assessment, become rigid and easily cease to be personal. They often result from a sleepless night before the deadline, based on uninteresting referents. By valuing originality and self-creation, the teacher respects the student's individuality and free expression (Read, 1967). Felicity Allen, in *Your Sketchbook Your Self*, asks: "Sometimes people feel they haven't got any ideas. How can you start drawing without an idea?" (Allen, 2011, p. 6). She proposes many exercises and techniques that awaken visual thinking, but warns: "Looking at your sketchbook is essential. If you don't look back at it you lose most of what you've done. If you do (over time, not just once) you multiply what you can get out of it. You can look purposefully or simply amble through it, like taking a stroll through an art museum" (Allen, 2011, p. 46).

The *Unique Sketchbook* is thus a mediator of creativity through experience, in a multifaceted view of the various levels of curriculum development, so that it is possible "to regard creativity as the rule rather than an exception" (Vygotsky, 1990, p.87). A sketchbook that promotes students' visual dexterity and project-based activity serves many purposes: it stimulates research skills, favours self-representation, promotes the development of cognitive processes such as attention, perception and reasoning, allows access to lateral thinking[8], awakens graphic personality and directs planning and decision-making. Its box-like appearance, which can be opened or closed, as well as its role as a confidant and repository of memories, makes it "an object that easily acquires sentimental value and where we can deposit our reflections and observations, however intimate they may be. This also allows for great freedom of experimentation, making it a kind of laboratory. Portable in this case because of its small size, and easily transportable, it is available for use anywhere and in any circumstance" (Salavisa, 2012, p. 251). The *Unique Sketchbook*, therefore, creates a sense of the body and mind extending.
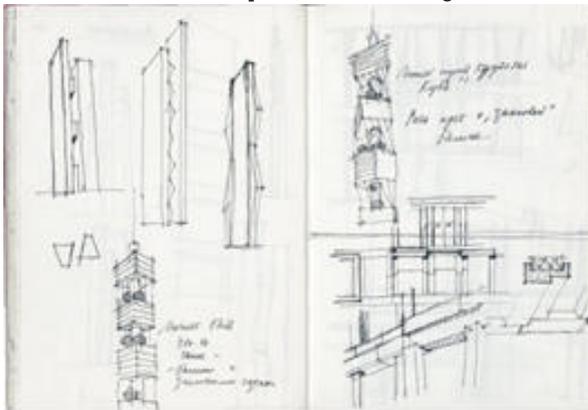

Figure 3: Sergei Tchoban. Sketches for a high-rise building (upper image) and observational drawing in Katsura Imperial Villa, Kyoto (lower image). Source: Drawing Matter Collections (n. 3906.57, n. 3905).

THE *UNIQUE SKETCHBOOK* IN THE EXPANDED FIELD

The study of *Unique Sketchbook*, as a starting point and arrival line, teaches students to stimulate action and to construct doubt. It allows them to understand the almost infinite ramifications of details and derivations in architecture and, with that, to experience the consequences of design choices, in order to re-evaluate, validate or replace them. Learning to turn the page and follow unexpected and uncertain paths, facing the questions of the blank page, and discovering a non-sequential and non-continuous methodology, with the creation of different windows in the expanded field that multiply or are abandoned. Architecture as an expanded field, by analogy with Rosalind Krauss's essay *Sculpture in the Expanded Field* (1979), shifts architectural thinking to a broadened field of practices, disciplines, and scales, with spatial and temporal intersections and transformations. A network of topological and compositional relationships between object, body and territory, through "non-architecture", "non-sculpture" and "non-landscape", and where "the spatial arts now come together in their superimposed expanded fields, less in order to blur distinctions or erode purity than to construct new programmatic and formal conditions" (Vidler, 2004, p.147).

The expanded field of the *Unique Sketchbook* of architecture is a place of contamination of artistic modalities (painting, sculpture, design, photography, cinema, digital art, music, dance, etc.) and fields of scientific knowledge (engineering, geography, anthropology, history, sociology, economics, etc.). In addition, it expands on the traditional observational drawing associated with sketchbooks. It maintains its qualities of developing visual intelligence, which are fundamental for architects, but to "drawing from life" it adds "drawing from the imagination". It relates the drawing of proportion, perspective, light, and shadow of built architecture to the simultaneous learning of the spatial and volumetric components rehearsed in the sketch of the imagined and to-be-built work. Within the sketchbook, the drawings can take several forms, exploring themes, techniques and drawing tools. A psychography based on materials, in which accidents bring surprises, without being aware of where the hand leads and is led by movement (Lacaz, 2007). Fine lines that allow for details, fluid brushstrokes that evoke gestures and thick marks that seek visual strength in the broadening of the boundaries between physical matter, imagination and aesthetic communication.

In the expanded field of the *Unique Sketchbook*, observational drawing and architectural drawing are joined by successive traces of different media (images, photos, maps, sketches, cut-outs, collages, overlays, juxtapositions). The gaze absorbs this heterogeneity of graphic records through groupings of marks and areas of different densities and boundaries, which are successively classified and named. As Merlau-Ponty states in *Phénomènologie de la Perception* [Phenomenology of Perception] (1945), before this categorisation, the material world is a continuous texture and "we are imprisoned in the categories of the objective world, in which there is no middle term between presence and absence" (Merlau-Ponty, 2002, p. 93). By understanding the organisation of the sensory world in this way, we can divide it outside the known semantic order. A daring of the imagination and reverie that triggers addictive mechanisms of pleasure (Bachelard, 1969). Pleasure in seeing the real or imagined world of architecture, but also in seeing the world drawn, represented, invented. A search for similarities and differences, through compulsive, sometimes exhaustive comparison.

According to the concept of the scopic drive, in the pursuit of

the desire to see what is revealed or what is found (Lacan, 1973), the sketchbook promotes the growth of an inner vision, where the architect looks at himself through the diary and is seen through it. This is the difference that Roland Barthes, in *La chambre claire: note sur la photographie* [Camera lucida: reflections on photography], reaffirms with the idea of the duality of 'the spectator's photograph' (*punctum*) and 'the photographer's photograph' (*stadium*), where scopic satisfaction is realised in at least three senses: what is seen, the gaze of the person who recorded it, and the perception of the person who sees it (Barthes, 1981). In an increasingly optocentric society, this pleasure in vision can become an ally of the sketchbook as a methodology of personal expression.

Another reason is the *Unique Sketchbook*'s ability to represent, through everyday life, desires for assimilation and understanding visual culture as a framework for architectural production. The term 'visual culture,' defined as the culture that 'shapes our world, while also being our way of looking at the world' (Freedman, 2003, p.94), encompasses various disciplines and concepts that share values of identity, mediation through images, material production, social interactivity, multimodal communication, digital speed, and postmodernity. These are emerging research areas in visual culture that can be explored in the sketchbook and that define the new sociological order of architecture.

CONCLUSION
The *Unique Sketchbook* serves as a mediator of knowledge integration in the challenging task of reconciling art, technique, and science [19] in architecture. An extension between intuition and learning, truth and validity, the rational and the emotional, memory and forgetfulness. A humanised sketchbook that obeys individual laws between order and chaos, sometimes at the centre of decision-making and sometimes on the creative margins of discussion. The *Unique Sketchbook* also aims to create a habit that extends beyond academic training and the university walls, remaining present throughout the architect's professional life.

In the new Bologna paradigm, having a cross-disciplinary sketchbook during the architecture degree (in successive volumes), which intersects different study cycles, curricular units and areas of knowledge, becomes a methodology with multiple functions: personalised search, heuristic transfer, multiplicity of meanings and perspectives, reduction of anxiety of quantity, diagnosis and design solutions, graphic communication qualities, freedom of thought and identity. It allows the method of 'education through drawing' to be extended in the expanded field, which organises visual knowledge into a triangle of relationships: seeing to draw, drawing to understand, and understanding to transform.

NOTES
(1) Dear Diary is a film by Nanni Moretti, in which the author divides the narrative into three autobiographical chapters: 'In Vespa' (On a Vespa), 'Isole' (Islands) and 'Medici' (Doctors). Nanni Moretti won the 1994 Cannes Film Festival in the best director category with this film.
(2) This term has been used since 1990, after the Jomtien Conference in Thailand, promoted by UNICEF and UNESCO with the support of the World Bank.
(3) Declaration signed by 29 European countries, which triggered the so-called Bologna Process, which currently (2005) has 49 participating countries.
(4) European Credit Transfer and Accumulation System.
(5) The heuristic process is a cognitive shortcut that allows solutions to be discovered through experience. Heuristic strategies accelerate decision-making in contexts involving large amounts of information or in uncertain environments.
(6) The Erasmus Programme is organised by the European Commission and promotes the exchange of training,

research and volunteering experiences within the academic environment, with cooperation between organisations and institutions in the signatory countries. Its aim is educational, professional and personal development in the context of active citizenship.
(7) In drawing courses on the Architecture Master's Degree at a European Union university.
(8) In the sense of stimulating the multiple intelligences studied by Howard Gardner, and as a driver for awakening creative thinking, according to Edward Bono.
(9) Structuring axes in the acquisition of knowledge. This three-axis system is not a function; each object can correspond to several images.

REFERENCES
[1] Abelson, P. (1965). *The seven liberal arts, a study in mediaeval culture*. New York: Russell & Russell.
[2] Allen, F. (2011). *Your Sketchbook Your Self*. London: Tate.
[3] Bachelard, G. (1969). *The Poetics of Reverie: Childhood, Language, and the Cosmos* (D. Russell, Trans.). Boston: Beacon Press.
[4] Barthes, R. (1981). *Camera Lucida: Reflections on Photography*. New York: Hill & Wang.
[5] Campanario, G. (2012). *The Art of Urban Sketching: Drawing on location around the world*. Beverly, MA: Quarry Books.
[6] Dewey, J. (1934). *Art as Experience*. New York: Minton, Balch & Company.
[7] Enders, J. & Don F. Westerheijden, D. F. (2011). The Bologna Process: from the national to the regional to the global, and back. In King, R.; Marginson, S. & Naidoo, R. (Eds.), *Handbook on Globalization and Higher Education*. Cheltenham/Northampton, MA.: Edward Elgar, 469-484.
[8] Freedman, K. (2003). *Teaching visual culture: Curriculum, aesthetics and the social life of art*. New York: Teachers College Press.
[9] Giddens, A. (1999). *Runaway World: How Globalization is Reshaping Our Lives*. London: Profile Books.
[10] Guedes, M. G.; Lourenço, J. M.; Filipe, A. I.; Almeida, L. & Moreira, M. A. (2007). *Bolonha: Ensino e Aprendizagem por Projecto* [Bolonha: Project-based Teaching and Learning]. Lisboa: Centro Atlântico.
[11] Jones, W. (2019). *Making Marks: Architects' Sketchbooks – The Creative Process*. London: Thames & Hudson.
[12] Lacan, J. (1973). *Séminaire XI - Les quatre concepts fondamentaux de la psychanalyse* [Seminar XI - The Four Fundamental Concepts of Psychoanalysis]. Paris: Le Seuil.
[13] Lacaz, G. (2007). Desenho [Drawing]. In Derdyk, E. (Org.), *Disegno, Desenho, Desígnio* [Disegno, Drawing, Design]. São Paulo: Editora Senac, 253-262.
[14] Gresleri, G. (2002). The German Carnets: "triomphe de l'ordre" and "heureuse évolution. In Le Corbusier, *Les voyages d'Allemagne Carnets* (English edition). Milano: Electa architecture, 9-22.
[15] Merleau-Ponty, M. (2002). *Phenomenology of Perception* (C. Smith, Trans.). London & New York: Routledge. (Original work published 1945)
[16] Pacheco, J. A. (org.). (2001). *Políticas Educativas: O Neoliberalismo Educacional*. Porto: Porto Editora.
[17] Read, H. (1967). *Education Through Art*. London: Faber and Faber.
[18] Salavisa, E. (2008). *Diários de Viagem: desenhos do quotidiano, 35 autores contemporâneos*. Lisboa: Quimera Editores.
[19] Salavisa, E. (Coord.). (2012). *Urban Sketchers em Lisboa desenhando a cidade*. Lisboa: Quimera Editores.
[20] Santos, B. S. & Filho, N. A. (2008). *A universidade no século XXI: Para uma universidade nova*. Coimbra: Edições Almedina.
[21] Simão, J. V.; Santos, S. M. & Costa, A. A. (2005). *Ambição para a excelência: A oportunidade de Bolonha*. Lisboa: Gradiva.
[22] Smith, K. S. (2005). *Architects' Drawings*. London & New York: Routledge, Architectural Press.
[23] Vidler, A. (2004). Architecture's Expanded Field. *Artforum*, 42(8), 142-147.
[24] Vygotsky, L. S. (1990). Imagination and Creativity in Childhood. *Soviet Psychology*, 28(1), 84-96.
[25] Wurman, R. S. (1991). *Ansiedade de Informação: Como transformar informação em compreensão*. São Paulo: Cultura Editores Associados.