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OLD HOPES THROUGH NEW SCHEMES: A PATH TOWARDS INNOVATION

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ABSTRACT
This paper seeks to provide a method of developing innovative thoughts, theories and ways of doing by unearthing and reconsidering theories proposed as a reaction to the circumstances created by the Industrial Revolution. These theories might not have had the desired impact at that time, but this study offers the option of looking at them through the eyes of the present and merging them with new conceptions and ideologies. In this way, it is possible to generate innovative and practical ways of solving problems that emerged more than a hundred years ago and with which we still struggle. The central purpose of this paper is to prove how innovation can also be found in past studies and thoughts if they are applied in different ways, with new tools and in a contemporary context. Once all these has been stated the main aim or research question of this work is formulated as following: How to provide a way to generate innovative and relevant ways of product development that might generate higher ethical standards within product and industrial design theory, based on hypotheses and propositions formulated in reaction to the Industrial Revolution.

Keywords: Innovation, ethics, design processes, theories, industrial arts.

1 INTRODUCTION

A short but concise definition of innovation proposed by the Encyclopaedia Britannica is an ‘effect that brings social change’. The idea of social change can lead to a quite large number of patterns and concepts. The reason this concise definition is nonetheless offered is because it highlights that innovation is not necessarily the formulation of popular, trendy or lively ideas or concepts that might ‘take the public by surprise’ (who apparently are lamentably less and less susceptible to amazement) [1, 2]. On the other hand, innovation can be a concept that indeed generates, initiates, drives or assists social changes or transformations. Not all ideas are innovative and certainly not all the products within our reach have this specific quality, not even if they are famous or sell in large amounts [3].

This paper seeks to provide ideas on how to address and imprint innovation on the design process by looking, analysing, understanding and implementing theories generated in the late nineteenth century as a result of the industrialisation and mechanisation of labour environments. These theoretical contributions might have a strong historical basis and might seem ‘dated’ to some. However, research has demonstrated that many (poor) working and environmental circumstances that we find today were generated during this period [4, 5, 6], and, since we have not been able to get rid of or modify them, these theories are still valid and apply to contemporary scenarios [7, 3].

2 METHODS: FINDING SITUATIONS AND PROPOSING ACTIONS

This paper seeks to offer an option within product and industrial design theory, the main foundations of which are constructed on theory found in the literature and archives [8]. This research can be understood as the arrowhead of a larger study that might develop later, as practice needs supporting theories to provide the directions for which way to go and on what to focus [9]. The study presented is divided into two main areas.

First, an overview of the study’s context is provided, an analysis of the circumstances that developed during the late nineteenth and early twentieth centuries still identifiable at the present time. These findings were obtained through an archival and bibliographical research that, initially, form a picture of the working circumstances during the Industrial Revolution and then depict the same circumstances but in our times. Second, an analysis shows which circumstances have extended throughout both

periods. Based on this analysis, we identify the areas in which our 'effect that brings social change' has to act.
Once the field of change is clarified, then this paper proposes an alternative to how to improve these circumstances, formulated based on theories developed at the same time that the problems first emerged, more than a hundred years ago. Remembering that these theories are clearly not new in our current context is relevant, yet, while they were generated as a response to ongoing problems that also emerged more than a hundred years ago, these ideas have endured until this time. They are as valid as they were in the moment when they were first proposed. The innovative part of this study lies in how to extract these theories, analyse them with the eyes of the present, merge them with current postures and propositions and, finally, implement them in current projects to solve problems more efficiently. All this is achieved by comprehending past and new theories, suggesting examples of projects already being created and, last, providing a proposal for the development of projects.

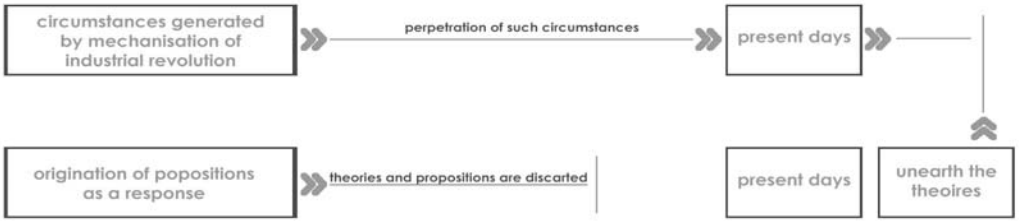

Figure 1. Visual representation of a timeline

3 VIEWS ON HOW TO PROCEED

As previously mentioned, the body of this paper is divided in two main sections. The first exemplifies and describes the improbable circumstances that the industrialisation and mechanisation of tasks created in the Industrial Revolution imposed on the workforce and environment, circumstances that are still visible and that affect a large percentage of the world's population. Once this is clarified, then this paper presents two projects that have sought to improve these conditions through creative, innovative ideas and ways of thinking and doing. Finally, a contribution to theory is offered in order to widen the discussion with a more pedagogical perspective.
Some authors distinguish a very strong connection between works performed in the late nineteenth century with the propositions created by the modernists along the twentieth century. Author Clive Wainwright suggests that the very foundations of the modern way of thinking was highly inspired by individuals such as John Ruskin and Viollet-le-Duc who started differentiating the aesthetic attributes from the functionality of the from [10]. These ideas that emerged in that specific period moulded the way the modernists perceived design, and since the modern approach is still quite visible and has been one of the most important pinnacles of our to-day ways of doing, we cannot deny that at some extend those ideas that emerged on the middle and late nineteenth century still mould the way things are doing these days.
This is just an example that old ideas and propositions can penetrate in the schemes we currently possess by many means, some are the inspiration or the precursors of our contemporary actions, some others however might have systematically disappear or put aside, but that wouldn't necessarily mean that are not valid or proved wrong.

3.1 Areas of change

Automation and mechanisation of different tasks – more concretely, those that emerged as a consequence of the Industrial Revolution's technical and technological impulses among furniture makers – changed working procedures in many ways. These technical and technological 'improvements' were created to help workers and make their exertions easier and more bearable by reducing physical work and the time needed, as well as diminishing the complexity or 'skilfulness' of certain tasks. At least, that was the primary intention. However, inherent in these transformation, harmful situations emerged as well. Work that was initially performed with skill and precision changed to mechanical routines full of boredom and monotony, making workers uncreative and demotivated and transforming skilled craftsmen into mechanised operatives. We can observe that these circumstances have not changed until today, and workers in many sectors of industry, just as they did in furniture making, complain about monotonous tasks, excessive working hours and unfavourable

circumstances in working places. Clearly, the automation of activities has not brought more fairness to workers: it has mainly brought greater income to 'owners'. Reflecting on these matters, designers have the opportunity to contribute to changing these patterns by generating projects that incentivise the capabilities and productivity of skilled workers, giving them the opportunity to develop and participate with their imagination and characteristics [11]. This means generating projects that involve the workforce and thinking systematically about their needs and conditions, instead of only relying on them as an assumed and 'de facto' phase of the manufacturing process. As Kropotkin wrote in 1900:

> Must all this skill, all this intelligence, be swept away by the factory, instead of becoming a new fertile source of progress under a better organisation of production? Must all this independence and inventiveness of the worker disappear before the factory levelling? And, if it must, would such a transformation be a progress, as so many economists who have only studied figures and not human beings are ready to maintain? [4]

Human capital has not been the only element affected by this way of producing items. It is of importance to recognise that great damage has been caused to ecological and environmental systems through the economic, manufacturing and distribution frameworks applied since the Industrial Revolution. Kropotkin incisively described this as 'the narrow conception that profits are the only leading motive to human society, and the stubborn view which suggests that what has existed yesterday would last forever'. In 1911, Morris offered a proposition:

> There is one duty obvious to us all; it is that we should set ourselves, each one of us to doing our best to guard the natural beauty of the earth: we ought to look upon it as a crime, an injury to our fellows, only excusable because of ignorance to mar the natural beauty, which is the property of all men; and scarce less than a crime to look on and do nothing while others are marring it, if we can no longer pledge this ignorance [11].

A hundred years ago people were already considering and analysing the great havoc that mass production had on our natural resources. Today, this is a reality that cannot be ignored anymore. Again, this offers a wide area of opportunity for designers to develop intelligent solutions, either by safeguarding and preserving the natural environments that still exist or by taking a step forward and improving those systems that, in most cases, are already damaged or endangered. Proactive efforts have emerged, and many authors have attempted to arouse designers into taking a stand when it comes to addressing these matters. In summary, it can be stated that designers can choose to generate projects that preserve or promote ecological considerations, among which are ideas on how to reduce materials and eliminate packaging, shipping and transportation, as well as relying on controlled sources, markets and working environments [12, 13, 3].

Figure 1. Graphic displaying the use of bibliography

3.2 Two projects as an example of innovation in design

In the next subsection, two projects from two different designers are presented and explained. These projects were selected because they reflect the ethical qualities presented by the theories emerging in response to the Industrial Revolution. These examples are related to the theory and methods previously described and they will be useful in the discussion and conclusions of this study.

3.2.1 Safeguarding local environments and means of production

The Eco-Recliner of British designer Simon White appears to be a simple, humble product. As stated earlier, small but well planned and executed projects can lead to large impacts. This recliner's innovation does not lie in its form or aesthetics; it is stated in the manufacturing methods and the selection of materials. When this project was developed, it was a pioneer in only using protected, regulated and locally extracted ash wood in its construction. The manufacturing of this product ensures energy and resource consumption is reduced, and it can be performed in considerably smaller environments. This project safeguards local environments and brings work back into the hands of craftsmen and small producers, instead of being mass-produced in order to put relevance in the hands of these individuals again [14, 15].

As a response to the industrialisation seen in his time, Morris long ago proposed local markets and crafted means of production be established as a pathway towards workers' well-being and ecological sustainability [10]. Because of increased, mainstream patterns of mass production, these ideas had little impact in his time, and sometimes were considered mere romanticism [16]. However, now that people's mind-set and circumstances is different, these kinds of approaches might have a better ground on which thrive and work. As we can see from this comparison, White has not 'invented' or created the theories or frameworks of the characteristics he decides to imprint onto his projects, but this could be an example of how an innovative designer sees the potential of some 'old' ideas as for example the utilisation of craftsmanship as a mean of production, and puts them in practice with positive results.

Something that might be important to take into consideration is the fact that the concept of locality was already present in times as the late eighteen century, people in that time were already talking of using local materials, sources and even abstract forms such as colours to generate pieces of use and of architecture [10]. Ideologies of individuals as Sir Joshua Reynolds and William Wordsworth were collected and used by John Ruskin, then these ideas passed to Morris and the chain of knowledge can be then traced until our time.

3.2.2 An aware and conscious designer

Another contemporary example is the more conceptual work and approaches of British designer and naval architect David Trubridge. He invites us to think about the way production in design has led to unnecessary consumerism. He questions the ethical considerations involved in the way we put things on the market and challenges designers to consider if they need to put yet another 'product' out there in a market that is already overloaded with goods and objects – with invented necessities and artefacts of 'pleasure' but not 'usability'. He criticises the impact and trail of 'litter' a person leaves behind when he or she acquires and disposes significant amounts of goods throughout his or her life.

Trubridge is innovative because he sets opinions at the core of what a designer is supposed to do. He puts in doubt the essence of product and industrial design and invites the people involved in this area to criticise and consider other aspects rather than the expected impulse to sell. Sometimes, designers are so concentrated on solving 'problems' that they fail to analyse if the problems are actually there or if the 'solving' of that problem would cause even more issues.

These theories and thoughts appear to be strongly related to environmentalism since they seek to generate change in the current means of production and distribution [17]. Again, we focus on diminishing the load of manufactured goods to relieve pressure and bring more virtue on and to the structures that provide these goods: nature and human hands. Trubridge not only pleads for an aware and conscious public and consumers, he also seeks to promote this in designers because he believes his duty lays in incentivising these changes.

4 A PEDAGOGICAL CONCEPT

These theories this discussion is based on certainly cannot act by themselves in this current and quite different environment. They have to pass through the filter of this new reality and somehow be moulded to meet new requirements.

One point that can be expanded upon is related to intermediaries in design production [6]. Designers would more easily and more effectively work on more simple schemes where the maker and the user are close and have an intimate relation, one knowing the needs and desires of the other [5]. When mass production started to be the main way of production, secondary industries started to emerge between users and producers. These intermediate industries created a bigger distance between the two groups that formerly had to be necessarily close. This separation developed into negative circumstances for

users because, since the intermediaries had to receive some income, the products would become more expensive. This process also affected the producers in important ways. In order for these intermediaries to survive, the producers had to lower their prices. Consequently, the workers were the ones that suffered the most [4, 6]. In addition, since the close connection between them was lost, it became more difficult for one group to identify the needs and understand the conditions of the other. Thorpe writes that, 'with global sourcing of lower-cost materials and labour, substances banned in "developed" countries can be used in "developing" countries and then enter developed countries as finished products' [3]. The theories described above consider the benefits of bringing production once again as close as possible to the users. Both parties will benefit if projects with these characteristics were to be developed, reducing the role of intermediaries such as distributors, shippers, retailers and sellers. Fuad-Luke suggested that:

> Green design has a long pedigree and before the Industrial Revolution it was the norm for many cultures. Goods like furniture and utility items tended to be made locally by craftsmen such as blacksmiths, wheelwrights, and woodland workers, from readily available local resources. [12]

The issue of local materials is also something that has to be seriously considered. If designers would use only (or mostly) materials found in close localities, the large market of materials distribution would be reduced, and, with this, the demand for non-protected or endangered raw materials would fall. Design would mould and adapt to the circumstances of the places where it is performed, not as sometimes has been the case – the other way round. The usage of mainly local materials would, quite importantly, confer on the design a uniqueness and particularity that would be unmatched, generating beauty and singularity in projects [1]. Thomson stated that:

> The Nordic Ecolabel, Blue Angel and EU Ecolabel are used to mark products that meet extremely high environmental requirements based on lifecycle assessment (LCA). This includes an assessment of raw materials, production, use and disposal, fair trade, promotes better prices, decent working conditions, local sustainability and fair terms for farmers and workers. [13]

Technology is not something that needs to be seen as opposed to these matters. It is exactly the opposite. As explained previously, all technological advances that occurred in the Industrial Revolution was meant to help workers and to make his tasks more bearable. That it did not accomplish this is because of the greed of, and misuse by, some segments or entities within the production processes [5]. All the technological tools the modern world possesses can be put to the service of people and users. The more production adopts these approaches, the more these theories can be validated. Two positive and supporting perspectives from two different authors can be added here. One said, 'New technology is taking production back to the small-scale craft user and placing it in the hands of the consumer' [18]. The second stated, 'While the word [craft] may have disappeared from some visible marquees, the good news is that the material concerns, processes and transformations that craft addresses are enjoying larger and more usually literate audiences than ever before' [13].

5 DISCUSSION

It might be possible to start the discussion by addressing the point that talks about the importance of being able to understand theory and what it means in current contexts; it might be that it's possible to track every single current of design throughout all our history in today's design and doings, and this can be by various means, it might be that some product in particular was conceived by getting inspiration on something previously made. Author Clive Wainwright states that architects and designers consciously and unconsciously apply past theories to their works even if they might have forgotten their influence and relevance.

It might be that these initiatives that might seem little, are the actual area of change and of opportunity for a greater change. If little efforts are summed up it may be possible to generate a big transformation. It is also a certainty that all this knowledge has to be put in practice within educational environments, if students and professors together employ these knowledge in order to generate a sense of consciousness in design education, the topic would become more available and familiar, therefore

more used. A broader research has demonstrated that if students are not put in contact with the imperatives of ethical management, in the name of social wellbeing and the preservation of environmental and cultural aspects, it would likely be difficult to interiorise it when performing their advanced studies or their professional activities.

6 CONCLUSION

This paper has addressed, first, some problems that exist within the production segments of the design industry. Second, it offered some solutions that designers have developed in order to fight these problems. Finally, a further solution was discussed, considering more carefully the implications that affect us, and possible ways to solve them. As we have seen, increasing numbers of people are proposing projects like these. They can start as small, humble ideologies, but as discussed throughout this paper, if they are properly put into practice, they can generate and lead to great transformations. Another point that was emphasised is that innovation can be just around the corner: inventing a new radical breakthrough is not necessary to make a project innovative. Inspiration can come from work done by others in the past but implemented in different, new situations and visualised in new contexts, generating effective changes.

In an encouraging trend, people have started to take action in various areas of design. Whether in the field of education, production, design development or research, we must find help in every tool we have at hand. This paper has shown ways in which designers can feasibly take 'past' theories as a basis for generating positive results, instead of generating completely new ideas from scratch. Doing this can be perceived as making new contributions and using a different approach that can be as useful and innovative as other existing approaches. Much work and knowledge has been generated throughout time, and designers need to unearth this, categorising what we can use and then using this and putting it into practice to achieve the greater good.

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