

Form follows Meaning: the design process and the value of solitude

Forma segue Significado: o processo de design e o valor da solitude

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Abstract

Beginning with historical and cultural studies of the materials, form, and manufacturing processes of three iconic chess set designs (Staunton, Bauhaus, and Balanis), this paper discusses the development of seven conceptual chess sets by undergraduate design students in Brazil. To encourage creative practice guided by sustainable principles, this design exercise focussed on hand skills and the use of local natural materials or reused (discarded) materials. Walker's "progressive design praxis" was employed as a practical approach to design research, which combines thinking-and-doing to address the principle of "form follows meaning". Because of the COVID-19 pandemic, the exercise was developed online, with students working at home. Compared with the previous experience (2019) when students worked alongside each other in the studio, the elevated level of the design outcomes suggests that, despite the anxiety felt due to the pandemic, the tangible and intangible aspects of the artefacts were enhanced by students working in solitude.

Keywords: conceptual design; reflective practice; student-based design; creativity; solitude

Resumo

Partindo de estudos históricos e culturais sobre materiais, forma e processos de fabricação de três designs de conjuntos de xadrez icônicos (Staunton, Bauhaus e Balanis), discute-se o desenvolvimento de sete conjuntos de xadrez conceituais desenvolvidos no Brasil por estudantes de graduação em design. Objetivando incentivar a prática criativa orientada por princípios sustentáveis este exercício concentrou-se no desenvolvimento de habilidades manuais e no uso de materiais naturais locais ou materiais reutilizados (descartados). A "práxis de design progressivo" de Walker foi empregada como uma abordagem de pesquisa em design baseada na prática, que combina o pensar-e-fazer guiado pelo princípio "forma segue significado". Devido à pandemia da COVID-19 o exercício foi desenvolvido online, com os alunos trabalhando em casa. Em comparação com a experiência anterior (2019), quando os alunos trabalharam em grupos, o alto nível dos projetos sugere que, apesar da ansiedade gerada pela pandemia, os artefatos foram aprimorados pelos alunos trabalhando em solitude.

Palavras-chave: design conceitual; prática reflexiva; design baseado no aluno; criatividade; solitude



Introduction

The COVID-19 global pandemic imposed challenges in many areas of our lives, including education. The need to allow undergraduates to continue their studies during the pandemic compelled professors and students to quickly adapt to online teaching and learning. In design education, the impositions of social isolation and physical distance particularly affected practice-based curricular components normally conducted in design studio. Design modules that utilized fabrication labs or craft workshops needed to be improvised for 'at home' working, with online instruction and reviews. Face-to-face teaching and supervision, in which the professors demonstrated a specific process, skill or technique, also needed to be delivered remotely. Activities and exercises that were previously conducted in groups were replaced by the students working individually, thus social contact and ready access to materials and equipment in the design studio were no longer possible. On the one hand, these limitations created new challenges, while on the other, teaching staff and students learned lessons about the use of technology, working methods, and the potential benefits of project work that is progressed in a more solitary setting, without close contact with teachers and peers. Students had to be resourceful and they were able to call upon family members to access materials, learn new techniques and provide them with informal feedback. Many current design students tend to identify themselves with the designer-maker movement and prefer to work in groups when learning how to use new techniques and materials. This paper demonstrates how the first theoretical-practical student-based design exercise of an undergraduate design course, which was originally developed for a group-based, face-to-face learning environment, actually resulted in improved studio outcomes when it was reimagined for online learning.

The project was developed online with students working at home, within their family circle or in another safe place. The aim of the project was *to design a chess set that adhered to the ethos and principles of sustainability, employed basic maker processes and natural or reused (discarded) materials*. Guiding the approach was a consideration of human values that comply with sustainable principles, especially 'beyond self' and 'conservation' values – as articulated by Schwartz (2012). Walker's "progressive design praxis" (WALKER, 2019, pp. 268-293) approach was applied as the pedagogical methodology to address the principle of "form follows meaning" (WALKER, 2011, pp. 192-205; PANTALEÃO, 2020, pp. 25-67). Starting from historical and cultural studies of three iconic chess set designs (Figure 1) the paper presents seven, out of seventy, design outcomes developed during the pandemic period by Brazilian undergraduate design students of the Federal University of Uberlândia-MG, Brazil.

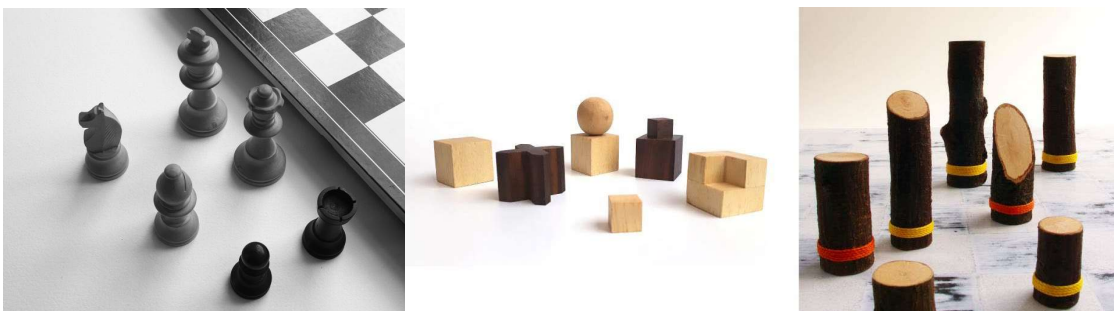


Figure 1: Left - the most popular and official model of the Staunton chess set, designed by Nathaniel Cook (1849). Image by S. Walker; Centre - Replica of the Bauhaus chess set designed by Josef Hartwig (1923/24). Image by L. Pantaleão; Right – Balanischesch set designed by Stuart Walker in 2014. Image by S. Walker

Despite the isolation from the university environment and the necessity to adapt the course, and despite the constant concern about COVID-19, both tangible and intangible design outcomes of the online course demonstrated a critical improvement with respect to design intentions and interpretations as related to the design of a conceptual chess set. This qualitative improvement in meaningful aesthetic expressions would seem to be a product of an improved sense of self-discipline, reflection and concentration when working alone with fewer distractions. Reflective practices and solitary ways of working are known to be conducive to creativity and syncretical ways of thinking-and-doing (EDWARDS, 2012, pp. 40, 57, 109). The design process indicates divergent approaches being employed in the development stages of designing physical artefacts. The process also indicates that students made considered attempts not only to employ practical approaches, but also to incorporate, ethical, symbolic and spiritual considerations into the process. In addition, the project helped to develop their hand skills, techniques and ability to work with a variety of materials and processes. The theoretical reasoning, research questions and aesthetic exploration of form in conjunction with materials selections, available tools, and their attention to detailing, refining and finishing, reflect a design *ethos* that was in line with sustainable principles, as described in an earlier paper by the same authors.¹

Practice-based fundamental design research: creativity, interpretation, and solitude

Since the advent of internet-based technologies, co-creation and participatory approaches have been increasingly used in academic research – including design approaches to sustainability – based on the so-called 'wisdom of crowds' (SUROWIECKI, 2004). With regard to creativity, however, many reflective practitioners and academics suggest that collective ways of working hinder the imagination. Although group-based processes can be very productive, collaborative practices and workshops tend to demand busyness and pre-planned methods. And this, unfortunately, constrains many contemporary design studies. The focus becomes diverted from creative development and synthesis, and the end product typically emerges in such strategies as frameworks, guidelines, and toolkits (WALKER, 2017, pp. 115-117). For these experts, the process of design teaching that is intended to develop creative thinking, creative practice and the highly focussed, reflective thinking-and-doing process is better suited to solitary creative practices (ibid, pp. 120-127).

"Productivity is not the same thing as creativity" (ibid, p. 117). The use of systematic methods in a creative design process – especially in the design education of early undergraduate years – can be entirely antithetical to the generation of creative ideas. Collaborative projects require rationalistic, so-called left brain-hemisphere² thinking modes. The ways of thinking

¹ PANTALEÃO, L.; WALKER, S. Conceptual designs for sustainable aesthetics: creative chess sets where form follows meaning. DESIGN ARTICLES JOURNAL (ONLINE), v. 29, p. 51-64, 2021. Available at: <https://estudosemdesign.emnuvens.com.br/design/article/view/1148> accessed 28 September 2022

² The functional specialization of the cerebral hemispheres results from neurosciences and dates to the 1960s. Led mainly by Michael Gazzaniga and Roger Sperry, who studied patients with split brains, which earned to Sperry the Nobel Prize in psychology and medicine in 1981 (GAZZANIGA, 2015; SPERRY, 1983). By integrating different expertise's from both cerebral hemispheres, the design activity can be conceptualized has been a synthesizing nature: when dealing both with tangible and external evidence of a rational order, typical of the Science and of predominance in the left hemisphere, as well as with intangible emotional intuitions, typical of the Arts and of predominance in the right hemisphere (WALKER, 2017; PANTALEÃO, 2020).

generally result in, and are useful for, incremental change and continual improvement. In contrast, imaginative, right brain-hemisphere thinking modes are capable of generating more imaginative, creative, holistic and visionary solutions. Notably too, these modes of thinking are inhibited by interruptions, distractions, talking and time constraints; instead they require solitary ways of working. Furthermore, this concentrated state of thinking-and-doing allows the designer to be open to spontaneity, invention, discovery, unexpected juxtapositions and surprise. This creative process includes subjective decision-making, intuition and serendipity (ibid, 2017, p. 120). Here, intuition can be understood as an immediate idea or feeling that is attained from a different mode of thought from those reached by logical, analytical processes, and serendipity in this context is a lucky accident whose unpredictable origin is beyond rational intention. Both intuition and serendipity are related to creativity and both arise out of a highly concentrated mode of working that is self-disciplined, contemplative and reflective (PANTALEÃO; PINHEIRO, 2009, p. 436).

As happens with the arts, especially with applied arts, research can be, and often is, characterized as a logical systematic search (methodo-logic). Alternately, it can be understood as a process that, like many other human activities, is not solely restricted to the scope of rational thought and knowledge. The creative processes so important to design and the other arts complement more objective analytical ways of thinking. Even among the sciences and engineering, which are even more analytical, rationalistic and 'left brain', intuition, serendipity, spontaneity and 'right brain' thinking are crucial for creative breakthroughs. In contrast to how it can be interpreted in academia as 'design scholarship' or 'scholarly research', 'design research' refers to a process that includes reflective practice as a co-evolutionary development of investigative exploration, personal expression, and tacit learning (WALKER, 2013, p. 447). Through a combination of theoretic-reasoned arguments and aesthetic-meaning inquiry in a two-way mutually informing process of thinking-and-doing (Figure 2), the designing creative activity is constantly interpreting, gaining understanding and applying ideas within a unified, flowing progression (WALKER, 2019, p. 285).

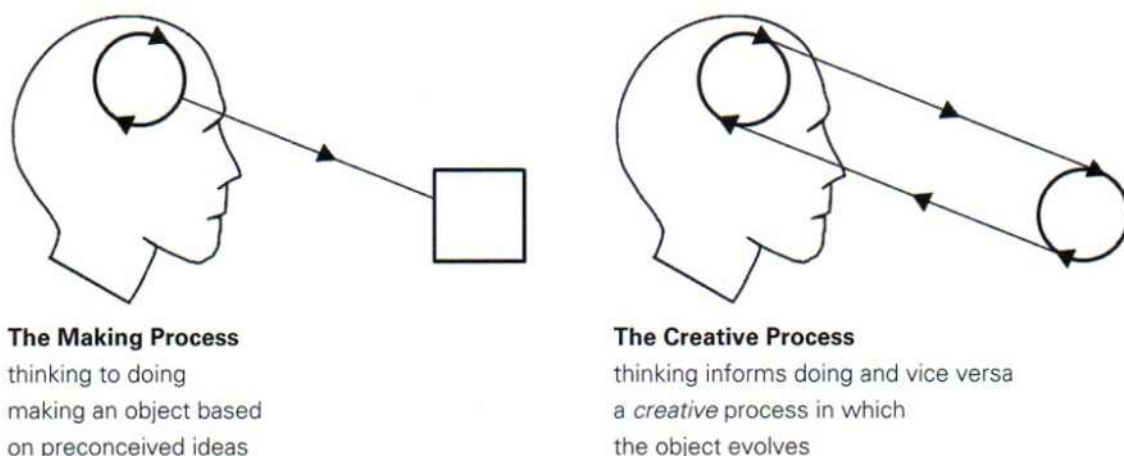


Figure 2: The Making Process and the Creative Processes (WALKER, 2017, p. 133)

Viewed less as problem-solving to determine technically results and more as question-asking to explore aesthetic-meaningful ideas and potentialities, a reflective design practice can help open up creative ways forward. These creative approaches complement and provide balance to

rational interpretations and understandings of the world. Moreover, when steered by ‘beyond self’ or self-transcending values as well as understandings of goodness found in philosophical and spiritual writings and traditions, they address broader questions about meaning and purpose and so help us find inner fulfilment in our creative endeavours. As a kind of practical wisdom that embodies ethical, symbolic and spiritual values, these approaches can be ‘proven’ through ‘evidence’. Instead, they require the use of interpretative methods that also take into account those considerations found in the traditional, collective, inter-generational wisdom of one’s culture (WALKER, 2019, pp. 283-286). This more informed creative process, which flows and flourishes when it is fluid and flexible, can be characterized as *practice-based fundamental design research*. It can be synthesized into three steps (Figure 3):

Theorizing: developing sound theoretical positions through reasoned argument and analysis, articulating the potential implications of these arguments for material culture, and developing intentions and criteria for design engagement. This aspect of the research process requires contextualization and extensive reading, writing, and thinking, all of which are carried out in conjunction with designing and reflecting on emerging outcomes.

Designing: the transmutation of the theoretical implications and criteria into design propositions that encompass and express ideas, and which ask if these discrete manifestations offer cogent and constructive contributions or directions forward. This phase utilizes design and visualizations skills involving materials, sketching, making, and manifesting.

Reflecting: pervading the whole process, contemplation of the theoretical ideas and criteria, and reflection on the propositional outcomes can connect and synthesize the endeavour and act as a springboard for subsequent phases of research. Reflecting on the readings, writings, and design propositions involves periods of contemplation where seemingly nothing is being done. However, valuing and giving time to reflection can yield spontaneous, intuitive awareness and sudden insights in which discontinuities and discordances become unified and harmonies are found. Reflection is critical to the process, and, like the activity of designing, it is also a practice-based activity, which benefits from discipline, persistence, and experience.

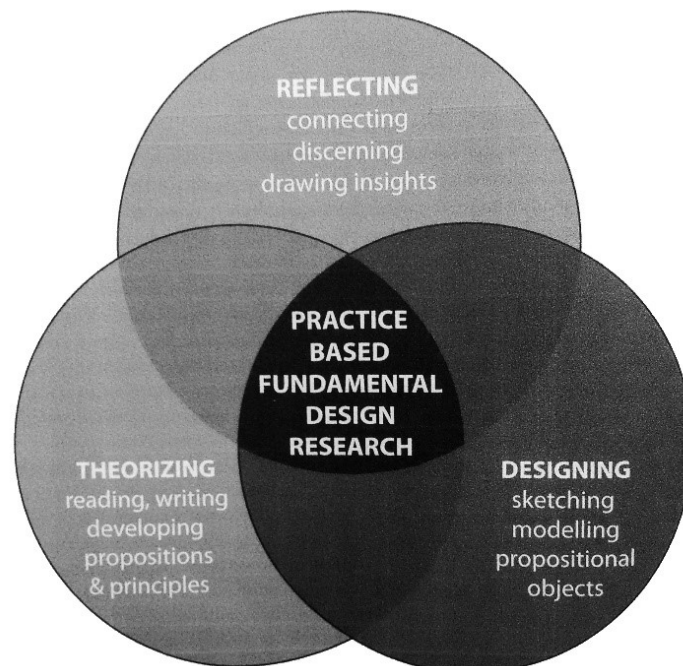


Figure 3: Practice-based fundamental design research (WALKER, 2013, p. 450)



In this way, we consider the whole as well as the individual parts to respond to the emerging ideas that we are externalizing and shaping. And when we take into account *doing* and *reflecting on doing according to an intrinsic set of values*, it is not purely subjective but is, in part, based in collective assent or verification (WALKER, 2019, pp. 285-287). A practice-based fundamental design research that is guided by self-transcending values of goodness, beauty and virtue provides a basis for sifting and synthesizing complex, often competing ideas and priorities into a coherent and particularized whole. When this occurs as a harmonic combination of theorizing, reflecting and designing it allows for fresh interpretations and originality. This process is enabled by – and indeed requires – solitude.³ Being alone in a state of quiet, reflective mode of thinking-and-doing allows us to enter into a deeply immersive, often intuitive and all-absorbing state of heightened attention, perception and understanding. In this state, which is conducive to creativity, imagination and synthesis, we are able to truly ‘see’, and in this immersive state of ‘flow’ we find we are able to transform theoretical ideas and abstract concepts into tangible design outcomes (CSIKSZENTMIHALYI, 1990, p. 71).

Methods: the Application of *Progressive Design Praxis*

In this practice-based design investigation the term *praxis* understood to refer to a form of practice that is concerned not just with actions but also with intentions and motivations. Since it involves intentions, and reflection on one’s intentions, ethics are implicitly a part of the process. Involving an unsystematic integration of thinking-and-doing, *praxis* is characterized by purposive actions, values and/or circumstances that recognize inherent connections between theory and practice, ways of doing, interpretation of signs, means and ends. In addition, *praxis* also refers to the role of creative activities in fostering humanistic principles such as equity, justice and environmental care within ethical, economic and political dimensions of life. Advancing according to an internal standard of excellence guided by reflective critique and ‘making relevant’ well-established, time-tested philosophical and spiritual teachings about values and virtue from one’s own culture, *progressive design praxis* facilitates a fully integrated, holistic design approach (WALKER, 2019, pp. 286-287).⁴

By adapting the four modes of hermeneutical interpretations⁵ (literal, moral, allegorical, and analogical or spiritual) and taking into account the ethical, symbolic and spiritual

³ In Portuguese, the terms ‘solitude’ and ‘solidão’ are treated as synonyms because they originate from the same etymological root: from the Latin *solitudine*. In both English and German, the difference between solitude and loneliness is better defined based on the antagonism pointed out by the German Theologian Paul Tillich (1886-1965): “Our language has wisely sensed these two sides of man’s [woman’s] being alone. It has created the word “loneliness” to express the pain of being alone. And it has created the word “solitude” to express the glory of being alone”. This differentiation is evident in the expressions *Einsamkeit* (loneliness = ‘solidão’) and *Alleinsein* (solitude = to be alone, literally). Cf. TILLICH, P. *The Eternal Now*. London: SCM Press, 1963.

⁴ In this context, by combining knowledge development through study (thinking), object creation (doing) and reflection (contemplation) an ‘integrated whole’ refers to an integrative design work that strives to create and/or help to cultivate inner development: i.e., a ‘holistic design’, in which the practice of design itself can be a way of pursuing inner growth and understanding (WALKER, 2017, pp. 107-108).

⁵ Hermeneutics refers to the interpretation of texts, speech, signs and human actions, “as well as to the study or analysis of interpretative methods”. The four modes of hermeneutical interpretations can be applied more generally: “Literal (the basic ‘outer’ or factual meaning; Moral (the lessons to be learned in terms of our proper behaviour towards others; Allegorical (symbolic meanings of characters, objects or events and Analogical (spiritual meanings and lessons that take us to a higher level of spiritual understanding)” (WALKER, 2019, p. 284).

considerations of one’s culture, it is possible to offer a succinct description of a broader reflective design process. These interpretative approaches involve a hermeneutical circle of understanding that circulates between the whole and the individual parts. By inference, these four modes of interpretation can be expressed as practical, ethical, symbolic and spiritual consideration that help ensure moreresponsible and thoughtful methods of practice-baseddesign. Theycan be understood as follows (Figure 4):

- a values-based process informed by the self-transcending values of one’s culture, which stem from its philosophical and spiritual traditions.
- A process in which the designer strives to interpret, understand, and apply these enduring values in ways that are appropriate to the present situation. In doing so, account is taken of the stylistic and aesthetic values of one’s own time, both to make the design relevant and because, by necessity, we interpret and understand through our own, contemporary eyes.
- a process that links reflection with action. It is thoughtful, philosophical, and concerned with depth of meaning and inner progression in and through human actions. Being motivated by intrinsic goals of excellence and virtue, it is less concerned with passing trends, market-led fashions, and other extrinsic objectives.
- a process that – because of its emphasis on self-transcendence values – is sensitive to sustainable principles i.e., issues of personal and social well-being, community, and environmental care.
- a process that recognizes the interpretative, temporal aspects of design and respects the historical basis of knowledge, enduring values, and human wisdom, all of which inform and influence contemporary perspectives and understandings (WALKER, 2019, p. 290).

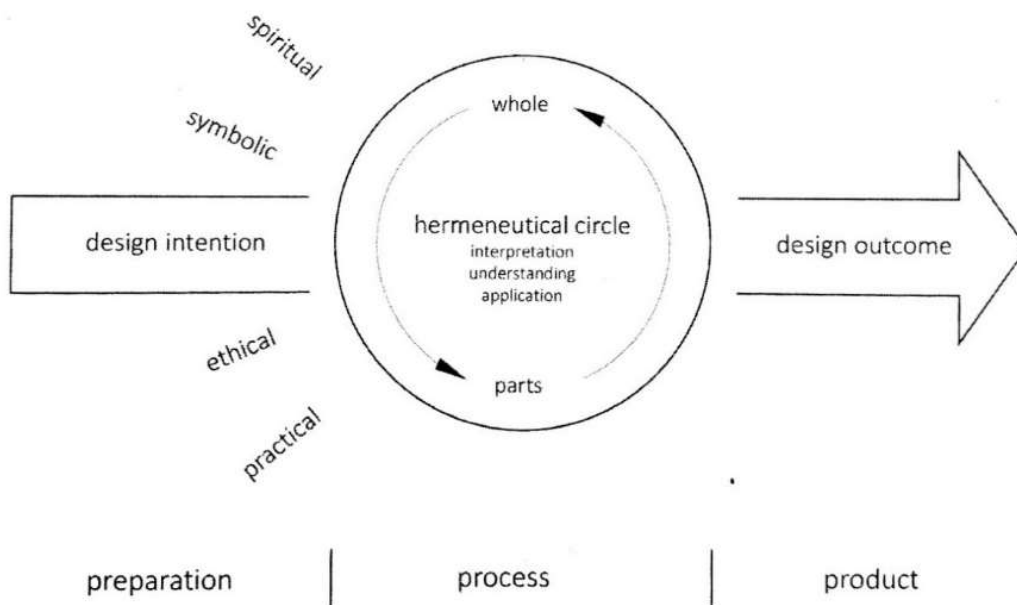


Figure 4: Progressive Design Praxis (WALKER, 2019, p. 289)

The focus of progressive design based on praxis is to inform meaning-laden intentions and motivations as broader ethical, symbolic and spiritual considerations for a particular creative design. It “can be understood as a purposive values- and virtue-based version of design practice” (WALKER, 2019 p. 292). This is because when the creative process of designing is

guided by form follows meaning, internal feelings and needs are expressed by more awareness of external movements and actions.

Student Project with Undergraduates

The findings and discussions of the practice-based design project demonstrated here refer to the academic semesters of 2021 and 2022. Because of the COVID-19 pandemic, students worked individually. Over ten weeks of online classes, students were presented with theories, methodologies, history and case studies. A theoretical overview of the aesthetics of the Staunton, Bauhaus and Balanisches sets (Figure 1) set the scene for the project, which was guided by the principle of form follows meaning.

Remotely supervised by the professor on a weekly basis, the synchronic meetings (virtual classes) happened via Microsoft Teams from May 12 to June 9, 2021 and from February 7 to March 14, 2022 (two 3-hour online sessions per week over two 4-week stages). In each of these stages, 35 undergraduate design students (70 in total) developed conceptual chess-set designs as a final project of the curricular-component 'Project I'. Online guidance meant that all interested students could watch each individual orientation. In this way, specific questions and directions were shared with all students.

Thinking-and-doing progressed relatively slowly, but with diligent decisionmaking. Students were able to follow their personal creative motivations when choosing to work on either Brief A or Brief B, as shown in Tables 1 and 2:

BRIEF A	
Intention (purpose)	To design a thematic chess set (pieces and board);
Target users	For own (personal) use or to give someone as a gift;
Materials and making	Selected by availability and purpose. Natural materials of local origin and simple processes not harmful to the natural environment.
Form	Distinctive artefact ; Hand-scale dimensions;
Design <i>ethos</i>	Each piece must be partly natural, partly determined by the designer, as a 'response-ability' to particularized (handcrafted) production.

Table 1: Brief A – Design with natural materials for small-scale (handcrafted) production

BRIEF B	
Intention (purpose)	To design a thematic chess set (pieces and board);
Target users	For own (personal) use or to give someone as a gift;
Materials and making	Selected by availability and purpose. Reused materials that are locally available and simple processes not harmful to the natural environment.
Form	Repeatable prototype ; Hand-scale dimensions;
Design <i>ethos</i>	Each piece must fit within a rationalized system; to favour serial (small-scale batch- or open source-) production and distribution.

Table 2: Brief B – Design with reused materials for serial (industrial) production

To strengthen the feeling of identification towards the artefact's development (personal meaning), the target users were changed compared to those of the first project (2019) i.e. from "Brazilian teenagers of both genders: students, sports players, users of games and other

electronic entertainments (e.g. social networks, smartphone apps, TV series, etc.)”, to “Own (personal) use or to give someone as a gift”.

In addition to designing the chess sets, students were instructed to write a brief descriptive text describing the intended concept as well as to photograph the artefact. Students were asked to write about their personal design intentions during the thinking-and-doing creative process, while including in their documentation:

- student's name (“the maker”);
- popular and scientific names of all natural materials used and where or how they were collected;
- names of all reused (non-natural) materials and where or how they were collected;
- brief description of skills, techniques and/or processes used in the development of the pieces and the board (e.g., modelling, sculpture, collage, sanding, painting, etc.);
- conceptual synthesis (logic) about the theme and the relationships between the different design pieces (hierarchy and meanings);
- names of people directly involved in the process (when applicable);

Students were also given the option to record and edit a short video (1-min) to show their creative process.

Findings and Discussion: the Design Outcomes

From the seventy artefacts developed by the students, seven are presented here, illustrating findings from both briefs. Figures 5, 6 and 7 express the ideas of creative research using local natural materials and a handcrafted process i.e., Brief A. Figures 8, 9, 10 and 11 reflect research with local reused and waste materials for repeatable design (for industrial and/or open source production/distribution) i.e., Brief B. The artefacts are accompanied by a short description of the materials and techniques employed, including the meaning of the theme chosen by the student.



Figure 5: *Sweet River*. Thaynara da Costa Teixeira (2021)

Brief A: Example 1 *Sweet River Chess Set*

This design (Figure 5) symbolically refers to a recent environmental disaster that occurred in Brazil: a mine tailings dam broke near the city of Mariana in 2015, releasing toxic mining waste, killing 19 people and devastating animal and plant life in and along the Doce river, which flows through the Minas Gerais and Espírito Santo states. Created by **Thaynara Teixeira**, this chess set design is made from natural materials that were found and collected along the banks of the dead river. The board is made from bamboo board (*Bambusa mangensis*) covered with local clay soil. The chess pattern and differentiation of the teams is made from leaves of a common grass called Ubá (*Gynerium sagittatum*) that are attached with liquid clay. The pieces are made

from rock fragments; castor beans (*Ricinus communis*) and sunflower seeds (*Helianthus annuus*), clam shells (*Corbicula fluminea*) and fallen branches of an endemic species of tree called “Gameleira-branca” (*Ficus doliaria*). The hierarchy expressed Thayneira’s subjective reflections on people’s behaviour towards environmental care. Her loved ones still live near the river, and each form represents one lesson learned about respect for nature: i.e., it expresses moral considerations.



Figure 6: *Macramé*. Valentine Mio Andrade (2021)

Brief A: Example 2 *Macramé Chess Set*

Developed by **Valentine Andrade**, this set (Figure 6) is made by *Macramé*, an ancient knitting technique. The board is made of square knots while the pieces are made by ‘festone’ knots. Both were inspired by local weaving patterns that are still used; the board follows a pattern called “*Manteigoso*” (*Buttery*) while the pieces follow a pattern called “*Rastro de Gato*” (*Cat-trail*). The hierarchical differences are reflected in the height of each piece. The white colour is made of cotton (*Gossypium*) yarn, the brown is of jute (*Corchorus capsularis*), while the blue is a cotton yarn spun and dyed by hand, kindly provided by Dona Cida, a local traditional weaver. It is worth noting that the activity of creating repeated knots in thread is a very rhythmic, solitary and contemplative practice: i.e., conducive to anagogical (spiritual) thinking and contemplation.



Figure 7: *Family Corn Festival*. Érika Cristina Severino (2022)

Brief A: Example 3 *Family Corn Festival Chess Set*

In this design, **Érika Severino** expresses personal ideas about affection, tradition and nostalgia (Figure 7). The materials were collected during a traditional festival in which her family meet at her grandparents’ farm to cook and eat typical foods made from corn (*Zea mays*), but due to the pandemic this year some of her loved ones couldn’t be present. In making the board, the corn straws were washed, dried in the sun, cut, braided, sewn, and stapled to an old picture frame. The chess tonality differentiation was achieved by dyeing the straw using coffee grounds (*Coffea arabica*) and finishing with coconut oil (*Cocos nucifera*). Inspired by the *Balanis* chess set, the

pieces were made requiring minimal intervention and the shapes were made with few handcuts. Hierarchy is according to height of the dried and threshed corn cobs and differentiation between the two sides is created by flame-singeing the tops of one set of pieces. In the text, the student reports her happiness in being able to have the presence and help of her parents, Mr. José Severino and Mrs. Maria Francisca da Silva Severino. This choice can be understood as an allegorical interpretation form to express personal feelings of belonging, identity and family ties.



Figure 8: *Great Brazilian Women*. Ana Clara Granero (2021)

Brief B: Example 4 *Great Brazilian Women Chess Set*

Exploring the theme of Great Brazilian Women, **Ana Granero** pays tribute to the achievements of those who advanced the cause of feminism and women's rights in Brazil (Figure 8). Ana created and developed a design using discarded nail lacquer bottles. Often discarded incorrectly with regard to recycling, these bottles were collected from beauty salons in the student's hometown (Franca, SP). The glass bottles were painted in purple, green and white. These colours were adopted in 1908 by the feminist movement who campaigned for the right to vote; the colours symbolize the suffragette Sylvia Pankhurst. The colour symbolizing British nobility being purple; the purity of women's claim to gender equality being white; and the hope of victory represented by green. The board is made of fabric patchwork donated by Tais's Cutting and Sewing Atelier, which belongs to Ana's mother. Although we might think that the hierarchy is related to each woman's achievement, the difference is defined by the bottles' forms and graphic symbols on the neck of the pieces. Expressing literal, moral and allegorical content, this design is accompanied by a legend about each woman with her name, photo and a brief account of her achievement.



Figure 9: *Brazilian Cerrado Birds*. Yasmin Bustamante Monteiro Jaber Barbosa (2021)

Brief B: Example 5 *Brazilian Cerrado Birds Chess Set*

This design, by **Yasmin Barbosa** illustrates six species of Brazilian birds found in the Cerrado (Figure 9), the biome where the university is located. Made from unused cardboard and paper and patiently embroidered with coloured threads, the hierarchical sequence expresses characteristics and meanings of the birds with the characteristics and meanings of the game pieces. The king is represented by the great-blue-macaw (*Anodorhynchus hyacinthinus*) a vulnerable bird (in risk of extinction) that must be protected. The queen is the violet-eared-hummingbird (*Colibri serrirostris*) that besides symbolizing beauty can move (like the queen in chess) in any direction. The bishops are represented by the parrot (*Amazona aestiva*), considered one of the most intelligent birds and capable of imitating human speech. The knights are toucans (*Ramphastos toco*). For indigenous people, its name means the bird with a beak as big as a sword. The rooks are represented by screech-owls (*Tyto alba*), a bird that usually makes its nests at great heights. The pawns are woodpeckers (*Colaptes campestris*), due to their being small, numerous and keeping a regular rhythm of movements. Through her approach, Yasmin expresses behaviour-related aesthetic expressions in the various pieces in addition to moral and allegorical interpretations.



Figure 10: *World Social Movements*. Fabianne Assunção Oliveira (2021)

Brief B: Example 6 *World Social Movements Chess Set*

Inspired by the electronic game “Among Us” produced by the game company InnerSloth, **Fabianne Oliveira** transposed symbols from the digital sphere to the physical form (Figure 10) using the theme of World Social Movements. The game board is made from a leftover porcelain tile from the student’s home. The pieces are modelled in homemade clay (*Biscuit*) obtained from a mix of cornstarch and white glue that sets when in contact with the air. The bases of the pieces are made from discarded bottle caps and the entire game is finished using fabric paint. The hierarchical differences are expressed through conceptual relationships in the history or function of each piece, and its respective movements are represented as follows: the king represents the black civil-rights movement; the queen feminism; bishops are ecologists; knights represent LGBTQIA+; rooks represent indigenous peoples; and pawns are manual workers. The aesthetics are moral and allegorical expressions of important social movements, and result from a patient and careful handcrafted process. The choice to approach these relationships of inherent nature to social justice, human rights and environmental care can be understood as internal requirements of self-transcendent values of each individual’s spiritual and ethical sensibility and development.

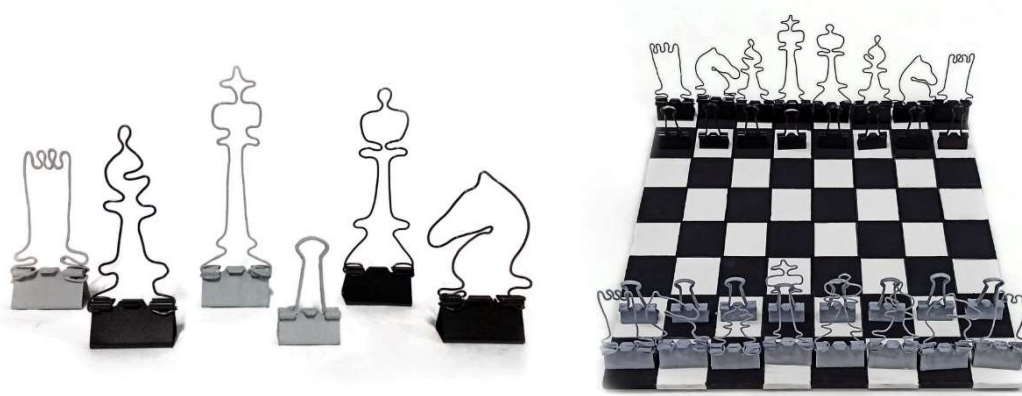


Figure 11: *Staunton Wire*. Natalia Silveira Rodovalho (2022)

Brief B: Example 7 *Staunton Wire Chess Set*

In this design, **Natalia Rodovalho** transposed the forms of traditional Staunton chess pieces into linear silhouettes using wire and paperclips (Figure 11). The sinuous contours of the shapes were made using a needle nose pliers. The board is a piece of medium-density fibreboard measuring 28x28x7cm. As in the original Staunton set, the hierarchy is expressed by the height of the pieces. The pieces were painted using black or white acrylics. In her description, the student reports that she studied Visual Arts before turning to Design, and therefore had all the necessary materials at her home. She also pointed out that she had help from her sister Maria Júlia. This direct interpretation of the Staunton pieces expresses a making process that is visually striking and a very creative, clever design. Its use of hand skills, with no need of highly specialized, expensive equipment, and its re-use of commonly attainable components support local production and is fundamentally egalitarian and socially equitable in its approach. It therefore expresses practical, ethical, symbolic/allegorical and even anagogical values.

Final Considerations

Looking at all 79 artefacts created by the students during the three steps of the experience (9 in 2019 in groups; 35 in 2021 individually, and 35 in 2022 individually) it was evident that group-based work generated more rationalist thinking modes, while solitary-based working encouraged more holistic ideas and synthesis. In quantitative terms, the solitary-based experiences produced a greater number of artefacts than the group-based experience. It is also possible to verify that women students demonstrated more mastery of engaged craft handskills than male students.

The project outcomes suggest that creative ways of working that are in solitude can be beneficial in terms of the depth of thinking and the designed outcomes. Because of an imposed social distance due to the pandemic, students and professors were obliged to adopt working methods that were more solitary. This period of aloneness fostered a deeper immersion in relation to one's academic tasks. In most cases, solitude provided an environment free from distractions in which participants could concentrate on specific activities. Even though face-to-face learning in the FabLabs was not possible, online classes meant that instruction could be shared with all the students, which allowed many different ideas to be heard and common questions to be discussed.



As a purposive values- and virtue-based version of design practice, *Progressive Design Praxis*—powered by solitude—helped to deepen the research into form-follows-meaning, according to individual interpretation and motivation, and access to materials and processes. Recognizing the limitations of reason, *Progressive Design Praxis* reoriented the priorities so as to be in closer accord with one's full humanity (right- and left-brain thinking working in harmony). This more holistic process helped lead the thinking away from pragmatic and incremental design outputs to more creatively original and meaningful design outcomes.

In didactic terms we can say that the pandemic experiences taught us some lessons:

- the simplification (synthesisation) of theoretical content optimizes the learning of the curricular component;
- progressive design praxis favours emergence of personal meanings and subjective reflections become clearer;
- the thinking-and-doing process motivates the students' sense of identification in relation to the maker movement;
- students achieved design outputs that expressed considerable understanding and ability in regard to incorporating ethical, self-transcending values into their aesthetic definitions;
- solitude—when easily and happily adopted—helps facilitate serendipity, tacit-learning, and self-reflection.

Creativity is the core of design. As with any activity that requires reflection, design is open to emotional inference, thus, the process must make time for periods of quiet to 'listen' to the inner self, and to allow serendipitous ideas to emerge from an open, inquisitive mind. The combination of thinking, doing, and contemplating is essential to animate and nourish greater understanding and insights. To create is to eliminate habits of stereotyped perceptions, thoughts and emotions in the practice, reflection, and teaching of design. It is up to designers and design educators to avoid fragmentary 'solutions' that value innovation and novelty for their own sake but, on the contrary, to consider more contemplative, thoughtful approaches to design that engage with and learn to express more holistically conceived ideas about *who we are* and *how we are* in today's troubled and increasingly fragile world.

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