

Extended Abstract

The Bauhaus Diaspora and the education of the architect: Harvard GSD and Chicago IIT

01 Introduction

This research aims to explore the innovative aspects of the education of the architect in the United States of America (USA), which were born from the ideal of the Bauhaus school and according to the individual cultural assimilation of each Bauhäusler emigrated in this country. Taking into account, that the education of the architect is very focused on theory and production of graphic elements, I understood to be important to explore the possible success of teaching methodologies inspired by the Bauhaus, a school that was characterized by motivating the student to know how to see as well as to explore the practical world of architecture and its limits.

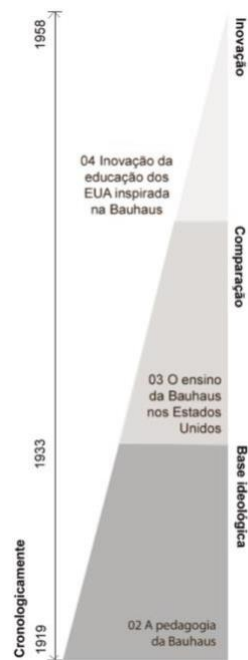
Regarding the structure, it is opted for a chronological and accurate understanding on the subject of Bauhaus education, its pedagogues and its relationship with the Bauhäusler's emigration to the USA. Subsequently, the Bauhaus education in Weimar and Dessau is compared with the curricular method followed at the Harvard GSD school from the time when Gropius was teaching and with the architecture education at the Illinois Institute in Chicago, which Mies directed. It is intended to study the transfer of ideals from the school not as a mimetic implementation, but as a progressive transformation of each master in the context of American teaching.

Later on, four aspects that are considered innovative in the education of the architect in the USA, influenced by the Bauhaus pedagogy, are studied in depth. These are: the more radical teaching methodologies with Moholy-Nagy and Josef Albers; the concept of learning by doing; the teaching of urbanism based on ecology and American capitalism and, finally, the teaching of history as a practical science with meaning, resulting from the spirit of its time.

02 The Bauhaus Pedagogy

02.1 The Bauhaus Foundation

The study begins with a brief contextualization of the events that led to the founding of the Bauhaus. These are the world exhibitions, World Fairs; the reaction of John Ruskin and William Morris, the latter giving primacy to the medieval working method, to Gothic craftsmanship, and defining that art should be made by the people and for the people, an expression of happiness for the creator and the user.¹; the creation of the Arts and Crafts movement around 1888; the appearance of Jugendstil in



1 Outline of the dissertation structure.



2 Joseph Paxton, Crystal Palace (1851), Great Exhibition, London.

¹ Nikolaus Pevsner, *Pioneers of Modern Design: William Morris to Walter Gropius*, Harmondsworth, Penguin Books, 1960, p.23

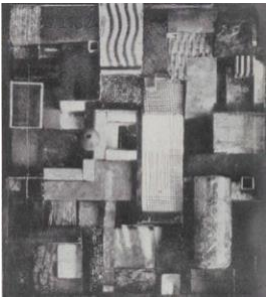


3 Henry van de Velde, *Großherzogliche Kunstgewerbeschule* (1904-1906), Weimar.

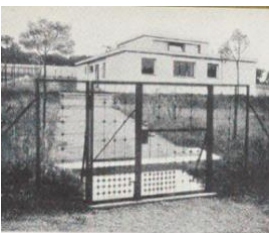
Germany in the nineties of the 19th century; the factory reform in 1898 with the example of *Vereinigte Werkstätten für Kunst im Handwerk* in Munich and Hermann Muthesius, who studied the *Arts and Crafts* movement. Another event was the creation of the *Deutsche Werkbund* in 1907 in Munich. The Werkbund's goal was to improve the competitiveness of German companies in global markets by partnering the best designers or professionals in the field with the manufacturers themselves to achieve quality in materials and workmanship, as well as a noble organic ensemble. Next is the 1914 exhibition in Cologne featuring Peter Behrens, Hermann Muthesius, Josef Hoffman, and Henry van de Velde, Bruno Taut's glass pavilion, and Walter Gropius' factory building. Shortly after the November Revolution (1918), the *Arbeitsrat für Kunst*² was founded. It is essential to mention that the founding of the Bauhaus school was due to the socio-political moment after the military defeat of the German Empire and the creation of the Weimar Republic strongly influenced by the social-democratic party line. The Bauhaus emerged in 1919 from the union of the schools *Großherzoglich Sächsischen Hochschule für bildende Kunst* and *Großherzogliche Kunstgewerbeschule*, respectively directed by Fritz Mackensen since 1910 and by Henry van de Velde from 1908 to 1915.

02.2 Bauhaus education in Weimar

In 1919 in Weimar, modern principles were explored in the field of education with the founding of the Bauhaus school having Walter Gropius as director. The school's manifesto states as a core principle: *Das Endziel aller bildnerischen Tätigkeit ist der Bau!*, i.e. the end goal of all pictorial activity is construction. There was thus the intention to achieve a social and utopian balance between theory and practice by uniting all the arts and reconsidering the artist's craft according to the Leitmotiv *Art and Technology: A New Unity*. The fundamental difference between the Bauhaus in Weimar and the academy lies in the students' ambition to explore the world in which they live, and their creativity to improve society in economic, spiritual, technical, artistic and social aspects. Their practical training took place in the well-known workshops for at least three years until they became journeymen. There were workshops for pottery, weaving, carpentry, metalwork, furniture, woodcarving and sculpture, stained glass and mural painting, and theatre. It is essential to mention the *Vorkurs*, the preliminary course, which marked the Bauhaus school at all times. This was taught by Johannes Itten who familiarized the students with the basic principles underlying all creative activity in the visual arts, the experimentation with natural materials and awakened the student's creativity. Gropius appointed at the very beginning, in 1919, Johannes Itten, Lyonel Feininger and Gerhard Marcks as teachers. Later, more abstractionist personalities were called upon, such as in 1921 Paul Klee and Oskar Schlemmer, in 1922 Wassily Kandinsky, and in 1923 László Moholy-Nagy. In this year, the Bauhaus held an exhibition where it presented the proposal for example of the experimental house *Haus am Horn* with participation from the school workshops. However, in the Bauhaus exhibition, the school is criticized by Adolf Behne for its lack of consistency and for presenting a superficial and constructivist aesthetic.³



4 E. Dieckmann, composition exercise with various materials.



5 Georg Muche, *Haus am Horn* (1923), Weimar.

² Group founded in November 1918 after the November Revolution and with a dissolution date of 31 May 1921. Its aim was to regenerate German art and architecture and had a utopian slant. The group consisted of some members of the *Deutsche Werkbund* as well as artists such as Walter Gropius, Erich Mendelsohn, Otto Bartning and Ludwig Hilberseimer,

³ Adolf Behne, *The modern functional building*, Santa Monica, Getty Research Institute for the History of Art and the Humanities, 1996, p.31

02.2.1 Walter Gropius as an educator

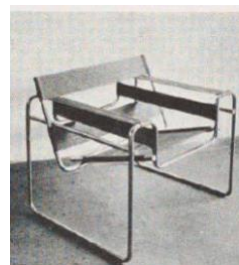
In the article *Blueprint for an architect's training* published in the magazine *L'Architecture d'Aujourd'hui* and in the books *Total Scope of Architecture* as well as *The New Architecture and the Bauhaus*, Gropius sets out his conclusions regarding the education of the architect such as a teaching method that was “all-embracing instead of sectional, increasing slowly in intensity and detail in all fields of discipline simultaneously”⁴. Still as essential principles for the education of the architect, Gropius points out the cooperation between all technical, social, artistic and economic subjects; teamwork, which translated, in turn, into the cooperation of society as an organism; practical experience in the field, the preliminary course and three-dimensionality as the basis for the teaching of architecture and the conclusion that the architect must be a man of vision, aware of scientific developments and the effect of industrialization, with the wisdom to work out the relationships between them. Gropius was of the opinion that artists should influence industry and society. That is why he went back to medieval times. The pedagogue also defended that the student should encourage his individual conception to create his own convictions, hence he introduced the preliminary course and the teaching of history only starting in the third year so that more mature students could investigate the works of art of the past and understand how architecture was designed in another era, how the social context was and the means of production. This master also speaks of a language of vision, resulting from intense objective, scientific and optical study.

02.3 Bauhaus Dessau education

The Bauhaus school moved to welcoming Dessau on 1 April 1925 due to the Junkers factories - *Junkers Werke*, and its social democratic government. During Gropius' tenure in Dessau between 1925 and April 1928, the school represented the *Zeitsgeist* in which the school itself became synonymous with Gropius' idea. The school was committed to functional design that was accessible to all and innovative, as well as to architecture and modern housing, from the scale of the flat block to that of the domestic utensils. In 1927, the architecture department headed by Hannes Meyer was founded. In April 1928, Gropius left his Bauhaus duties and proposed Hannes Meyer as his successor. In this context the more constructivist and aesthetic vision loses impact and the products of the Bauhaus workshops tend to be prioritized for their utility and commercial purpose.⁵ The most important areas of study became first architecture, then advertising and later theatre. However, in August 1930, Meyer was dismissed by the Dessau municipal authorities due to his Marxist ideology. In the same month, Mies van der Rohe was hired to direct the Bauhaus. Mies moves away from the *Neue Sachlichkeit* mass production of the Bauhaus and Hannes Meyer's *Bauen*, construction principle, towards conventional schools of architecture. Mies will spread his idea of architecture as a spiritual process dependent on its



6 Walter Gropius, Bauhaus school building (1925-1926), Dessau.



7 Marcel Breuer, First tubular chair. Fabric seat, back and arm rests (1925).

⁴ Walter Gropius, “*Blueprint for an architect's training*”, *L'Architecture d'Aujourd'hui*, n°28, 1950, p. 71

⁵ Magdalena Droste, *Bauhaus 1919-1933*, Berlin, Bauhaus-Archiv, Taschen 2019, p.424

value and time⁶, inviting Lilly Reich of interior design and Ludwig Hilberseimer of urban planning as professors to help him in this new direction. The highly regarded *Vorkurs* were no longer compulsory in the Bauhaus training. The school eventually closed down on 19 July⁷ due to the preponderance of the National Socialist party.

02.4 Bauhaus education in Berlin



8 Mies with his students in Pura.

Between 11 April and 20 July 1933, Mies van der Rohe resisted and took an alternative route to continue educating his Bauhaus students. According to Fritz Neumeier's research, it is known that Mies made boat trips to Karl Friedrich Schinkel's Charlottenhof in Potsdam, to Paretz, the summer residence of King Wilhelm III and Queen Louise,⁸ with his students. Charlottenhof exemplified the relationship that a building can establish with nature, the continuity and interconnection between spaces present in Mies's Esters and Lange Houses in Krefeld (1927), the morphological richness of its components and a notion of ordered but not restrictive classicism.⁹ With Paretz Mies wanted his students to understand how beauty is rooted in simplicity and structural clarity in the ancient buildings of history. It should also be added that in August 1933 Mies and Lilly Reich made a stay between September and October near Lugano, in the Swiss canton of Ticino.

02.4.1 Mies van der Rohe as a pedagogue



9 Annemarie Wilke, Heinrich Neuy, Mies, Hermann Klumpp, Mies van der Rohe's seminar (1931).

Mies argued that the mastery of creative activity was the basis to create safely without limitations. For this, the mastery of drawing and high rigour in the construction with graphic elegance as well as the discussion in the studio between all the students and the teacher was indispensable for the formation of an architect. In Mies's pedagogy the architect must maintain finely honed critical skills and organized, uncluttered thinking.¹⁰ Mies's method presumed a strong student responsibility, as when the teacher pointed out problematic situations in the projects, the students had to correct their own exercise, and those who were not able to understand this method achieved at least high technical competence. Ludwig Mies van der Rohe's direction is deeply marked by his way of thinking about architecture and society. He fights against the primacy of the artist's individual and free interpretation and does not accept objective sovereignty in technology. Mies accepts the objectivity of the historical moment as an indispensable fact, but he refused it as the purpose of Baukunst. In each project built he aimed to define a specific quality of space and not just a functional one.

⁶ "The New Time" – Fritz Neumeier, *The Artless Word: Mies van der Rohe on the Building Art*, Cambridge, Massachusetts, London, England, The MIT Press 1991, p.309

⁷ Em outubro de 1932, Mies van der Rohe funda a escola privada *Freies Lehr- und Forschungsinstitut*

⁸ Paretz was built between 1797-99 for Prince Friedrich Wilhelm and his wife Louise and became their summer residence after Friedrich Wilhelm ascended the throne in 1797. A neoclassical palace built by David and Friedrich Gilly

⁹ Fritz Neumeier, *Ausgeboten: Mies van der Rohe und das Bauhaus 1933 – Outside the Bauhaus – Mies van der Rohe and Berlin in 1933*, Berlin, form + zweck, 2020, p.226

¹⁰ Reyner Banham, "The Master of Humane Architecture" – In Rolf Achilles, Kevin Harrington, Charlotte Myhrum, *Mies Van Der Rohe: Architect as Educator*, Chicago, Centennial Project e Illinois Institute of Technology, 1986, p.13

03 Bauhaus education in the USA

03.1 The teaching context in the USA in the 1930s

The 1930s highlight a major divergence in the USA between formal conservative education and highly developed architectural production. Regarding the education of the architect at the beginning of the 20th century in the USA, it was dominated by the more conservative French *Beaux Arts* style, thus predominating at the School of Architecture at Harvard University and the Massachusetts Institute of Technology since 1865.¹¹ It is of utmost relevance to mention the introduction of the skyscraper and to mention that the 1880s are known as the work of the Chicago school. Walter Gropius and Adolf Loos had already realized this innovation in the USA as evidenced by their proposals for the Chicago Tribune Building skyscraper competition. Although some schools were associated with a more conservative formal education, Richard Neutra (1892-1970) from 1923 and Rudolph Schindler (1887-1953) were already in the USA. Also in this context, in 1932, it is essential to mention the relevance of the curators Philip Johnson (1906-2005) and the historian Henry-Russell Hitchcock (1903-1987), at the request of MoMA director Alfred Barr (1902-1981)¹², who organized the exhibition *Modern Architecture: International Exhibition* where the International Style was defined as the architecture they considered representative since 1922. Amongst these were projects by Gropius and Mies.

03.2 Gropius' teaching at Harvard GSD

In 1937, Gropius took over as head of the architecture department. For the master, practical experience, visits and on-site work were mandatory for students for a few months in the 1940s.¹³ The focus was on teaching that placed greater value on process through working drawings and models rather than platonic drawings as in the *Beaux-Arts*. Also in 1937, Gropius published an article about his intentions for architectural education at Harvard in the *Architectural Record*. Gropius imposes democracy, but not his ideals hostilely. Hudnut agreed with Gropius on the point that architecture should invoke American values, not conditioned by tradition. Gropius stresses the importance of the role education plays in creating men of vision with biological, social, technical and artistic knowledge in contrast to specialists who had a less broad vision.¹⁴ At Harvard GSD, Gropius taught and shared architectural practice from 1938 to 1941 with Marcel Breuer, who had emigrated in 1938. Walter Gropius led the students to correct themselves, was attentive and touched the intellectual development of the student in an inspiring and philosophical way.¹⁵ In Gropius' teaching, the students I.M. Pei¹⁶ and Paul Rudolph, who represented the elasticity and coordination that Gropius had as an educator. Crucially,



10 Walter Gropius with master students, Harvard GSD (1946).



11 Walter Gropius with Sigfried Giedeon, CIAM 6 (1947), Bridgwater.

¹¹ Margret Kentgens-Craig, *The Bauhaus and America: First Contacts, 1919-1936*, Cambridge, Massachusetts, London, England, MIT Press, 1999, p.32

¹² Alfred Barr (1902-1981) was MoMA's first director, and took on (along with Philip Johnson) a role protecting young architects when the Architectural League of New York ignored them in connection with the annual Exhibition in 1931 by making an alternative space available to them on Sixth Avenue similar to what happened in 1863 with the *Salon des Refusés*.

¹³ Winfried Nerdinger, *The Walter Gropius Archive: An Illustrated Catalogue of the Drawings, Prints and Photographs in the Walter Gropius Archive at the Bush-Reisinger Museum, Harvard University*; Vol. 1, Volume One, New York : Garland Publishing.: Harvard University Art Museums, 1990-1991, p. XXV-XXVI

¹⁴ Walter Gropius, "Architecture at Harvard University", *The Architectural Record*, may 1937, p.11

¹⁵ Fiona MacCathy, *Gropius The man Who Built The Bauhaus*, Cambridge, Massachusetts, The Belknap Press of Harvard University Press, p.373-374

¹⁶ I.M.Pei was born in China and moved from Shanghai to the University of Pennsylvania in 1935

Gropius's participation in the *Congrès Internationaux d'Architecture Moderne* (CIAM 7, 8 and 9) was in line with his teaching principles at Harvard. In 1949, Gropius was challenged to design the new Harvard Graduate Center building. This project was designed by TAC, The Architects' Collaborative¹⁷. The Commons Building stands out, alluding to the Bauhaus *Gesamtkunstwerk*.

03.3 Mies's teaching at IIT Chicago

In 1938 Ludwig Mies van der Rohe emigrates to Chicago as Director of the Department of Architecture at the Armour Institute of Technology. Mies brought with him some close colleagues such as Walter Peterhans, Ludwig Hilberseimer and John Rodgers. Professor Jong Soung Kimm¹⁸ thinks of the five points of the curriculum: materials, construction methods, philosophy and ideology, structure, investigation of space as an architectural problem formalized by that structure, as the constituents of Mies van der Rohe's philosophy of architecture. Hence, Mies structured the IIT curriculum into Means, Purposes, Planning and Creating. Mies's curriculum is often interpreted as a continuation of his thinking towards architecture. In the Inaugural Address Mies unites practical purpose with values, for, like Simmel's pedagogical vision, the idea was to eliminate arbitrariness in the student's decision-making, and that in the material was possibility, in function necessity, and in creative work meaning.¹⁹ While the practice is associated with the material progress of the time contemporary to the student, the values address man, the spirit and his culture. The teaching was both technical and detailed as well as abstract and general, for although Mies fosters technical mastery as an instrument of learning, he believes that the functional character of architecture, can achieve the status of a work of art, *Ut architectura poesis*.²⁰ Mies gives primacy to constructions made of materials such as wood, stone and brick as well as other recent ones such as steel and concrete for their structural clarity, unity, connecting logic, pattern and texture. Finally, by quoting St Augustine, Mies underlines how architecture should respond as truthfully and correctly as possible.

03.4 Comparison between *curricula*

03.4.1 Weimar, Dessau and GSD Harvard

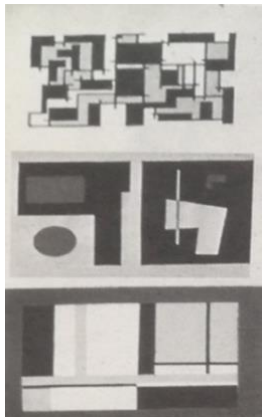
The first differences that stand out are the type and the larger scale of students at Harvard GSD. While at the Bauhaus they manifested a greater capacity to be craftsmen or designers, at Harvard the focus was on having a great logical and argumentative power to express themselves. At Harvard GSD there were more students and a larger academic core, which had less of an impact on them. Another difference was the initial training that instead of being the *Vorkurs* of the Bauhaus, it was Planning I and Design I until 1950 when the course *Design Fundamentals* appeared. The big difference in the teaching of history was that at Harvard GSD there was always this tradition, such as Kenneth Conant

¹⁷ The Architects' Collaborative (TAC) was founded in December 1945 by a group of colleagues from Yale University in which all partners involved discussed the projects democratically, without hierarchy, with respect and being critical, of which Gropius was a member. Their intention was to bring together architecture, painting, and sculpture, and they defined themselves by teamwork.

¹⁸ Ana Tostões – "Interview: Jong Soung Kimm". In Ana Tostões (ed.) *Docomomo Journal*, nº 56 (2017), p. 88

¹⁹ Alfred Swenson, Pao-Chi Chang, *Architectural education at IIT 1938-1978*, Chicago, Illinois Institute of Technology, 1980, p.26

²⁰ Rolf Achilles, Kevin Harrington, Charlotte Myhrum, *Mies Van Der Rohe: Architect as Educator*, Chicago, Centennial Project e Illinois Institute of Technology, 1986, p.58



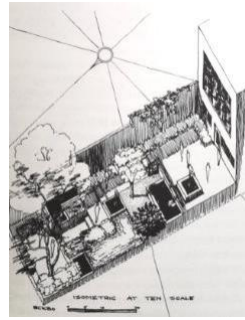
12 Harvard GSD students, Exercises in Design Fundamentals (1950-1952).

and the classical *Beaux-Arts* references, and even when Hudnut reduced the number of hours of these classes until history became optional in 1946, just as at the Bauhaus, Sigfried Giedion was called upon to give his lectures on men of high distinction and preferably of international reputation.²¹ In the post-World War II period, Hudnut changed his position again and showed appreciation for history²² by presenting a history curriculum where it was learned that all works and architects belong to a continuum, artistic and of high value. The city was approached as a constantly changing organism affected by events over time. A major difference at the curricular level between Harvard GSD and the Bauhaus was that Harvard GSD had a course in landscape architecture. Students Eckbo and Rose helped spread the word about GSD landscape architecture as a social innovation as evidenced in the essay in "*Pencil Points: This is the United States of America, 1937 A.D.*" accompanied by futuristic illustrations marked by fluid spaces, three-dimensionality and abstract forms.²³ The new urban planning department at Harvard GSD was a key aspect that contrasted with the Bauhaus curriculum, in which it never existed. Thus it never dealt with the administrative, economic, buying and selling aspects of various social groups as well as property issues of Catherine Bauer Wurster's seminar from 1946 to 1949 at Harvard GSD nor with the urbanistic exercises given by the modern architect, urban planner and former *Stadtbaurat*, Martin Wagner and Walter Gropius who were interested in low cost housing and prefabricated building techniques with standardization. The Bauhaus only related urbanism to architecture as evidenced by the seminars of Ludwig Hilberseimer in Dessau.

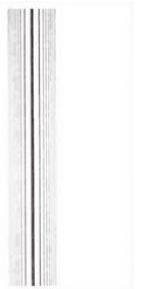
03.4.2 Weimar, Dessau and IIT Chicago

The first similarity between these two schools, is that they both treated the teaching of drawing as specific and detailed as well as highly abstract. Itten's teaching was defined by *subjective experience and objective recognition*²⁴ through the sequence study of natural objects and materials, analysis of Old Masters and life drawing. At IIT, there was both line drawing and the study of geometry, and expressive line drawing in *life drawing and free hand from live*. A further similarity is the act of both schools being influenced by their teachers and ideologues. The method of IIT reveals the rational, clear is technical teaching method of Mies as an architect and at the Bauhaus, for example, Kandinsky discusses the character of certain primary colours, red, yellow and blue and the simple shapes of the circle, triangle and square. Both the Bauhaus curriculum from 1927 and the architectural education composed of the theory classes, *Baulehre*, and the construction department, *Baubteilung* as well as that of IIT with the study of the possibilities and limitations of various materials were concerned with the theme of construction. Similarly to the Bauhaus curriculum at IIT, Mies entrusted the urban planning classes to Ludwig Hilberseimer, who had already been director of the City Planning department at the Bauhaus, and who came to Armour in 1938.

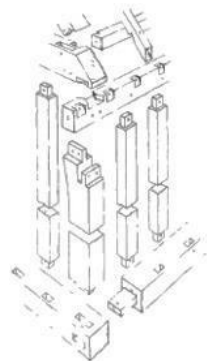
A major difference is the value given to technical mastery and rigorous drawing at IIT, as at the Bauhaus either in Weimar or Dessau, the student's inner expression in Itten's classes, form theory and



13 Garrett Eckbo, *Garden with abstract pattern of water, brick and planting of various colors and textures*, (1937).



14 Symmetrical array of lines of diminishing width and spacing, first semester, IIT.



15 study of history within the structural system of half-timber construction, third semester, IIT.

²¹ Such classes were composed of Giedion's views on the reasons for the emergence of a "new" architecture and by historiography.

²² Jill Pearlman, *Inventing American Modernism: Joseph Hudnut, Walter Gropius, and the Bauhaus Legacy at Harvard*, United States of America, University of Virginia Press, 2007, p.209

²³ Ibidem, p.96-97

²⁴ Magdalena Droste, *Bauhaus 1919-1933*, Berlin, Bauhaus-Archiv, Taschen 2019, p.48

color theory in the classes of Paul Klee and Wassily Kandinsky were at the basis of drawing teaching. With regard to the visual intuition of the student, at IIT it is understood that the students in Visual Training with Walter Peterhans studied the same aspects such as rhythm, composition, contrast, but did not analyze the works of their own teachers and former masters as they did in the Bauhaus or in the classes of Johannes Itten, Wassily Kandinsky or Paul Klee. Also different is the teaching of history, as it did not exist in the Bauhaus. Mies van der Rohe expounds his vision of this subject throughout his career at the IIT. This is evidenced in the Inaugural Address and in the texts *Principles for Education In the Building Art*²⁵ and *Baukunst und Zeitwille* (1924)²⁶ the student is challenged to respond with their thinking about architecture to the will of their time, as the past is approached, like with Gropius, as a living symbol of a moment with its own means, techniques and values.

0.4 Innovation in Education in the USA in its relation to the Bauhaus

04.1 Radical teaching methodologies

The teaching at Black College Mountain, where Josef and Anni Albers taught, is presented as more radical because it resembles the Bauhaus period in Weimar, more focused on the concept of *Gesamtkunstwerk*, the psychology of the students, perception and visual analytical techniques and the valorization of the concept of the artist regardless of being an architect, painter or sculptor. This was expressed in New York between 1950 and 1970 in squares or buildings in a corporate and institutional context.²⁷ Albers intended to *open eyes*²⁸ working the students' gaze by analyzing the physical and

psychic effect of colour and its relations with light, form or geometry. Furthermore, Marguerite Wildenhain (1896-1985), another Bauhäusler, stood out for her ceramics programme, which was to prove a landmark for the artists' colony in California at Pond Farm. Another revolutionary faculty that was born in October 1937 out of American pedagogy and the emigration of the Bauhaeusler Laszlo Moholy-Nagy was the New Bauhaus - Institute of Design. It focused on biological holism and the relationship between the intellectual and the sensory.²⁹ In essence, he aspired to a union between technology and innovative science, human nature and culture: biotechnology. The very programme that Moholy-Nagy presented in 1937 shows how the aim was to educate creative designers for manual, industrial and commercial production. Parallel to the progressive educational approaches in the USA, the *Hochschule für Gestaltung* (HfG) in Ulm, with its subtitle School of Design, was founded as an example of how in Europe, too, the design of industrial products and visual design, verbal means of communication, were emphasised. Examples of products developed by Ulmer's: appliances for the Braun brand, Otl Aicher's graphic design for both Lufthansa and the 1972 Munich Olympics.



16 Josef Breitenbach, Josef Albers' Color Class (summer 1944).



17 László Moholy-Nagy, *Tactile Exercises and Hand Sculptures* (1938).

²⁵ Alfred Swenson, Pao-Chi Chang, *Architectural education at IIT 1938-1978*, Chicago, Illinois Institute of Technology, 1980, p.61

²⁶ *Baukunst und Zeitwille*, *Der Querschnitt*, 4, n°1, 1924, pp.31-32 In Fritz Neumeyer, *The Artless Word: Mies van der Rohe on the Building Art*, Cambridge, Massachusetts, The MIT Press, 1991, p.245 -247

²⁷ Theodore Prudon, *Art, Architecture and Public in New York, 1950-1950*, *Docomomo Journal* n° 42, ed. Ana Tostões, Ivan Blasi, 2010, p.85

²⁸ Achim Corhardt-Hume, *Albers and Moholy-Nagy: Form Bauhaus to The New World*, London, Tate Publishing, 2006, p.98

²⁹ Hans M. Wingler, *The Bauhaus: Weimar, Dessau, Berlin, Chicago*, Cambridge, Mass.: MIT Press, 1969, p.196

04.2 Learning by doing

We can accept that the arts program designed by Rice and Albers for Black Mountain College follows Dewey's educational philosophy, *Learning by doing*, in assuming that arts training and individual hands-on student experimentation should be part of mainstream education through, for example, the arts course with Josef Albers. In the bulletin No. 2 this artist wrote for Black Mountain College, he quotes Rembrandt who opined that to learn to paint one should pick up a brush and start.³⁰ As is apparent from the Black Mountain College catalogue of 1933-1934, the courses consisted of drawing, colour and *Werklehre* classes taught by Josef Albers and weaving with Anni Albers. It should be noted, as Albers describes in Concerning Art Instruction, that the acclaimed *Vorkurs* course of the Bauhaus, is called *Werklehre* at Black Mountain College, but with a difference: constructive thinking as the basis for the use of each material and spatial exploration. One also understands Moholy-Nagy's connection to Dewey who argued that a progressive school should be based on a philosophy of experience.³¹ Dewey's book, *Art as Experience* was required reading in the product design workshop at the Institute of Design. In Chicago, Moholy-Nagy fosters *thinking in relationships*, a pragmatic approach to the relationships between individuals and society and a total, emotional experience composed of intellectual thought, historical and technological developments, practice and emotions. Thus, it meets Dewey's education as *experimental continuity* by studying the conditions of the environment surrounding the student to guarantee quality in his experiences and ensure a positive outcome for the future. In Harvard GSD, following Gropius and Wagner's teaching devoted to prefabricated and standardized construction, comes the May 1941 text *Opinion on Architecture*, written by a group of Harvard students that calls for a pragmatic expression in design of the American needs.³²



18 *Matière* study, texture with sticks and seeds, Black Mountain College.

04.3 Urbanism - Ecology vs American Capitalism

Regarding the ecological concern in the design of cities in the USA, the post-war proposals of the students of Martin Wagner and Walter Gropius at Harvard GSD stand out, promoting urbanization plans in which there was a mixed industrial-agricultural zone that absorbed the metropolitan population. At IIT, Ludwig Hilberseimer stresses and passes on to students how nature, natural resources and landscape are defining elements of a region. Comparing these visions with that of the "garden city", a concept created by Ebenezer Howard (1850-1928), one can see that the economy and capitalism are important to the point where industry is integrated into the settlements or autonomous cells and not so far to the periphery as in the architect's plan.

Urban planning associated with the American capitalist economy emerges with the attitude of Walter Gropius and Martin Wagner who treated aspects such as economy, utility, flexibility, affordability and new construction techniques also at the city scale. Contrary to Gropius and Wagner emerges the vision of Gaus who motivated his students to make decisions according to regional administration, the political, social, institutional, physical conditions of each American place, economic and geographical interests.



19 Harvard GSD students, proposal for *block-communities* aggregated around the community centre (1941-1942).

³⁰ Josef Albers, Black Mountain College Bulletin, Series 1, No 2, June 1934, p.1

³¹ John Dewey, Experience and Education, West Lafayette, Indiana, Kappa Delta Pi, 1998, p.17

³² Harvard GSD students among whom Bruno Zevi, draft *Opinion on Architecture*, May 1941, secção 7, p.20-21

It is also important to reinforce how much of the urbanistic changes in Chicago are economic in origin and not governmental or civic. In the context of new urbanism, we should mention the first modern plan according to Sara Whiting, *Near South Side Plan (NSSP)*³³ of Chicago.³⁴ This materialized in a new urbanism composed of campus superblocks and was a reflection on both the primacy given to the individual and the citizen who integrated civic associations.

04.4 History - a practical science with meaning

The teaching of history at Harvard GSD with Walter Gropius and Sigfried Giedion and at IIT with Mies van der Rohe meets Gottfried Semper's (1803-1879) vision of history as a "practical science". Semper, Gropius Giedion and Mies try to design a history resulting from their cultural expressions and the motives of their time, their *Zeitgeist*. Although historiography has been criticised for only tendentiously exposing works with the same visual expression, what is certain is that Gropius and Hudnut eventually unite at Harvard, adapting themselves to North American civilisation in the creation, in 1938, of *History and Principles of Design*. Here a chair similar to the preliminary course and Joseph Hudnut's traditional teaching of history coexist. In 1942, Hudnut was also in charge of three courses on the history of civic design, where society and the importance of architecture in the design of cities were discussed, and not the historical styles as was customary. The use of this tectonic expression understood as historical development is logically the result of a partial view. However, the account of these technical innovations was a human vehicle that denounced the civic aspects of a historical period as well as making possible the continuity of a coherent and rational dialectic as history changes.



20 First-year students from IIT, study of the development of the dome through various epochs, Church of the Sorbonne, Paris (Lemerrier, 1635-1659).

05.0 Conclusion

In conclusion, it is argued that Mies and Gropius assume an adaptive attitude of valuing the individual based on their interaction with the surrounding context, namely the American society. Thus, in the USA, a pedagogy emerged that excelled in the balance between emotion and technology, thought and action and individual versus collective. At a time when sustainability is the rule of the New European Bauhaus (NEB) project, it is understood that it is possible to establish a parallel between this idea of transformation and the achievement of Bauhausian principles in the USA. Here, the idea is transformed into a techno modernist attitude with awareness of the human scale. Although the nonmimetic implementation of Bauhaus pedagogy in the USA is interpreted by many as a failure due to its drastic differences and the strategic erratic pathway of Walter Gropius, it is understood that the diaspora of Bauhaus teaching in this country contributed to the rediscovery of a genuine north American culture.

³³ Sara Whiting, "Saving Modern Chicago", in Ana Tostões (ed), *The Shape of the City*, Lisboa IST Press, 2016

³⁴ The NSSP resulted in projects like the new IIT Mies van der Rohe campus or the expansion of Michael Reese's campus by Reginald Isaacs and Walter Gropius with the participation of masters like Ludwig Hilberseimer.

Bibliography

Books:

- ALBERS, Josef - *Interaction of Color*. New Haven and London: Yale University Press, 1963.
- BAYER, Herbert; *Bauhaus 1919-1928*. New York: The Museum of Modern Art: Distributed by New York Graphic Society, 1938.
- BEHNE, Adolf - *The modern functional building*. Santa Monica: Getty Research Institute for the History of Art and the Humanities, 1996.
- CORHARDT-HUME, Achim - *Albers and Moholy-Nagy: Form Bauhaus to The New World*. London: Tate Publishing, 2006.
- DEWEY, John - *Experience and Education*, West Lafayette, Indiana: Kappa Delta Pi, 1998.
- DROSTE, Magdalena - *Bauhaus: 1919-1933*. Berlin: Bauhaus-Archiv, Taschen, 2019.
- FRAMPTON, Kenneth - *Modern architecture: a critical history*. 4a ed. Londres: Thames & Hudson, 2007.
- GIEDION, Sigfried - *Space, Time and Architecture - The Growth of A New Tradition*. 3ª ed. Cambridge Massachusetts: Harvard University Press, 1941.
- GROPIUS, Walter; MOHOLY-NAGY, László - *Bauhusbuecher 1: Internationale Architektur*. 2ª ed. München: Albert Langen Verlag, 1925.
- GROPIUS, Walter - *Scope of Total Architecture*. 4ª ed, New York: Collier Books, 1970.
- GROPIUS, Walter, *The New Architecture and the Bauhaus*, Cambridge, Massachusetts, The M.I.T Press, 1965.
- GIEDION, Sigfried - *Walter Gropius and the Teamwork*. New York: Reinhold, 1954.
- HARRINGTON, Kevin P., ACHILLES Rolf, MYHRUM, Charlotte, *Mies Van Der Rohe: Architect as Educator*, Chicago: Centennial Project e Illinois Institute of Technology, 1986.
- HOROWITZ; Frederik A.; DANILOWITZ - *Josef Albers: To Open Eyes: The Bauhaus, Black Mountain College and Yale*. London; New York, Phaidon, 2009.
- JOHNSON, Philip - *Mies van der Rohe*. New York: The Museum of Modern Art, 1947.
- KENTGENS-CRAIG, Margret, *The Bauhaus and America: First Contacts: 1919-1936*, Cambridge, Massachusetts, London, England: MIT Press, 1999.
- LAMBERT, Phyllis - *Mies in America*, Montréal: Canadian Centre for Architecture. New York: Whitney Museum of American Art : Harry N.Abrams, Inc., Publishers, cop. 2001.
- LEACH, Neil - *Rethinking Architecture A reader in cultural theory*. London and New York: Taylor & Francis e-Library, 2005.
- MACCARTHY, Fiona - *Gropius The man Who Built The Bauhaus*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press, 2019.
- MOHOLY-NAGY, László - *Vision in Motion*, Chicago: Paul Theobald, 1947.
- NEUMEYER, Fritz - *Ausgebotet: Mies van der Rohe und das Bauhaus 1933 – Outside the Bauhaus – Mies van der Rohe and Berlin in 1933*. Berlin: form + zweck, 2020.

- NEUMEYER, Fritz, *The Artless Word: Mies van der Rohe on the Building Art*, London, England, Cambridge, Massachusetts, The MIT Press, 1991.
- NERDINGER, Winfried - *The Walter Gropius Archive: An Illustrated Catalogue of the Drawings, Prints and Photographs in the Walter Gropius Archive at the Bush-Reisinger Museum*. New York [etc.] : Garland Publishing : Harvard University Art Museums, 1990-1991, Vol. 1.
- PEARLMAN, Jill - *Inventing American Modernism: Joseph Hudnut, Walter Gropius, and the Bauhaus Legacy at Harvard*. United States of America: University of Virginia Press, April 2007.
- PEVSNER, Nikolaus - *Pioneers of Modern Design: William Morris to Walter Gropius*. Harmondsworth: Penguin Books, 1960.
- POWERS, Alan - *Bauhaus Goes West: Modern Art And Design In Britain And America*, London, Thames and Hudson Ltd, 2019.
- SEMPER, Gottfried - *Der Stil in den technischen und tektonischen Künsten oder praktische Ästhetik: ein Handbuch für Techniker, Künstler und Kunstfreunde (Band 1): Die textile Kunst für sich betrachtet und in Beziehung zur Baukunst*. Frankfurt a.M.: Verlag fuer Kunst und Wissenschaft, 1860.
- SEMPER, Gottfried - *Wissenschaft, Industrie und Kunst: Vorschläge zur Anregung nationalen Kunstgefühles, bei dem Schlusse der Londoner Industrie-Ausstellung*. Braunschweig: F. Vieweg und Sohn, 1952.
- SEMPER, Semper - *Vorläufige Bemerkungen über bemalte Architektur und Plastik bei den Alten*. Altona: Johann Friedrich Hammerich, 1934.
- SWENSON, Alfred; CHANG, Pao-Chi - *Architectural education at IIT: 1938-1978*. Chicago: Illinois Institute of Technology, 1980.
- TAFURI, Manfredo - *Theories and History of Architecture*. Lisboa: Editorial Presença, LDA., 1979.
- TOSTÕES, Ana - *Idade Maior*. 1ª ed. Porto: FAUP Publicações, 2015.
- WINGLER, Hans - *The Bauhaus: Weimar, Dessau, Berlin, Chicago*. Cambridge, Mass.: MIT Press, 1969.
- WILHELM, Karin - *Gropius als Industriearchitekt*. Braunschweig; Wiesbaden: Friedr. Vieweg & Sohn, 1983.
- WRIGHT, Gwendolyn; PARKS, Janet - *The History of History in American Schools of Architecture 1865-1975*. New York: Princeton University Press, 1990.
- ZEVI, Bruno - "Walter Gropius" - *Encyclopedia of World Art*. New York: McGraw Hill, 1959, vol.I.

Articles in periodicals:

- BROWN, W. Gordon – "Form as the Object of Experience: Georg Simmel's Influence on Mies van der Rohe", *Journal of Architectural Education* (1984-). Vol. 43, No. 2 (Winter, 1990), pp. 42-46.
- BENYAMIN, Jasmine – "Walter Gropius and Operative History: An Architectural Palimpsest". *Docomomo Journal*. nº 61 (2019/03), pp.18-23.
- BERDGOLL, Barry – "Momento mori or eternal Modernism? The Bauhaus at MoMA, 1938". *Docomomo Journal*. nº 61 (2019/03), pp.8-17.
- CANTO MONIZ, Gonçalo – "Training the Architect: Modern Architectural Education Experiences". In Ana Tostões (ed.) *Docomomo Journal*. nº 49 (2013/2), pp.10-15.

CHERMAYEFF, Serge - "L'Architecture au "bauhaus" de Chicago". *L'Architecture d'Aujourd'hui*. nº28 (1950), p.50-60.

DÍAZ, Eva – "The Ethics of Perception: Josef Albers in the United States", *The Art Bulletin*, Vol. 90, No. 2, College Art Association (junho 2008) pp. 260-285.

GROPIUS, Walter - "Architecture at Harvard University", *The Architectural Record*, maio de (1937), p.11.

GROPIUS, Walter – "Blueprint for an architect's training". *L'Architecture d'aujourd'hui*. nº 28 (1950), pp.81-76.

KLEMP, Klaus - "Dieter Rams: Ethics and Modern Philosophy. What Legacy Today? ", *Docomomo Journal*, nº 46, 2012/1, p.68-75.

MARKGRAF, Monika – "Bauhaus and Ulm School of Design Pedagogy towards the Creation of a Global Design", *Docomomo Journal*, nº 47, 2012/2, p.12-19.

NAGEL, Chester, "A Statement". *L'Architecture d'aujourd'hui*, nº 28 (1950), p.91.

PRUDON, Theodore - "Art, Architecture and Public in New York, 1950-1950". In Ana Tostões, Ivan Blasi (eds.) *Docomomo Journal* nº 42, 2010, p.79-89.

SCHOLZ, Maïke; LOHMAN, Daniel -" Zur neuen Welt" - Towards the New World. Ludwig Mies van der Rohe and his Architectural Youth in Aachen". In Ana Tostões, Zara Ferreira (ed.) *Docomomo Journal* nº 56, 2ª ed (2019), pp.6-15.

REYNOLDS, Katherine C – "Progressive Ideals and Experimental Higher Education: The Example of John Dewey and Black Mountain College". *Education and Culture*. Vol. XIV, Nº I, 1997, pp.1-9.

RICHTER, Hans; GRAEFF, Werner; MIES VAN DER ROHE, Ludwig – G: *Material Zur Elementaren Gestaltung*, no.2, Berlin-Friedenau, (1923).

SEVILLA - BUITRAGO, Álvaro - "Martin Wagner in America: planning and the political economy of capitalist urbanization". *Planning Perspectives*. Vol. 32, Nº 4 (2017), p. 481-502.

TOSTÕES, Ana – "Interview: Fritz Neumeyer". In Ana Tostões (ed.) *Docomomo Journal*. Nº 56 (2017), pp. 86–87.

TOSTÕES, Ana – "Interview: Jong Soung Kimm". In Ana Tostões (ed.) *Docomomo Journal*. Nº 56 (2017), pp. 88–89.

WHITING, Sara, "Saving Modern Chicago". In Ana Tostões (ed.) *The Shape of the City*. Lisboa: IST Press, 2016, p.29-43.

Documents available in Internet:

Albers, Josef, Concerning Art Instruction, Black mountain College Bulletin, Series 1, No 2, junho 1934, [Consult. 23 mar. 2021].

<https://blackmountaincollegeproject.org/PUBLICATIONS/BMCB%20SERIES%201/BMCB%20SERIES%201%20%20ALBERS%201/BMCB%20SERIES%201%20%20ALBERS.htm>

RICHTER, Hans, GRAEFF, Werner; MIES VAN DER ROHE, Ludwig - "G: Material Zur Elementaren Gestaltung", no.2, Berlin-Friedenau, 1923 , [Consult. 20 out. 2020].

<https://www.moma.org/collection/works/133638>

currículo de 1933-1934 de Black Mountain College, Black Mountain, North Carolina, UNC Asheville, Special Collections, 1933, p.4 [Consult. 23 mar. 2018].

<https://unca.contentdm.oclc.org/digital/collection/p15733coll6/id/92>

Currículo de 1933-1934 de Black Mountain College, Website UNC Asheville Special Collections & University Archives Consult. 23 mar. 2018].
<https://unca.contentdm.oclc.org/digital/collection/p15733coll6/id/1113/rec/1>

David Gilly, biografia [Consult. 14 jul. 2021].
<https://www.oxfordreference.com/view/10.1093/oi/authority.20110803095852722>

History of Bauhaus-Dessau [Consult. 14 out. 2020].
<https://www.bauhaus-dessau.de/en/history/bauhaus-dessau.html>

História da *Bauhaus-Universität Weimar* [Consult. 12 jul. 2020].
<https://www.uni-weimar.de/de/universitaet/profil/portrait/geschichte/>

Harvard library online – CIAM [Consult. 9 nov. 2020].
[https://iif.lib.harvard.edu/manifests/view/drs:446435410\\$6i](https://iif.lib.harvard.edu/manifests/view/drs:446435410$6i)

Journal da Escola de Hochschule für Gestaltung Ulm, 1958 [Consult. 12 jul. 2021].
https://monoskop.org/Ulm#/media/File:Ulm_1.jpg

“Institute of Design: A Brief “ [Consult. 14 mar. 2021].
<https://moholy-nagy.org/teaching/>

SEMPER, Semper - Vorläufige Bemerkungen über bemalte Architektur und Plastik bei den Alten. Altona: Johann Friedrich Hammerich, 1934. [Consult. 10 abr. 2021]
<https://digi.ub.uni-heidelberg.de/diglit/semper1834/0001>

Films:

documentário, The New Bauhaus, Alysa Nahmias, 2019

Other documents:

Alunos de Harvard GSD (entre os quais Bruno Zevi), texto “Opinion on Architecture” de maio de 1941

Gropius, Walter, “A program for Reciprocity in the Teaching of Regional Planning (City Planning) Between Harvard University and the Massachusetts Institute of Technology”, Houghton Library, 25 de Agosto de 1939

Hudnut, Joseph, Memoranda to Harvard President JB Conant

Interviews from Jill Pearlman to Gropius students for the book *Inventing Modernism*

Lepik, Andres, “Die Architekturausstellung als kritische Form von Hermann Muthesius zu Rem Koolhaas”, Wintersemester 2018/19, Die Architekturausstellung als kritische Form Lehrstuhl für Architekturgeschichte und kuratorische Praxis, Technische Universität München

Graphical Elements:

1 Outline of the dissertation structure.
Source: Own authorship.

2 Joseph Paxton, Crystal Palace (1851), *Great Exhibition*, London.
Source: GIEDION, Sigfried - *Space, Time and Architecture - The Growth of A New Tradition*. 3rd ed. Cambridge Massachusetts: Harvard University Press, 1941, p.254.

3 Henry van de Velde, *Großherzogliche Kunstgewerbeschule (1904-1906)*, Weimar.
Source: DROSTE, Magdalena - *Bauhaus: 1919-1933*. Berlin: Bauhaus-Archiv, Taschen 2002, p.19.

- 4 E. Dieckmann, composition exercise with various materials.
Source: BAYER, Herbert - *Bauhaus 1919-1928*. New York: The Museum of Modern Art: Distributed by New York Graphic Society, 1938, p.33.
- 5 Georg Muche, Haus am Horn (1923), Weimar.
Source: BAYER, Herbert - *Bauhaus 1919-1928*. New York: The Museum of Modern Art: Distributed by New York Graphic Society, 1938, p.84.
- 6 Walter Gropius, Bauhaus school building (1925-1926), Dessau.
Source: GIEDION, Sigfried – *Walter Gropius*. New York: Dover publications, INC, 1991, p.127.
- 7 Marcel Breuer, First tubular chair. Fabric seat, back and arm rests, (1925).
Source: BAYER, Herbert - *Bauhaus 1919-1928*. New York: The Museum of Modern Art: Distributed by New York Graphic Society, 1938, p.128.
- 8 Mies with his students in Pura.
Source: NEUMEYER, Fritz - *Ausgeboten: Mies van der Rohe und das Bauhaus 1933 – Outside the Bauhaus – Mies van der Rohe and Berlin in 1933*. Berlin: form + zweck, 2020, p.162.
- 9 Annemarie Wilke, Heinrich Neuy, Mies, Hermann Klumpp, Mies van der Rohe´s seminar (1931).
Source: DROSTE, Magdalena - *Bauhaus: 1919-1933*. Berlin: Bauhaus-Archiv, Taschen 2019, p.458.
- 10 Walter Gropius with master students, Harvard GSD (1946).
Source: CANTO MONIZ, Gonçalo, "Training the architect": Modern Architectural Education Experiences." In Ana Tostões(ed.) *Docomomo Journal*. nº 49 (2013), p.12.
- 11 Walter Gropius with Sigfried Giedeon, CIAM 6 (1947), Bridgwater.
Source: CANTO MONIZ, Gonçalo – "Training the Architect: Modern Architectural Education Experiences". In Ana Tostões (ed.) *Docomomo Journal*. nº 49 (2013/2), p.14.
- 12 Harvard GSD students, Exercises in Design Fundamentals (1950-1952).
Source: PEARLMAN, Jill - *Inventing American Modernism: Joseph Hudnut, Walter Gropius, and the Bauhaus Legacy at Harvard*. United States of America: University of Virginia Press, 2007, p.220.
- 13 Garrett Eckbo, Garden with abstract pattern of water, brick and planting of various colors and textures, (1937).
Source: PEARLMAN, Jill - *Inventing American Modernism: Joseph Hudnut, Walter Gropius, and the Bauhaus Legacy at Harvard*. United States of America: University of Virginia Press, 2007, p.99.
- 14 Symmetrical array of lines of diminishing width and spacing, first semester, IIT.
Source: SWENSON, Alfred; CHANG, Pao-Chi - *Architectural education at IIT 1938-1978*. Chicago: Illinois Institute of Technology, 1980, p.36.
- 15 study of history within the structural system of half-timber construction, third semester, IIT.
Source: SWENSON, Alfred; CHANG, Pao-Chi - *Architectural education at IIT 1938-1978*. Chicago: Illinois Institute of Technology, 1980, p.66.
- 16 Josef Breitenbach, Josef Albers´ Color Class (summer 1944).
Source: DÍAZ, Eva – "The Ethics of Perception: Josef Albers in the United States", *The Art Bulletin*, Vol. 90, No. 2, College Art Association (june 2008) pp. 261.
- 17 László Moholy-Nagy, Tactile Exercises and Hand Sculptures (1938).
Source: CORHARDT-HUME, Achim - *Albers and Moholy-Nagy: Form Bauhaus to The New World*. London: Tate Publishing, 2006, p.97.

18 Matière study, texture with sticks and seeds, Black Mountain College.

Source: HOROWITZ, Frederick A.; DANILOWITZ, Brenda - *Josef Albers: To Open Eyes: The Bauhaus, Black Mountain College and Yale*. London; New York: Phaidon, 2009, p.129.

19 Harvard GSD students, proposal for block-communities aggregated around the community centre (1941-1942).

Source: SEVILLA - BUITRAGO, Álvaro - "Martin Wagner in America: planning and the political economy of capitalist urbanization". *Planning Perspectives*. Vol. 32, n° 4 (2017), p. 491.

20 First-year students from IIT, study of the development of the dome through various epochs, Church of the Sorbonne, Paris (Lemercier, 1635-1659).

Source: SWENSON, Alfred; CHANG, Pao-Chi - *Architectural education at IIT 1938-1978*. Chicago: Illinois Institute of Technology, 1980, p.64.