

Innovation conceived as resistance in Design: a twist in the concept in contrast to the guidelines of the Oslo Manual

La innovación pensada como resistencia en el diseño: un giro en el concepto en contraste con las directrices del Manual de Oslo

Inovação pensada como resistência no Design: uma torção no conceito em contraste com as diretrizes do Manual de Oslo

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ARTICLE



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Abstract

This article aims to explore the concept of innovation through a design case, The Shoe that Grows. It is a type of sandal for children of adjustable size designed to adapt to children living in extreme poverty. The case attracts attention because it meets a human need and uses design and business strategies to democratize access to footwear. Through a study of the literature and taking the Oslo manual as its main contribution, there was a shift in the concept of innovation that can be understood as criticism, which leads the concept to expand.

KEYWORDS

Innovation, Education, Design, Oslo Manual, Market.

Resumen

Este artículo tiene como objetivo explorar el concepto de innovación a través de un caso de Diseño, The Shoe that Grows, un tipo de sandalia para niños de tamaño ajustable diseñada para adaptarse a los niños que viven en la pobreza extrema. El caso llama la atención porque primero satisface una necesidad humana y utiliza estrategias de diseño y negocios para democratizar el acceso al calzado. A través de un estudio de la literatura,

tomando el manual de Oslo como su principal contribución, presentamos un giro en el concepto de innovación que puede entenderse como una crítica, lo que lleva al concepto a expandirse.

PALABRAS CLAVE

Inovación, Educación, Diseño, Manual de Oslo, Mercado.

Resumo

Este artigo visa explorar o conceito de inovação através de um caso da área do Design, The Shoe that Grows, um tipo de sandália infantil de tamanho ajustável projetado com intuito de calçar crianças vivendo em situação de extrema pobreza. O caso chama atenção por atender primeiro a uma necessidade do humano e usa o Design e as estratégias de negócio para democratizar o acesso à calçados. Por meio de um estudo da literatura, tomando como principal aporte o manual de Oslo, apresentamos uma torção no conceito de inovação que pode ser entendida como uma crítica, que o faça ampliar.

PALAVRAS-CHAVE

Inovação, Educação, Design, Manual de Oslo, Mercado.

1. INTRODUCTION

This text arises in the middle of an investigation that aimed to explore the theme of creation and innovation in design education (Boanova, 2019). The latter is seen as the creator of a strategic problem-solving process that drives innovation and is responsible for linking it with technology, research, businesses and customers, while adding new value and a competitive advantage between the economic, social and environmental spheres. Concern for design education that trains innovative professionals

joins the judgments that education remains obsolete compared to market models (Melo and Abelheira, 2015). However, it is necessary to carefully consider and understand: What mobilizes education and the market? What are their policies? And who has the greatest resilience in defense of human life beyond the product life cycle?

Therefore, the objective of the study was to understand the concept of innovation from a case of design, The Shoe that Grows. It is a type of adjustable size sandal designed to fit children living in extreme poverty. From this, there was a

confrontation with the literature and the guidelines of innovation according to the indications formulated by the OSLO Manual¹. The confrontation resulted in a conceptual twist that can be understood as a review, whose objective is to allow the expansion and enhancement of the potential of the concept of innovation.

1.1. DESIGN, INNOVATION AND MARKET

Thinking about forms of innovation in design requires attention to explore the complexities of market systems in their engagement with customers, suppliers, consumers, among others. Design is a word with multiple entries, so it becomes relevant to bring the expectations and definitions of two organizations:

Design is a dynamic and constantly evolving discipline. The professionally trained designer applies to the intention of creating visual, material, spatial and digital environments, aware of the experience and using interdisciplinary and hybrid approaches to design theory and practice. He understands the cultural, ethical, social, economic and ecological impact of his efforts and his ultimate responsibility with people and the planet through commercial and non-commercial spheres. A designer respects the ethics of the design profession (ico-D, 2015). International Council of Design. Ratified by the Ge-

neral Assembly of Icoграда 25, Montreal, Canada, October 18, 2013.

The definition of the *International Council of Societies of Industrial Design* (ICSID) uses the term industrial design.

Industrial design is a strategic problem-solving process that drives innovation, generates business success and leads to a better quality of life through innovative products, systems, services and experiences. Industrial design closes the gap between what exists and what is possible. It is a transdisciplinary profession that leverages creativity to solve problems and co-create solutions with the intention of making a better product, system, service, experience or business. In essence, it provides a more optimistic way of looking to the future by reformulating problems as opportunities. It links innovation, technology, research, companies and customers to provide new value and a competitive advantage across the economic, social and environmental spheres (ICSID, 2013). International Council of Societies of Industrial Design.

In the previous institutional definitions, designers are seen as having strategic, technical and creative capabilities that generate solutions to practical problems, that is, innovators. Among their actions, we have the generation of ideas, the preparation of sketches, the selection of methods, the preparation and conclusion of the project, the monitoring of the production and post-production processes (industrial or not), following the modes of use and consumption, leading and taking care of the disposal and recycling of the product. In addition, these actions are crossed by: the dedication to the creation of strategic solutions for cultural, economic

¹ The Oslo Manual provides guidelines for collecting and interpreting data on innovation. It seeks to facilitate international comparability, and provides a platform for research and experimentation on innovation measurement. Its guidelines are principally intended to support national statistical offices and other producers of innovation data in designing, collecting, and publishing measures of innovation to meet a range of research and policy needs. In addition, the guidelines are also designed to be of direct value to users of information on innovation (OCDE / Eurostat, 2018, p. 19).

exchange and the offer of products with vast aesthetic and sustainable potential.

These definitions serve to return to design education and training and to talk about the requirements of those who study it, in order to obtain professionals capable of creating new solutions to old social problems, which is a responsibility of design courses. Taking into account that it is a requirement to understand the conditions of possibility of the intentional training of an innovative professional and, ethically, to know how much innovation is committed to the improvement of human life. All this based on the understanding that innovation is something with which one enters into a relationship (Boanova, 2019) and not something that can be trained to acquire (OECD / Eurostat, 2018). This is why it is significant to critically look at the concept of innovation.

To question the potential of design to escape from rigid structures and its ability to offer some form of innovation that resists social problems, a study was conducted through a case that highlights the client's performance in the social sphere and shows a product that resists and goes beyond competitive and capitalist advantages. The case *The Shoe That Grows* is presented as a plan of possibilities for what it means to innovate in the perspective of what we want to defend in this article, in which the client seeks a new form of expression in the contact with the reality of children in vulnerable conditions, summarized here by the expression, "sick feet of children". The scene is described in the next section to better present the case.

1.2. SCENE- THE SHOE THAT GROWS

During his stay in Nairobi, the capital of Kenya in Africa, Kenton Lee had an inspiring idea whi-

le watching children run and play barefoot or wearing broken shoes.

One day, I was with the children and I saw a girl with shoes that were too small. She had made an opening in the tip of the shoes to leave room for the fingers [see Figure 1]. [...] I saw that her fingers were out, full of pus, dirt and infected wounds [see Figure 2]. Later we discovered that 300 million children in the country did not have adequate shoes or walked barefoot through the streets. Her feet directly touch the floor, with debris, bacteria, trash and broken glass, which leads to a high percentage of injuries and infections. [...] It was then that I had an idea: What would happen if we could create a shoe that would increase in size according to the child's growth? (BBC Brasil, 2015; CBN, 2016).

Lee felt he needed to do something about it. His unexpected and involuntary encounter would lead him to design a sustainable shoe that would satisfy the constant growth of children and somehow accompany them. The rapid growth of children leads their parents, guardians or responsible to constantly invest in the purchase of larger shoes, which is sometimes difficult even for families with good financial conditions. Imagine, then, the difficulties of low-income families in keeping the feet of babies and children warm and protected, both on the African continent and throughout the world. *The Shoe That Grows* product has a lifespan of up to five years, the sandals are equipped with a rubber sole similar to that of tires and the reinforced straps are made of leather. What led the American from the state of Idaho to create shoes that 'grow with children' was the realization that their growth is constant and that the shoes purchased one day, barely

fit the feet the following year, making them obsolete. Therefore, Lee met a team of designers who develop sandals that can reach up to five sizes, equipped with adjustable buckles and super-resistant soles. "The creation process was interesting because I am not a designer" Lee told the BBC website. "And I didn't know anything about shoes. I'm just a common guy who had a good idea" (BBC Brazil, 2015). For the implementation of this design, he had the help of a company from the state of Oregon, which allowed him to technically materialize his idea. According to him, the entire design was created for the functionality of the footwear. Although he liked the look of the sandal, Lee says it was never a concern (see Figures 3, 4, 5 and 6). "Our goal was to develop a shoe that would last a long time" (BBC Brazil, 2015). The most interesting thing is that Lee's invention has been sent in an amount of more than 50,000 pairs to more than 70 countries such as South Africa, Kenya, Ghana, Nicaragua and Guatemala (VOA News, 2016). An incalculable reward for its creator.

Images of the creation of Kenton Lee: *The Shoe That Grows as a Child Grows* (BBC Brasil, 2015; CBN, 2016; VOA News, 2016).



Figure 1. Small shoes clipped to fit fingers, which caught Kenton Lee's attention in Nairobi.



Figure 2. Photograph of injured feet of children in Nairobi.



Figure 3. First prototype of the shoe.



Figure 4. Final result with Velcro.



Figure 5. Final result with Velcro and press stud buttons.



Figure 6. Photographs of shoes in use.

What draws attention to Lee's innovation is that he sought the solution to his need in the design field. His perception centered on the human being took him beyond the protection of the feet, raised the question of time and what can change, what can be adjusted and grow in the product. Protecting the feet is a basic necessity, *The Shoe that Grows* resulted in the implementation of a new product based on a redesign.

This innovation does not mainly meet consumption patterns, economic growth, product repositioning, business plans or competitiveness. The new product satisfies a basic human need that until that moment had not been addressed. Such innovation is close to the way one thinks that can be innovative, within the perspective of creating problems. Through the writings of Deleuze (2006), the creation of thought is the only true creation and is linked to the creation of problems and to thought without base on a previous image, without similarity. Lee reinvents the problem, his encounter with sick feet led him to a solution that did not exist until then. The result of his thinking, which at first had no image, led him to invent a shoe without similarity. What we want to explore is the repeated act as common sense of thinking about solutions and problems as something already known. Lee not only created a product or recreated the shoe, with the expression of the

new footwear he showed this dimension inherent in the growing body. Until then, growing up was non-existent or only remembered when buying a new shoe with a larger number. Lee acted as creator when he raised an unexplored problem by the footwear industry, his product fills a gap and talks about growing. Lee's task was that of an artist, he created a *noema* - state that does not exist outside the proposition that expresses it, a new node of meaning and turned it into an artifact (Deleuze, 2015).

2. CONCEPT OF INNOVATION AND CRITICISM TO UNIVERSITIES

Innovation can be seen as a typical business strategy. Companies seek to innovate to generate and capture value. Through operational excellence, they seek to innovate in: process, organization, logistics, product and business model (FAPESP, 2010; Rodríguez *et al.*, 2008; Salerno, 2012).

Salerno (2015) defines the differences between discovery, invention and innovation. The discovery is presented as a fact of the physical or scientific world and must be socially validated by their peers. On the other hand, the invention is a construct, a mentally created model that establishes a parallel between an idealized observation and a theory, idea or concept that results from the synthesis of simpler ideas. As an example of the invention, the author cites the 14 bis construct by Santos Dumond. Innovation is something that is linked to the market, it is an economic concept and cites as examples: frozen cheese bread, the clay filter that purifies the water and the container that revolutionized the protection in cargo transport. He adds that innovation is more than high tech, it is not the result of chance, but of systematic work organized and managed with the potential to introduce a new habit.

The concept of innovation that prevails in today's world moves away from Lee's achievement. The concept is specifically dedicated to a business and execution plan, to the client, to the consumer, to the target audience (appropriate name in the sense of who is impacted by something). Melo and Abelheira (2015) said, "We need to put people first. The customer experience is a strategic property of great importance for today's businesses" (p. 177). Let us keep in mind that the act of putting people first is immediately followed by the experience of those who are customers and consumers. If we think of the barefoot children of Kenya, they are not customers or potential consumers worthy of strategic planning of importance to current business models. Perhaps, in this market approach is the fragility of what it means to innovate, which seeks to find the answers to new problems in the midst of what is known.

It is not unusual reports and criticisms arguing that universities, schools and education must adapt to new times of innovation and updated business models. The fact that education is always one step behind the reality of the market is not uncommon. Designers are seen as not so capable compared to professionals trained by business and administration schools, who present themselves as excellent in the execution, in the enterprise and in the administration of what it is to innovate (Melo and Abelheira, 2015).

The criticism to education field, which for some reason mistrusts the market and avoids quick approvals, is based on the understanding that serving the market means reducing production for consumers. This reduction renounces the potential of the creations that will come in the mold, for example, of *The Shoe That Grows*. It finds no echo in the organized systematizations proposed by business schools that do not look at these cases when they seek profitabili-

ty, competitiveness and growth. The education machine does not easily combine with the market machine when it moves away from the main concern of defending life.

Other fronts subject to criticism are the notes and discussions on the few Brazilian patents, the economic percentage spent on research and development and the goals compared to other countries regarding the innovation rate. They are indicators of little value but widely used and list the percentage of companies that claimed to have carried out some innovation, even if such innovation already existed in the market (Salerno, 2012). Thus, innovation has become a place of theoretical convergence in the economy in which educational actions also become commodities. The realization of economic growth makes it imperative to adopt new technologies and apply more efficient management methods. Faced with this new reality, there is a need to expand human capital, in which work is adjusted through education and training in relation to a set of elements identified as the "true engine of economies" (Rodríguez *et al.*, 2008, p. 65).

According to Erber (2012) in his text *Innovation as a consensus*, the last quarter of the 20th century was a period of technological changes, manifested by the electronic paradigm that became ubiquitous and covered all sectors of the economy: from agriculture to creative industries. The term information and communication technologies (ICT) consolidated the paradigm of biotechnology and the emergence of nanotechnology. "Technologies have inserted the theme of 'technological innovation' in the positive agenda of public and private decision makers, making it a symbol of 'modernity' endowed with prestige and a strong capacity for legitimacy" (p.23). This prestige also creates demands in educational institutions that are seen as cooperative partners in this process. Howe-

ver, we wonder how to build the agenda regarding the care of human life.

Returning to the concept, what can be presented as innovation? Innovation² can quickly be seen as the creation of something new, but today the word is directed to the context of ideas and inventions related to economic exploitation and the inventions that reach the market. According to the Organisation for Economic Co-operation and Development (OECD, 2015), innovation is the process that includes technical, design, development and management activities that result in the commercialization of new (or improved) products and processes.

3. APPROACHES ABOUT THE CONCEPT OF INNOVATION IN THE OSLO MANUAL

The first edition of the Oslo Manual (1991), *Guidelines for Collecting, Reporting and Using Data on Innovation*, was edited by the Organisation for Economic Co-operation and Development (OECD) with the objective of guiding and standardizing concepts, methodologies and the construction of statistics and indicators for the development research of industrialized countries. In 2018, the manual reached its fourth version, adding comprehensive updates and more compatible with the implementation challenges in a context of digital transformation facing the economy and society.

The concept of innovation presented in the Oslo Manual (OECD / Eurostat, 2018), establishes that there are uncertainties about the results of innovative activities, about how much time and resources are needed to implement a new production, marketing or production me-

thod, or how successful these activities are. It reiterates that innovation implies investment. For Breschi *et al.* (2000), innovation is the substrate for overflows. The benefits of creative innovation are rarely entirely appropriate by the inventor. Companies that innovate can benefit from access to new knowledge or the use of original innovation. For some innovation activities, imitation costs are substantially lower than development costs, so an effective ownership mechanism that offers an incentive to innovate is required. Another noteworthy aspect of the Oslo Manual says that innovation requires the use of new knowledge, a new use or a combination of existing knowledge that is not standard routines.

The commitment to education proposed by the manual is placed as a form of employee training, where design is mentioned. Examples of training as an innovation activity include: a) training staff to use innovations, such as new software logistics systems or new equipment; b) relevant training for the implementation of an innovation, such as instructing employees or customers about the innovation capabilities of a product; c) the training necessary to develop an innovation, such as training in research and development or design.

In Chapter 5 of the Manual, *Measuring Business Capabilities for Innovation*, design is cited as one of the necessary elements to train employees and to develop an innovation. Design skills are listed, divided into three categories defined by their skill sets and purposes: a) Engineering design, including technical specifications, tools and prototype construction; b) Product design that determines the shape, color or pattern of objects, the interface between the software and users or the user experience in the servi-

² Word derived from the Latin term *innovatio*, which refers to an idea, method or object that is created by breaking with previously known patterns or styles.

ces and c) Design Thinking³, which is a systematic methodology to address the design of a good, service or system.

The two studied versions of the OSLO Manual (OECD / Eurostat, 2005, 2018) do not attribute the diversity of meaning to innovation with respect to the scope of its application as a vector of human development and improvement of the quality of life. The nine appearances of the word "life" contained in the 2005 Manual and the five appearances in the 2018 version refer to the product life cycle. Only in Chapter 8, the manual presents a table (8.1 Innovation objectives and outcomes for measurement, by area of influence) in which it exposes an important element: Improving the quality of life or well-being but does not explore how to achieve such improvement. How is that negligence possible? It is not surprising that universities and design courses find difficulties in developing what it means to innovate according to the perspective proposed and dictated academically by the manual. The manual is designed to analyze emerging problems in economic, social and environmental terms, but makes use of a language that serves the market, products and services without focusing on the human aspect.

Will it be possible to distort the meanings according to new agendas and towards different forms of production of the innovation concept?

4. INNOVATION CONCEIVED AS RESISTANCE: A TWIST IN THE CONCEPT

Let's go back to Lee's wish: he wanted to protect children's feet. Deleuze and Guattari (2011) do not disassociate the desire and the process of a creative escape line, drawn by the mechanisms of desire itself. Due to the demands of the capitalist market, desire separates itself from this process, subordinated to a system of repression-stress that detracts from the desire. Therefore, the clinical and political problem of the Deleuze and Guattari theory is to return to the process what intensifies the desire, allowing the creation of new ways of being in the world.

In this way, desire seeks other forms of expression and production of meanings along with the concept of innovation. It is remarkable that any mechanism of desire is combined with social mechanisms. However, it makes something escape, drain and create a time of fidelity and attention towards desire. These mechanisms respond to the will to deviate and recognize the losses that capital leads us to assume as true about what it is to innovate.

This article seeks to alert the almost exclusive place of theoretical convergence in the economy in which the guidelines for innovation are focused and strictly concerned with the search for economic growth and dedicated only to the application of more efficient management methods. What we want to question is the direction that innovation has taken, especially with respect to the work of universities. In Lee's case, we can see the concern with human development and the improvement of the quality

³ Design Thinking is a systematic methodology for the design process that uses design methods to identify needs, define problems, generate ideas, develop prototypes and test solutions. It can be used for the design of systems, goods and services (Brown, 2008).

of life, this is the vector that is asleep and forgotten by academic guidelines. Lee's case serves to illustrate another possible and invented path that is transformed but also is political, ethical and aesthetic. This 'asleep' side names what he imagines, contains clues about an innovative way of doing things that could interest university work and was thought of in this article as a space of creation and resistance.

It is important to highlight that this text is not against making management methods more efficient but clarifies that management is the only key to actions that involve innovation, especially those that arise from experimentation in educational environments. The Oslo Manual theory of innovation has taken a straight and unique line with a focus on the consumer, its training, maintenance and management.

Although Salerno (2015) expresses that innovation is not the result of chance, what is pointed out here is that it is the result of an unexpected and involuntary encounter, which does not mean that there is no work. However, only organized and systematic work does not guarantee the success of innovation. The twist also serves to point to clues in the reports and reviews that express that universities, schools and education are always one step behind market agendas.

The approach to the Manual for education raises concern, as it is proposed as a tool with a focus on training human capital to achieve innovation. In this context, the Manual talks about identifying possible forms of experimentation where design is mentioned but does not indicate the paths of creation that promote the quality of life.

Creating something with the sole purpose of consumption, even if it is distant and without considering people's lives, makes the innovative potential extremely reduced. The twist, in

this article, values the care of life. This is the key to what we stand for. Lee's excellence in innovation is undeniable, which ended up generating an expanding business plan in a segment that meets the first needs of human life. If we are still not able to take care of the feet of thousands of babies around the world, let's think about the following questions: Are we really innovating? How powerful will the business model be if it does not protect and care for life?

5. FINAL CONSIDERATIONS

Thinking about the concept of innovation without turning it into the universal concept is a political form of resistance. In the expression of innovating, there are other meanings such as: change for the better, give a new look, fix, correct, adapt to new conditions something that has been overcome, inappropriate or obsolete. To twist the concept of innovation is to think about its dimension and focus on the care and conservation of human life, without neglecting ethical, aesthetic and political issues. Therefore, turning or twisting the concept of innovation implies a gesture of constructing another aesthetic of existence that wishes to drive active and creative forces that place subjects in the face of other problems, as in Lee's case.

The case of *The Shoe That Grows* begins with human need and uses design and business strategies to democratize access to footwear, which in this case is an essential element. Financial capital comes as a support for this and not as a priority in an innovation project that seeks to reach a niche not yet served. Innovation comes first through the creation of thought, which in Lee's case, arises from the contact with injured feet.

Returning to Deleuze's writings, the creation of thought is the only true creation and is linked

to the reinvention of problems. Lee has an encounter with injured feet, this encounter makes him think while reinventing the problem to be solved with an economically viable and more durable shoe for a particular community. The way to innovate of the Oslo Manual ignores the creation of thought and is based on the anticipation of problems. In addition, innovation agents have the power and responsibility to provoke innovation by training human capital while dealing with content, organizing, preparing, translating and waiting for an immediate exercise of mental faculties. The concept of innovation presented in the manual ignores what is the creation of thought caused by unexpected or spontaneous encounters.

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