

EITHER/OR: REFLECTING DESIGN THESIS ORIENTATION

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ABSTRACT

Thesis orientation fuels a global debate across the fields of design education. Considering Design a production agent for contemporaneity, design's expression redefines it and increases its territories. Acknowledging fluid behaviours and their relationship with reality is an ongoing and mutating Design achievement. The authors discuss traditional thesis orientation models, proposing an alternative model focused on contemporary reality. The model targets creativity, innovation and co-design, by fostering connections with reality and communities, according to circumstances, time, and space restrictions. The authors target the signifying logic operating towards Design research production, specifically through doctoral and pos-doctoral thesis orientation. To support this study the authors retrieve Kierkegaard's thinking in order to understand the proposed use of either/or as mediators between design development and reality. The first part revisits traditional methods of design orientation. The second part presents an alternative method. Methodologically, the authors analyze a case study of a musical instrument, using interpretation to reinforce the specificity of design of thinking and knowing. The authors intend to contribute towards the understanding of Design research, understanding that Design plays a key role in the twenty-first century reality transformation and enhancement, challenging designers to comprehend change as synonym for the life cycle of their field. As such, the authors' research question is how may Design thesis orientation impact Design and a sustainable future?

Keywords: Design education, creativity and innovation, design methods.

1 INTRODUCTION

According to Zygmunt Bauman (2002), modern reality creates a way of thinking and acting in constant change. Such an era, for being so fast, seems to reveal an individual who neither bounds to time nor settles in space, dissolving his longings onto immediate hedonism, collecting satisfaction from ephemeral solutions easily overthrown by different ones. This approach emphasizes how design education can and should be idealized, interpreting time, space, and circumstances that define today's reality. In methodological terms, a future hypothesis for both design education and design research is the creation of links with all the social agents. Specifically, convoking all actors into design, such as stakeholders that have never worked in the field, but who are an active part of reality and thus, in design process. Therefore, the complexity, ambiguity and contradiction of today's reality demand complex, ambiguous and contradictory methodology, including everything and everyone.

2 FRAMEWORK

Over time, the whole field of Design Education has changed by increasing links and collaborations with companies and institutions; coexisting with the global financial crisis. Subsequently, to innovate in Design Education through PhD theses requires a curriculum that creates genuine possibilities. Design Education should focus on a creative and holistic process, intersecting political, economic, technological and social contingencies, and cannot be restricted to answering organizational demands. It means thinking a new rationality, reinforcing 'designerly ways of thinking and designerly ways of Knowing' (Cross, 2006).

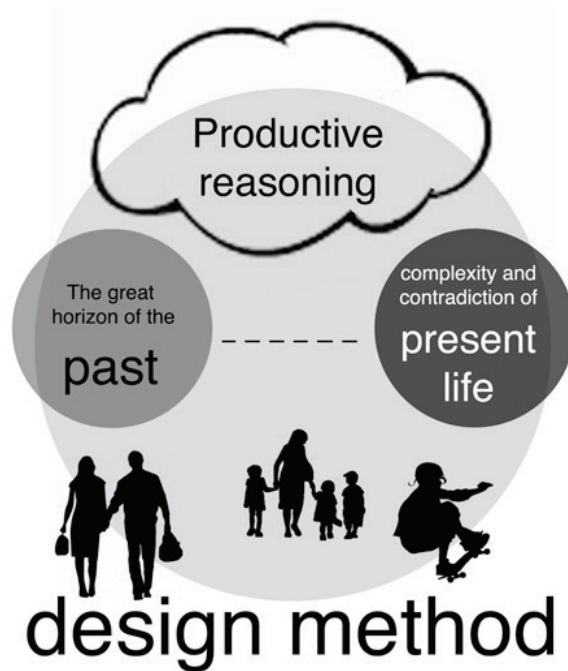


Figure 1. Design method based on past lessons to be enjoyed in the future. Diagram by the authors

2.1 Traditional thesis orientation models

As a reaction to post war changes, the problematic of action in new project methodologies began in the 1960's (Cross, 2006; Margolin, 1995; Buchanan, 2001), developing new design methods as an alternative to classical project methodology. The debate was between 'design science' (Archer, 1981) and the cognitive process. Eventually, design methods are based on intersecting fields, denoting the implications of productive reasoning (Cross, 2006).

Regarding thesis orientation models, some theses are product-oriented, and research is based on actual data, such as statistical data, marketing studies and/or surveys. However, this practice may compromise the validity of research based on tangible data, considering that the oscillations of reality causes advances and setbacks in the process, rendering the data irrelevant. On the other hand, although some theses are process-oriented, and their foundations based on interviews, this practice may also become compromised as researchers protract their studies over time, invalidating the collected answers.

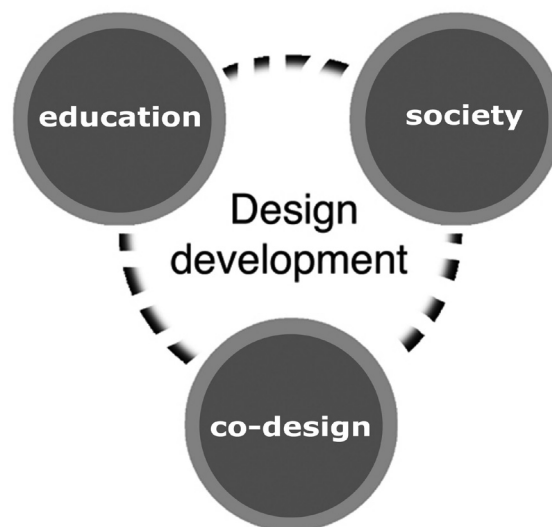


Figure 2. Design education development. Diagram by the authors

2.2 Kierkegaard's concepts on today's reality

Nowadays, Design research seemingly insists on the belief that opinion and reason are opposites and totally independent, instead of reaching for a balance between opinion and reason, adding value for all actors.

According to Kierkegaard (2013), philosophy should ask subjective questions about what human beings value and how they should live their lives, instead of pretending to reach objective truths about reality. This means prominence given to a subjective choice based on the individual own values. For design research, this may be translated as an opportunity to produce with intuition, creating links with reality, anchored in time, space and circumstances.

As teachers and theses supervisors, the authors were therefore interested in addressing the signifying logic operating behind the production of design research, particularly doctoral and post-doctoral research. Since the school is headquartered in the North of Portugal, design research is mainly oriented towards creating links between the artisanal sector and micro-enterprises.

Based on Kierkegaard's approach it may be possible to transform difficulties into advantages, heading for responsible design and establishing sustainability as design qualification. Either faith or reason, as interpreted from Kierkegaard's thinking, design research should focus on creativity and co-design with individuals and organizations that should join the process, in spite of never having worked in design. They represent a significant portion of the reality designers intend to interpret. Concerning new products design, this reunion may be articulated in a network system, consisting not only on producers, but on all actors, also valuable for the process outcome, such as users.

Designers have the responsibility to articulate such processes, designing methods and practices to allow effective interaction between all actors. It is important that social, cultural, and economic actors present their different points of view and interact in complex dialogues. This allows incorporating the *genius loci* onto material culture and design; capturing in time the prevailing character and atmosphere of a specific place. There are several innovation projects beginning with territory analysis, using existing productive resources and creating systemic products. Changes in demand were determinant for production structures that were more process-oriented and less product-oriented.



Figure 3. Design and music dialogue through creativity and co-design. Diagram by the authors

3 DISCUSSION

3.1 Method and material: producing a trumpet bell

In this study, related to a postdoctoral research, the authors present the case of the production of a "one piece" trumpet bell, absolutely innovative in the Portuguese context. The co-design creative process enjoyed a network of different production entities. The project aims to be a starting point for a territorial system of new product production in the area of musical instruments

Although in Portugal and particularly in the north there is a strong musical tradition of bands and orchestras, there is no production of metal instruments, in particular aerophones. This led to the importation of aerophones, particularly from Asian countries and the United States. The transfer of knowledge is a fundamental value for the development of a productive area or technology. This defines the value of Design as a carrier of experiences that generate collective development. In this

case, the creation of a musical instrument may in fact become the development of a systemic product, a multidisciplinary activity (Petiot & Gilbert, 1999) that is born at a local, artisanal level, and is able to expand to an industrial context.

3.2 Methodology

The process begun with a connection with a Sicilian (Italian) craftsman, Vito di Grigoli, specialized in the production techniques of brass instruments. He has produced brass instruments for more than 10 years. This connection also allowed the monitoring and verification of the project developed in the north of Portugal. In August 2015 Vito di Grigoli's workshop was visited, allowing the authors to observe and understand what stages of the process could be implemented, and how they should be developed in the Portuguese context. One step of the process - the transition phase from flat to conical form and the bell curvature of the copper - would be accompanied by Francisco Liquito, a tinker from the north of Portugal, who was chosen in the Minho region for his experience in creating musical products such as clarions, natural horns and gramophone horns.

The poor knowledge on music and its productive world determined a poor sound performance from Francisco Liquito's instruments. In fact, the musical artefacts he creates are only acquired for their symbolic value. Hence, the main reason why the artisan accepted our challenge was due to the strong probability, in a medium-long term, of becoming able to create objects with a significant sound performance, carrying more than just semantic value. The comparative analysis between the process developed with Vito di Grigoli in Sicily (Italy) and the process developed by Francisco Liquito in Minho (Portugal) allowed the authors to establish that the transition phase from flat to conical form and the bell curvature of copper could be developed in Portugal, considering the local tools used by the Portuguese artisan. Other player was the music player, who was also the designer. The active musical experience of the designer as trumpet player provided a clear interpretation for the ongoing research, allowing the formulation and verification of hypotheses. The musician-designer could validate knowledge on productive features and musical features, allowing informed choices and guaranteeing the quality of the final result. One of the authors of this article is also a music player and a designer.

Also, designers must be aware of the production systems potential and their relationship between human well-being and the planet's sustainability. In this sense, this project was divided in five patterns (Alexander, 1977): Pattern 1 - analysis of the productive scope with the musical instrument builder; Pattern 2 - choosing the trumpet's component; Pattern 3 - choosing project partners; Pattern 4 - creating satisfactory hypotheses (Cross, 2006), and Pattern 5 - quality test carried out by musicians to collect their judgment. This article will present the results of Pattern 5, namely quality testing by the trumpeters.



Figure 4. Prototype production. Images by the authors

4 EITHER/OR PROCESS APPLIED TO DESIGN AND MUSIC

This study enjoyed the participation of music players, whose opinion was paramount to produce the trumpet bell's component in an efficient and innovative way. It is important to ask trumpeters subjective questions about their own values, as individuals and musicians, and how they play their instrument, instead of reaching for objective truths about music instruments. That involves subjective choices from trumpeters own values. For design research, this may be interpreted as an opportunity to produce with intuition and creating links with reality and persons.

The produced bell has the collaboration of 5 Portuguese trumpeters. The bell to be played by the musicians was chosen during the production process. The results allowed the implementation of improvements in other bells manufactured subsequently. The bell was attached to the body of an existing trumpet from Asia and with poor quality. On the one hand, this choice derives from the fact that this model is well-known among musicians, particularly in music schools, and most of the chosen musicians were also teachers. On the other hand, the choice was intended to depart from a weak base, highlighting the performance and technical qualities of the bell.

In this process, the musicians tested and evaluated individually the quality of the bell, based on free parameters. The first trumpeter was a teacher who plays in the Portuguese Army National Orchestra. He mentioned that the instrument should be lighter and maybe the terminal part could be straighter. This is probably due to the fact that the musician plays mostly classical music, and he usually reaches the audience with a more vibrant sound. The second trumpeter was a university lecturer, conductor and mentor of this research. He mentioned that the achieved results were excellent and above expectations, agreeing with the first trumpeter regarding the bell definition. The third musician was music student and a trumpeter. He was very surprised, because although he felt the bell was heavy, it was very easy to play, facilitating the passage among harmonic notes. Finally, the fourth and fifth trumpet players were lecturers at the local Music Academy. They both referred that the choice of the raw material was very interesting. However, they disagreed on one issue: while one of them questioned the size and weight of the bell, the other agreed with everything; possibly because he was used to playing trumpets with heavy bells.

Although with slight differences, the judgment and opinion of the 5 trumpeters about the bell were consistent, namely regarding harmonic distances, ease of execution, sound buzz and projection. All of the musicians were extremely surprised by the bell's performance, indicating different justifications for the inclusion of the bell in the trumpet. These arguments depended on each trumpeter's personal way of playing the musical instrument. The individual opinion was founded on practice and experience. Some trumpeters used a tuner and compared the sound characteristics of the trumpet with their own trumpet.

Considering the trumpet base is poor, the musicians found the musical result surprising. The tests by the trumpeters were divided in two moments. A first stage when each one handled and played the trumpet freely, experimenting according to their individual background; and a second stage when they were asked to play the first moment of the Concerto for Trumpet in E flat major, by Franz Joseph Haydn (1796). This piece was expressly written for Anton Weidinger (trumpet virtuoso and trumpet designer), who created the first a 5-keyed trumpet allowing a full chromatic scale. The piece is intended to explore the harmonic sounds and ease of use the instrument can offer the player. It should be noted that this piece was well-known by all 5 trumpeters. The process also allowed questioning the geometry and shape of the bell, and the materials to use in the final model. Each trumpeter shared his own point of view, although they shared some views, such as the interest in trying the final product.



Figure 5. Players testing the trumpet. Image by the authors.

5 FUTURE EVOLUTION BASED ON TRUMPETERS' SUGGESTIONS

All suggestions and recommendations were analyzed and tested in the next phase, providing improvements to the future instrument. The original trumpet mould was changed. Different raw materials and methods were used to achieve a lighter bell. The dimensions of the hood edge were altered. The tests resulted in the development of the whole instrument.

The future discussion and interaction among players will also be valued, so that their individual expertise and judgment may be taken into consideration for eventual subsequent enhancements of the final product. The authors will also foster this dialectical process. Designers should foster the recurrent

checking of their design process, articulating different knowledge from different actors for an adequate monitoring of quality standards. In the specific case of the bell component, it is important to identify the characteristics the product requires, interpreting the detected weaknesses as advantages for the productive process management.

6 CONCLUSIONS

The implementation of this sort of design process fosters the development of enhancement systems, towards improved product functionality, practicality and semantic qualities. In the case of a musical instrument, the changes in the participating semantic features and properties, whether regarding materials, production or functional performance, allow the model to reach better standards. These standards may be personal but they are objective, rather than subjective. The introduced changes originate from different factors: how the instrument is played, which sound is preferred by the instrument player, who is the usual audience, what is the room like; or the historical context of the musical piece.

Ultimately, the development of an open process-oriented product system allows more interesting qualitative hypothesis and solutions than a closed system would allow. If an instrument playing experience may be a hedonistic performance, designing such instrument requires an open, altruistic process. In this process, with advances and setbacks, several other factors were involved, namely time, space, financial crisis or aesthetic considerations. As pieces from a puzzle with multiple solutions, such factors offer each individual designer the ability to excel at expressing their own self-identity.

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