Doutoramento em Design

SUSTAINABLE ID

NEW PARADIGM OF INTERIOR DESIGN AND SUSTAINABLE MAKEOVER SCENARIOS FOR TEMPORARY ACCOMMODATION ESTABLISHMENT

Santa Kļaviņa Marques

Orientadores

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Tese especialmente elaborada para a obtenção
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Documento Definitivo / Janeiro 2019

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Key words:

Sustainability, Interior Design, Subjective Well-Being, Indoor Environmental Quality, Hostel

Abstract

Despite more than half of century advances in sustainable development, the World not only still strives for economical, social, and environmental system balance but calls for reinventing existing worldviews in order to promote flourishing. Thus arising the paradigm in design, hence it, per se, should be attempting outcomes beyond mere sustainability or ability to survive. Interior Design as a multifaceted discipline with emerging research issues encourages embracing the importance of subjective well-being to reach the overall sustainable well-being goals, thus challenged for creating human habitats that corresponds new perceptions of well-being.

The intent of this study was to explore and better understand the characteristics of emerging paradigm of interior design quality, and its relationship to people-environment variables, and sustainability in hostels, which would allow building a model of evaluation this system, and finally explore how these relationships are related in hostels of Lisbon.

The first phase, was mostly qualitative exploration of these characteristics and existing methodologies that evaluate these concepts, we did it by collecting data through literature review, and indirect observation through content analysis of available data on hostels of Lisbon. Findings from this phase were used in second research phase to construct conceptual model of this system identifying and exploring the main positive interior design characteristics that influence people-environment relationship, and build instruments of evaluation

In third research phase these instruments were used to validate conceptual model through observation and content analysis if/how these characteristics relate interior design quality to perceived indoor environment quality, experienced well-being, pro-environmental behaviours at Lisbon hostels and sub sequential sustainability of these entities. The findings contribute to interior design and sustainability evaluation methodologies within declared paradigm, and to tourism industry through better understanding of relationship between perceived indoor environmental quality and guest emotional bond with hostel and follow-up evaluation of establishment.

Palavras chave:

Sustentabilidade, Design de Interiores, Bem-estar Subjetivo, Qualidade Ambiental do Interior, *Hostel*

Resumo

Apesar de mais de metade de um século de avanços na área do Desenvolvimento Sustentável, o Homem procura não apenas um equilíbrio socioeconómico e ambiental, mas também reintroduz novas visões globais com vista a promover o conceito de *Flourishing*. Deste modo, surge um novo paradigma do design que, *per se*, deveria promover resultados além da mera sustentabilidade ou habilidade para sobreviver. O Design de Interiores como uma disciplina multifacetada, com pesquisas emergentes promove a associação da importância subjetiva de bem-estar, com vista a atingir objetivos globais sustentáveis, desafiando a criação de habitats humanos a que correspondem novas percepções de bem-estar.

O objetivo deste estudo foi explorar e entender melhor as características do paradigma emergente de qualidade de design de interiores e a sua relação com as variáveis Homem-Ambiente e Sustentabilidade aplicado às *hostels* em Lisboa, o que possibilitou desenvolver um modelo de avaliação deste sistema e finalmente explorar como estas relações estão associadas.

A primeira fase consistiu sobretudo na exploração qualitativa destas características e a identificação de metodologias existentes que avaliam estes conceitos, deste modo foi realizada a recolha de dados e revisão de literatura, bem como a observação indireta através da análise de dados disponíveis sobre *hostels* de Lisboa. Os resultados desta fase foram utilizados numa segunda fase de pesquisa, com vista a construir um modelo conceptual desse sistema, identificando e explorando as principais características positivas de design de interiores que influenciam a relação Homem-Ambiente e construindo instrumentos de avaliação.

Na terceira fase de investigação estes instrumentos de avaliação permitiram validar o modelo conceptual e observar se/como estas características relacionam a qualidade do design interior à qualidade do ambiente interior percepcionado, bem-estar experienciado, comportamentos pró-ambientais nas *hostels* de Lisboa e sustentabilidade subsequente destas entidades. Os resultados contribuem para o design de interiores e para o desenvolvimento de metodologias de avaliação da sustentabilidade, inserido no paradigma exposto, bem como para a indústria do turismo através de uma melhor compreensão da relação entre a qualidade ambiental interna percebida e o vínculo emocional com a *hostel* e a avaliação do alojamento.

Acronyms & Abbreviations

AE	Accommodation Establishment
AEDET	Achieving Excellence Design Evaluation Toolkit
AHdP	*Associação de Hostels de Portugal* | Hostels in Portugal Association
AL	*Alojamento Local* | Local Lodging
BIM	Building Information Modeling
B-ON	*Biblioteca do Conhecimento Online* | Library of Knowledge Online
CLR	Comprehensive Literature Review
CML	*Câmara Municipal de Lisboa* | Lisbon City Hall
DQI	Design Quality Indicator
EH	Estabelecimento de hospedagem | Accommodation Establishment
EU	European Union
EUFED	European Union Federation of Youth Hostels Associations
GL	Grey Literature
GSTC	The Global sustainable Tourism Council
HI	Hostelling International
IDEA	Interior Design/Interior Architecture Educators Association
IEQ	Indoor Environmental Quality
IYHF	International Youth Hostel Federation
LL	Local Lodging
MDG	Millennium Development Goals
nef	new economics foundation
PHEQI	Perceived Hospital Environmental Quality Indicators
POE	Post-occupancy Evaluation
RNT	*Registo Nacional de Turismo* | National Tourism Register

RSAT	Residential Satisfaction
SD	Sustainable Development
SDG	Sustainable Development Goals
SDS	Sustainable Development Strategy
SLR	Systemic Literature Review
TAE	Temporary Accommodation Establishment
UCD	User Centred Design
UN	United Nations

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Introduction

Introductory note. This dissertation is developed for the Degree of Doctor of Philosophy in Design at Faculty of Architecture, University of Lisbon—former Technical University of Lisbon. In this study we analysed interior design in several hostels of Lisbon through grand prisms of sustainability and subjective well-being. This section serves to give quick insight in motivations, context, research questions, and rationale of research, as well as brief note on research design, and outline of this document.

Context of the study

> *"History allows us to identify parallels, to establish links and to document coincidences, initiating the creation of sense, throwing together fragments which finally end up building a coherent body of discipline," Baltanás (2004).*

Baltanás (2004) explains how every change of century and even more millennium impacts the questioning and denying previous models of systems as well as invites to discover new approaches and distances from previous ideas, pushing people not only to analyse results of previous actions, but also to offer new and more effective future. The world is fast becoming a very crowded place adding one billion people in last twelve years, at the date already over 7 billion people (U.S. Census Bureau, 2012) and it is admitted to pass 9 billion by 2050 (UN-DESA, 2012). Furthermore the world is struggling for economical, social and environmental balance, though due to latest economic events the focus has been greatly towards economic recovery in this way neglecting environmental and social issues. Likewise because of growing percentage of urban population, 52.1% of world population lived in urban areas by year 2011, while in Europe it was 72.9% and in Portugal 61.1% (UN-DESA, 2012), there are growing overall concerns around human well-being. The idea about negative impact on environment as a result of human actions traces back to 13th century (Wood, 2007), prior to actual perception of concerns about environment that grew along with urban/industrial development in end of 19th century, that became even more actively demonstrated after Second World War, consequently defining Sustainable Developments (SD), in 1987, as those, which places human beings in centre of concern entitling them for healthy and productive life in balance with nature (UN/WCED, 1987). Sustainable Development Strategy (SDS) - Agenda 21 (UN, 1992), reaffirmed in Johannesburg (UN, 2002), acknowledges economical, social and environmental issues, as three pillars of SD. European Union (EU) constantly updates EU SDS after first launch of it in 2001 (EC, n.d.), simultaneously encouraging development of National SDS for members of EU, which Portugal approved in 2007 [RCM n.° 109/2007] as National Strategy for Sustainable Development 2015 along with its implementation plan. Unfulfilled objectives that was set in the end of previous

century and agreed in 2000 by 189 UN member states in form of 8 Millennium Development Goals[1] (MDG), neglected environmental and social issues in shadow of economic struggles led to reaffirmation of the previously set 'to do list' in recently held "Rio+20" conference with its outcome "The Future We Want" (UN, 2012). This conference in 2012 encouraged member states to develop new set of goals and specific targets based on MDG, these are known now as 17 Sustainable Development Goals[2] (SDG) agreed on "Transforming our world: the 2030 Agenda". The set of goals were expanded and turned more specific, the 7th Millennium Goal that aims to ensure Environmental Sustainability, transformed into several Goals, and this project is directly linked with many targets of 12th SDG, which aims for responsible consumption and production, particularly target 12.B encouraging development of methodologies and tools that "*monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products*"[3]. Aligned with SDG and there are increasing amount of encouragement to improve human well-being together with sustainable consumption and production (UN, 2012; EPC, 2010), whereas the great weight of the design process in environmental impact empowers the change of the paradigm where the concept of design, per se, should be aligned with sustainability (Ceschin et al., (eds) 2010). Interior Design deals with complex issues along the design practice: well-being of people in created environment along with suitable integration of various elements within the complex system of built environment, while as a discipline it starts to search answers for emerging research issues such as sustainable well-being among others (IDEA, 2007), therefore challenged for creating human habitats that corresponds new perceptions of well-being. Furthermore interior design is a changing paradigm provoked to move beyond vulnerable "green" environmentalism and ecological thinking design towards embracing wide range of disciplinary and theoretical domains with critical ecological design thinking of interaction between individuals and environments that sustain them (IDEA, 2010).

Moreover considering that the Lisbon Treaty defined tourism key sector of European economy; that Portugal proposes sustainable tourism quality as one main axis of executable programs, simultaneously recognizing fact of seasonal

[1] http://www.un.org/millenniumgoals/
[2] https://www.un.org/sustainabledevelopment/sustainable-development-goals/
[3] https://www.un.org/sustainabledevelopment/sustainable-consumption-production/

market and new target audience, which give value to money while search for short-break/city-break opportunities (PENT, 2011); that only 5% of Portuguese scholars (in medium) live in student residencies (CIES-ISCTE, 2006); and Lisbon Municipality aspires to rehabilitate city, reoccupy/reuse existing buildings, prioritize periodic building conservation, maintain the memory of city by restoration of historical, architectonic/landscape heritage of Lisbon (CML, 2011); proposed research can contribute for researchers, stakeholders, and practitioners for better design project planning within the context of Temporary Accommodation Establishment (TAE) and sustainable design.

Motivations

This study derived from previous research for the degree of Master in Production Design related to sustainability in hotels (Klavina, 2010). Current research was encouraged by conclusions of past research related to sustainability, and wish to explore other related variables essential for achieving higher layers of sustainability that were not studied at the time. In the same time, growing number of independent hostels in Lisbon gained worldwide recognition in many travel reviews and retained Lisbon in *"its position as top hostel spot of the world"*[4] (The Independent, January 27, 2010) for several years staying on top of main hostel booking website awards for hostels *HOSCARS*[5] (Hostelworld, 2017) in several categories, which triggered the curiosity to explore this new phenomenon in Lisbon city, and the characteristics of environmental design related to sustainability, and well-being in this type of accommodations. Then Luxury Hostels project was started by Kash Bhattacharya, *"a design lover"*[6] and owner of BudgetTraveller blog since 2009, who referred to Lisbon as *"queen of hostelling across the world"* (BudgetTraveller, May 31, 2012), endorsing the growing interest/need to explore these establishments.

[4] Last visited on 2017-09-19, see for more information http://www.independent.co.uk/travel/news-and-advice/lisbon-retains-its-position-as-top-hostel-spot-of-the-world-5519988.html
[5] Last visited on 2017-09-15, see for more information http://www.hostelworld.com/hoscars
[6] Last visited on 2017-09-15, see for more information http://budgettraveller.org/about-me

Title and subtitle

Title of the study proposed in 2012 '*Sustainable ID'* links two themes of research – sustainability and interior design. The subtitle '*new paradigm of interior design and sustainable makeover scenarios for temporary accommodation establishment'*, explains the object of the study and the area of intervention.

Research questions

Due to exploratory nature of this research in the first phase of research (proposal of research) we questioned: "*What are essential characteristics that would upgrade/adapt the methodology, satisfy different end-user aspirations/expectations for well-being and increase design added-value of project for a Temporary Accommodation Establishment, simultaneously preserving/benefiting local environment (context of Lisbon)?*" Due to spiral effect of research process, initial research question's complexity and for better readability we refined our investigation question—though without loosing the essential meaning—so that the main research question of this study is: *"How emerging paradigm of interior design quality relates to perceived indoor environment, experienced well-being, and sustainability, and how these relationships can be evaluated in hostels of Lisbon?"* The complexity of question, naturally, created subsequent operational questions:

- What are the characteristics that describe emerging paradigm interior design quality in a hostel?
- What are the characteristics that describe perceived indoor environment in hostel?
- What are the essential characteristics that describe experienced well-being in hostel?
- What are the essential characteristics of sustainability of hostel?
- How interior design quality is related with perceived indoor environment, experienced well-being, and sustainability of the hostel?
- Is there a holistic approach that would take in account all these constructs to evaluate the whole system?
- Which existing methodologies can be adapted/upgraded to fulfil all these requirements?

Rationale of the study (purpose & objectives)

Regarding global concern for sustainability, it is imperative to apply project methodologies aiming to preserve environment and reduce waste while improving quality of life (Crul & Diehl, 2006), however, most of the research and methodologies seem to be built on balancing model of sustainability. Our guiding paradigm in this research comes from environmental ethics and philosophy, which embeds economic system within social system; nevertheless, both of these social origin systems are constrained by environmental system.

Regarding experienced well-being we recon that the earth is divided in several human comfort zones, therefore there are many differences in way of clothing and architecture between different zones of earth, in order to satisfy human body primary needs, which is for comfort in their environment, whether it is building or clothes—safety needs (Behling & Behling, 2000). Furthermore, subjective well-being (Cummins, 2012; Diener 2009a,b,c; Diener, Oishi & Tay, 2018) is essential aspect to be studied in order to understand human relationship to environment they are in. Subjective well-being is main issue studied in Positive Psychology field.

Regarding interior design there are lot of studies on objective quality of design originated in architectural and engineering fields of study, such as Design Quality Indicators and LiderA, less subjective or perceived quality of design from user point of view. There are some approaches, like post-occupancy evaluation of indoor environment and alike that include perceived indoor environmental quality in evaluation process, however, we believe, these approaches and tools could be improved by adding some other relevant evaluation items.

There is a large theoretical body of knowledge on each separated topic or linking two of the topics, however due to shortage of scientific publications linking holistically sustainability, interior design, and well-being, there's missing, both, conceptual definition for sustainable interior design and systematic project methodology that would embody the multifaceted character of interior design for flourishing.

The problematic is to create a holistic model that identifies which/if/how characteristics of interior design contribute for people-environment relationship

indicators, and if/how they relate to pro-environmental behaviours and overall sustainability of system.

The intent of this three-phase exploratory sequential embedded mixed methods study (Creswell, 2009; Heyvaert, Maes, & Onghena, 2013) is to explore and better understand the characteristics of emerging paradigm of interior design quality, and its relationship to people-environment relationship indicators, and sustainability in hostels, thus build a model of evaluation this system.

The first phase was qualitative exploration of characteristics of interior design quality, people-environment relationship, and sustainability in hostel, as well as existing methodologies that evaluate these concepts.

We did this by collecting mostly qualitative data and some quantitative data through literature review and indirect observation through content analysis of available data on case study objects—hostels of Lisbon, thus embedded (QUAL, quan) research design.

Findings from this embedded (QUAL, quan) phase were then used in second phase of research to construct conceptual model evaluation of this system that identifies and explores the main positive interior design characteristics that influence people-environment relationship, and build instruments of evaluation

In third phase of research these instruments were used then to validate conceptual model and test operational hypotheses if/how these characteristics relate interior design quality to perceived indoor environment quality, experienced well-being, pro-environmental behaviours at Lisbon hostels and sub sequential sustainability of these entities.

Brief note on research design

We constructed our methodology and research design based on methodological guidelines from Creswell (2009), Saunders, Lewis, & Thornhill (2009) and Yin (2003). To describe briefly our methodological choices we will use Research Onion (Saunders, Lewis, & Thornhill, 2015), see Figure 1.

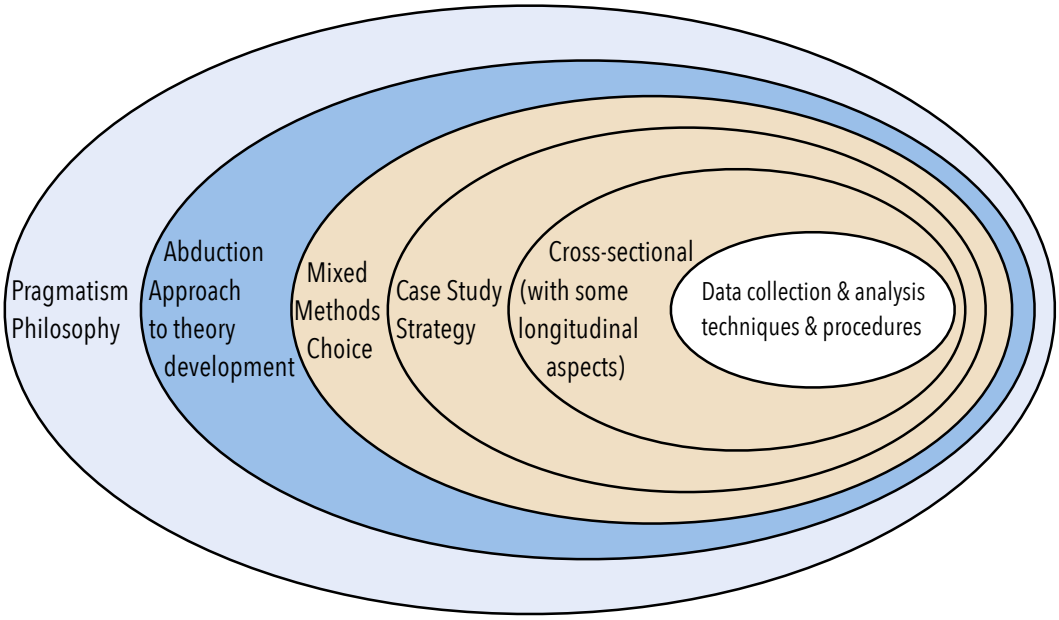

Figure 1 - Our Research Onion adapted from Research Onion by Saunders, Lewis, & Thornhill (2015)[7]

The research design depends on nature of research to be conducted, namely, exploratory, descriptive, or explanatory. This is study of exploratory research nature based on pragmatism philosophy, which is most used paradigm in mixed methods research (Creswell, 2003: 11). We used abductive research approach in our exploratory mixed methods embedded single-case study (Yin, 2003). It was a cross-sectional study with some longitudinal aspects based on literature review, empirical secondary data, and direct & indirect observation. Based on these guidelines the Research Design is visualized in Figure 2, it describes research phases and stages, main procedures and type of data collected/analysed, as well as correspondence of research stages to chapters of dissertation. We will examine Research Design, entities, subjects, instruments, analytic techniques, and interpretation of results in detail in Chapter 3.

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[7] https://www.academia.edu/13016419/Research_Methods_for_Business_Students_Chapter_4_Understanding_research_philosophy_and_approaches_to_theory_development_

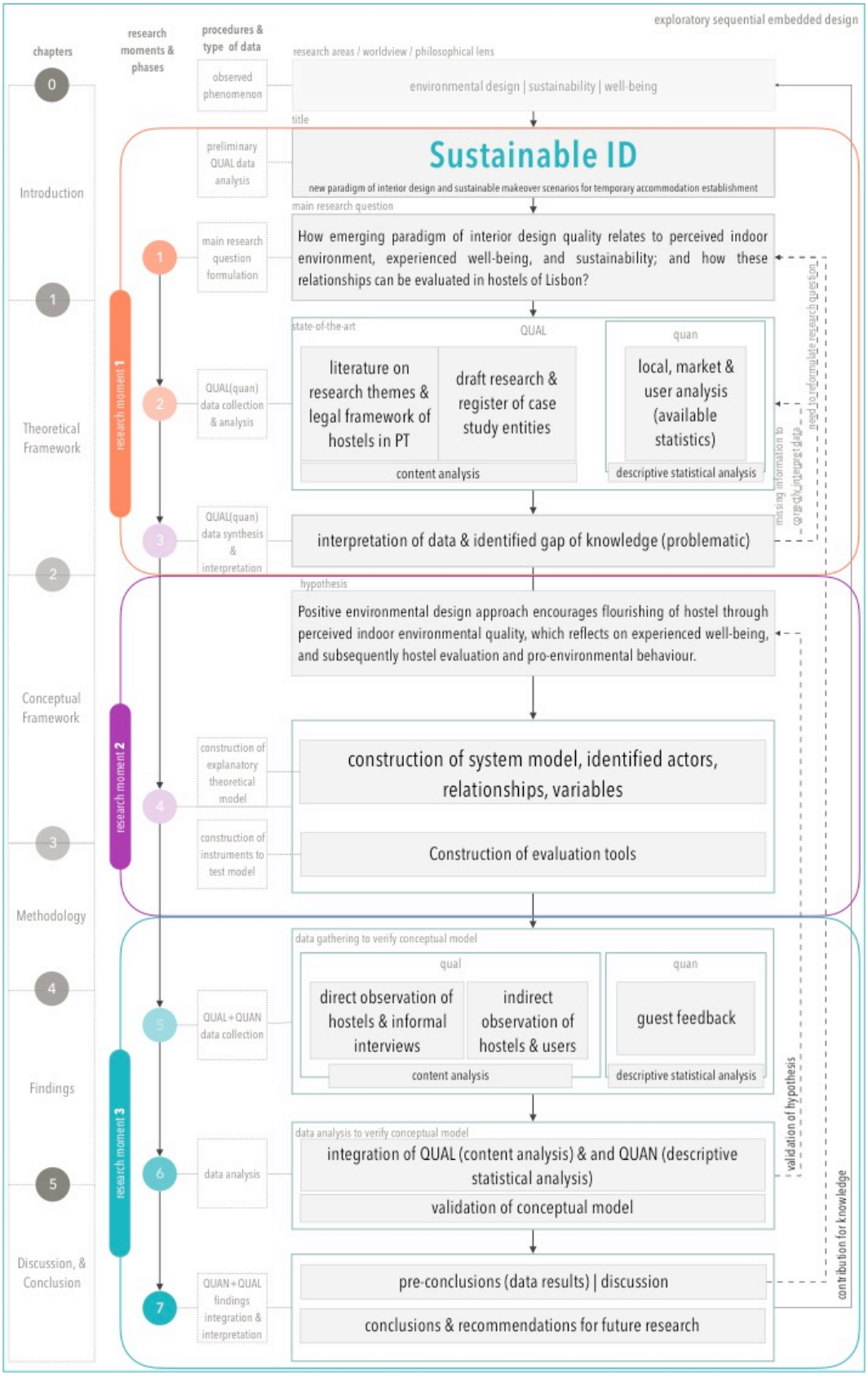

Figure 2 – Visual representation of the Research Design

Outline of dissertation

This dissertation is organizer in following manner. It has an Introduction that presents the context of study, rationale and brief research design followed by five main chapters:

Chapter 1 Theoretical Framework – This chapter is literature review of existing philosophies and studies as well as methods used to explore main issues of this research. It serves to identify central topics of research, and to identify the gap in existing theories and methodologies on key issues.

Chapter 2 Conceptual Framework – This chapter serves to define terms, relationships between main matters, as well as present a proposed approach of new paradigm of interior design and predicted relationships between main variables of study.

Chapter 3 Methodology – This chapter serves to describe the main methodological approach and research design used in study as well as methods of data collection, analysis, universe and sample of study. Likewise we describe the tools and instruments used to collect and analyse data.

Chapter 4 Research findings – This chapter serves to describe collected data by Embedded Single-Case Study strategy through empirically collected primary data using direct observation technique, and secondary data using archival research and indirect observation.

Chapter 5 Discussion & conclusions – This chapter serves to discuss the findings of research in relation to research objectives, research questions, data collection and analysis procedures, and hypothesis. Furthermore, we describe significance and limitations of findings. It also serves to summarize the research and findings, draw conclusions and recommendations for future studies.

Five main chapters are followed by Bibliographical references and last but not least the Appendices of dissertation.

Chapter 1 Theoretical Framework

Introductory note. This chapter is literature review of existing philosophies and studies as well as methods used to explore main issues of this research. It serves to identify central topics of research, and to identify the gap in existing theories and methodologies on key issues.

Theoretical framework is usually made up from main concepts identifying research issues, existing relationships between variables in other studies performed, and identifying the gap of knowledge where existing research is situated.

1.1 Methods of 1st research phase

There are usually different aims of literature reviews for distinctive types of research. In empirical deductive research literature review mostly serves to position the theoretical stand of inquiry to be done. In empirical inductive research literature review mostly serves to compare and discuss data in order to build a theory. In theoretical study literature review itself can be a part methodology/strategy of research in order to build a model/approach or whole new theory. Nevertheless there are also different approaches in how the literature review is conducted. It can be chronological, descriptive, categorized, and methodological (Booth, Papaioannou, & Sutton, 2012).

There are several approaches on how literature sources are categorized. There is categorization of literature according to originality (holding original research data) of work split in following manner:

- Primary literature – original research materials, usually published in peer-reviewed journals. However, depending of purpose of study it can also include dissertations, conference proceedings, correspondence, videos, Web Sites and similar.
- Secondary literature – interpretations/evaluations derived from or referring primary literature, e.g., review articles, meta-analyses, systematic reviews.
- Tertiary literature – collection of primary and secondary as an overview of key research findings, e.g. textbooks, encyclopaedias, handbooks, newspapers.

Another way of categorizing literature is according to type of availability, origin, and distribution:

- White (commercial or conventional) Literature (Farace & Schöpfel, 2010)[8] – usually referred to peer-reviewed material available through Scholarly/Commercial Publisher databases, e.g. journal articles and books available through international content databases such as Scopus[9], ScienceDirect[10], Taylor & Francis Online[11], and national *Biblioteca do Conhecimento Online* (B-ON) with access for Portuguese researchers and scholars[12].
- Grey (Gray) Literature (GL) – usually refers to: governmental, and institutional publications; standards and statistics; digital media publications like blogs, videos, wiki articles, and alike; company, organization, and think tank reports, working papers, catalogues, among others (Adams, Smart, & Huff, 2017). It can be also non-standard academic literature, e.g., unpublished dissertations, technical reports[13].

While there are fewer doubts about conventional scholarly literature quality, there are often misconceptions and doubts about use, and quality of use of GL in Scholarly research. Currently GreyNet.org website defines GL as:

> *"a field in library and Information science that deals with the production, distribution, and access to multiple document types produced on all levels of government, academics, business, and organization in electronic and print formats not controlled by commercial publishing i.e. where publishing is not the primary activity of the producing body."*[14]

Nevertheless due to growing volume of GL available online with rising amount of national and international organizations that share freely their publications related

[8] http://www.textrelease.com/publications/monographs.html
[9] Elsevier's Abstract and citation database, it's largest abstract and citation database of peer-reviewed literature: scientific journals, books, and conference proceedings, more than 22600 titles, about a double of leading competitor. https://www.elsevier.com/solutions/scopus
[10] Elsevier's leading platform of peer-review scholarly literature, offers over 3800 journals , with more than 250000 open access articles, and more than 37000 book titles. https://www.sciencedirect.com
[11] Taylor & Francis Group publishes Social Science and Humanities books under Routledge, Psychology Press and Focal Press imprints. Science, Technology and Medical books under CRC Press and Garland Science. It has 2 major content platforms, Taylor & Francis eBooks, and Taylor & Francis Online database, which holds more than 4000000 articles in various scientific areas. https://www.tandfonline.com
[12] https://www.b-on.pt ; Since 2004 B-ON allows permanent access to scientific literature available through various online scientific content repositories for national research and superior education establishments Availability to search online has greatly facilitated this research reviewing scientific literature and similar contents.
[13] https://www.ed.ac.uk/information-services/library-museum-gallery/finding-resources/library-databases/databases-subject-a-z/grey-literature
[14] http://www.greynet.org

to their research and work developed, scholars, due to this facilitated access, progressively use GL during their research process in one or other way.

Due to exploratory nature of this study different types of literature review were performed throughout the investigation in several stages of research. The initial critical literature review explored mainly the existing philosophies regarding sustainability, well-being, and interior design in order to explore the relationship between them. Data collection in this phase was mainly done through simple keyword and combination of keywords in phrases search in Google Search Engine for freely available contents in online repositories. Some of the reference books were obtained from commercial platform Amazon.com, Inc. e-reader Kindle application for Mac after search or in local library. Many of literature sources in this phase were GL. This initial exploration led to formation of main research questions of this study. The second phase systematic literature review was performed in order to characterize these relationships, and explore the existing studies related with all three or two of the subjects, and methodologies used to evaluate these relationships. Data collection in this phase was initiated through keyword and their combination in phrases search in scientific literature and similar content online repositories (see some of references in Figure 3. Most of literature sources in this phase were found in commercial scholarly repositories.

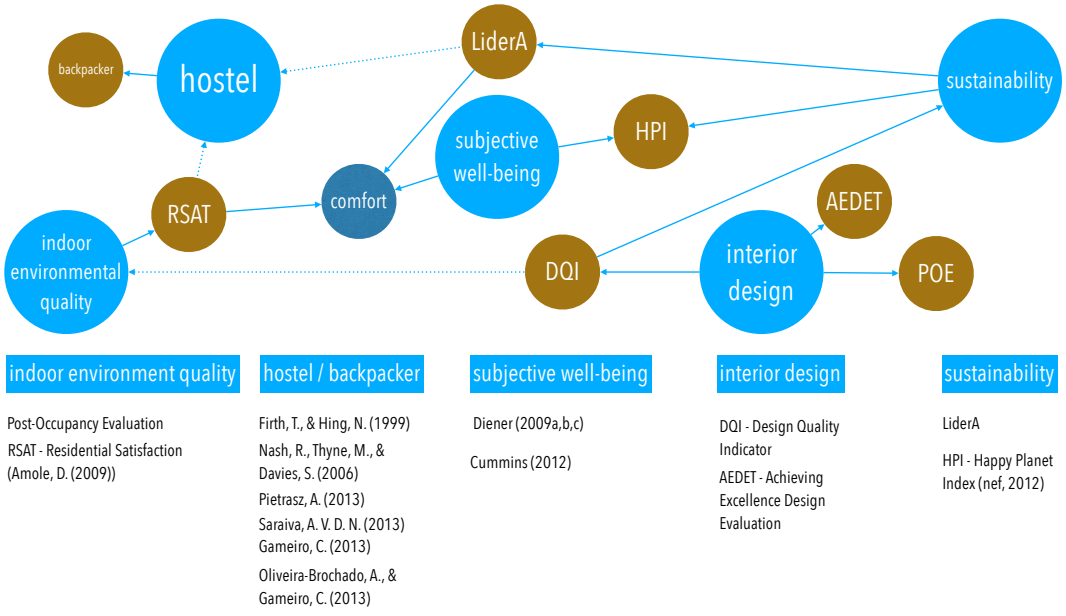

Figure 3 – some references by area of research (elaborated by author)

1.2 From sustainability to flourishing

In our initial research proposal we defined that a verb *sustain*—with such meanings as maintain, continue, keep alive—and a noun *ability*—suggesting a skill, a capacity and a power (physical/mental) to do something (American Heritage Dictionary, 2000. In: Farlex, 2012)—sums up that *sustainability* indicates a bare capability to continue. Nevertheless, besides a capability or ability to continue, it certainly means change towards improvement, similarly like evolution works in nature, where flourishes and survives the best adapted to existing ecosystem. Meanwhile the term sustainable was demystified gaining marketing value that is opposite to its real meaning starting to replace illusory value of term alternative (Wood, 2007). To Manzini and Jégou (2003) sustainability is a complex system where environmental, social, and economical issues and sub-issues must be evaluated and balanced. While the amount of created solutions strengthens the balance concept (Klavina, 2010), many design thinkers/activists encourage searching for new scenarios towards sustainability (Chapman & Gant, 2007). Finding new sustainable patterns for consumption and production is one of crucial conditions towards SD (UNEP/LCI, Jensen, A. A., & and Arne Remmen, A. (eds), 2006). Resource reducing/conscious-use approaches based on 6-RE Philosophy[15], acknowledges need to reduce impact on environment, nevertheless ecologically improved product is not beneficial unless it's economically viable and satisfies consumer needs. Simultaneously it's challenged to transform from product-based to context-based (Vezzoli & Manzini, 2008) new models of sustainable well-being (Chapman & Gant, 2007).

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[15] "Life cycle thinking expands the concept of pollution prevention to include the whole product life cycle and sustainability. Source reduction in a product life cycle perspective is then equivalent to eco-design principles and what have been called the "6 RE philosophy":

- **Re-think** the product and its functions. For example, the product may be used more efficiently, thereby reducing energy use and other natural resources.
- **Re-duce** energy and material consumption throughout a product's life cycle.
- **Re-place** harmful substances with more environmentally friendly alternatives.
- **Re-cycle**. Select materials that can be recycled, and build the product such that it is disassembled easier for recycling.
- **Re-use**. Design the product so parts can be reused.
- **Re-pair**. Make the product easy to repair so that the product does not yet need to be replaced.

In each life cycle stage there is the potential to lower resource consumption and improve the performance of products." UNEP/LCI, Jensen, A. A., & and Arne Remmen, A. (eds). (2006: 10).

We established the idea that in order to achieve '*flourishing*', which means happy development—somewhat higher layer of sustainability that essentially means survival and ability to live—is based on belief that besides being able to live one has to live happy within ecosystem limits (Klavina, Ferreira & Pinheiro 2013). Main authors expressing this idea were linked to environmental ethics and design ethics (Berry, 1996; Evans, 2005; Orr, 2002; Russ, 2010; Van der Ryn & Cowan, 2007).

1.3 Sustainability and Design

Thackara (2007) directs the main responsibility for Environmental Impact to designers and points out that 80% of it is determined in design stage, not in moment of purchase, nor use, thus sustainable choices for consumers are pointless, if great part of these decisions were wrong already during the process of the design. This idea is shared by many including Shedroff (2009) who provokingly entitled his book "*Design is the Problem: The Future of Design Must be Sustainable*". Chapman and Gant (2007:4) acknowledges that "*Sustainable design is about criticism*" encouraging designers to override lately made image of lazy, somewhat cosmetic, character of design consequently empowering the healing of hungry trend-driven consumer society towards knowledge-driven, which implies taking risks of being criticised for radical (or not) design ethics, while stepping out of comfort zone, and ultimately questioning consumers and themselves about the differences between sustainable and unsustainable design and if human behaviour can be changed by designers. Nevertheless authors do not believe, nor suggest, that a designer solitarily can, nor has to change the world, but surely a designer has great impact in doing that.

Design till now still is seen as part of the problem of global concern, however it can and must become a solution starting from reassessing the quality of world under profound ethical attention in order to shift its paradigm and improve overall well-being and transition towards sustainable society where as main driver is social innovation (Manzini, 2007). Author argues that creative communities and collaborative networks blending together will create new vision of "*sustainable multi-local society*" (Manzini, 2007: 81), where phenomena of globalization will give new

vibes to understanding local with enriching physical and socio-cultural resources in worldwide dimensions. He also refers to disseminated intelligence thanks to phenomenon of Internet and distributed generation (power/energy) as distributed infrastructure of this kind of society. Moreover the idea of this new society *requires rethinking systems, service-system design* that would enable partner-based solutions enriched by skills and abilities of participants while improving their quality of life.

Designers should work as facilitators to steer for real long-term sustainable progress. However is not suggested a complete end of consuming, understanding that possessions for material things of our species excludes such utopia as non-consumption therefore balancing on the edge of overproduction of sustainable goods, which consequently would turn unsustainable. Positioned in core of change, sustainable design has a potential to navigate towards positive *eco-nomic* progress (Chapman & Gant, 2007). Nevertheless until late, due to complexity of sustainable consumption and production plan, design had embraced eco-efficiency principles with rare tentative of effectiveness. Likewise it is questioned, if creation of well-being rather than goods or services could be a new reason of design. Authors (Chapman & Gant, 2007) believe that designers ought to steer for 100% sustainable, even when there is discussion if 10% improvements towards sustainability can be considered sustainable or not, which in the same time can be off-putting or unhelpful and stimulating for further activities towards complete sustainability, if such exists. Eventually sustainable design is about reduction of impact, thus sustainable designer should strike where lies the biggest impact instead of operating around its margins. Advocating interdisciplinary attitude and collaboration between theory and practice awakens consciousness of design research, practice and industry transferring it as well to consumers.

Fuad-Luke (2007) reminds that environmental movement in 1960s powered the change of paradigm of design where it was largely seen as process empowering business due to political and economical pressure even if early pioneers of this movement suggested that design could balance between economical growth, social equity and environment. Author points out the reports of UK Design Council which still in first decade of twenty-first century shows the lack of engagement between sustainable design practice and theory where despite growing amount of research-based, accessible and otherwise inspirational literature, from one

hundred lead somewhat iconic designers only one revealed that embraces sustainable design thinking, five admitted practicing or being interested in eco-design thinking, while ninety-four focused in other aspects of design, such as emotions, innovation and others. This could be explained by lack of skills, influence for decision makers, ambition or complexity of relationship between designers, producers and consumers. Sequentially challenging design to deal with its professional and scientific field, in the same time, ironically, opening an opportunity for design to reinvent itself, the way it is being though and practiced.

Appreciating, what already seems to be one of critical components towards sustainability, as dissatisfaction of what we have *"is a key driver of consumerism"* (Walker, 2007: 59), which excessively, with no doubt, leads to unsustainability, therefore re-appreciation of forgotten products due to uninviting appearance by re-using them, by adding a new lifetime is seen as very welcome towards design for sustainability. Moreover this approach applied for human-made environments seems to be loaded of opportunities to re-value what is forgotten, embedding not only economical concerns by re-using what you already have, but also environmental concerns by re-using instead of search for raw resources, and finally social concern by re-valuing somewhat old-fashion product with great sentimental value (Walker, 2007).

Vezzoli and Manzini (2008) believes that designers with responsible attitude find themselves in ironic situation as they have to urge to make world a better place by changing people perception of well-being from product-based to artefact-independent well-being.

Verbeek and Kockelkoren (2010) suggest striving not only for sustainability but also for durability and questions why so many products are discarded prematurely and whether it was caused by the economical, technological or psychological lifespan. In our perception though durability is a part of sustainability. Nevertheless the symbolic character, the meaning, instead just functional quality, has become central issue in design. Pantzar (2010) debates that minimum requirement for sustainable systems should be that its components do not erode the system by their interactions.

Manzini (2010) believes there are at leas two decisive changes necessary in design history's perspective, first general acknowledgment in society about the

environment, second the shift of the perspective how these problems and consequent solutions are envisioned, an understanding environmental issues as a part of greater phenomenon. The normalized ecological design in the 1980's led to from normalization to new radicalism in 1990's, nevertheless, he believes existing scenario of redesigning what exists wrong, is not sufficient, designers should be required to envision future without stepping back to comfort zone of reducing materials, reusing materials for misunderstood idea of sustainability. He repeatedly reminds the fact and awareness of environmental impact.

Manzini (2010) offers at leas 3 scenarios for future consumption: the first would mean for designers creation of objects that are able to survive over time, requiring care of consumers thus establishing emotional relationship with users, the second would mean encouraging creation of services that could be used by consumers instead of consuming products and then disposing of them, the third scenario offered is the most radical and by other authors (Chapman & Gant, 2007) called slightly utopic, but still it would mean moving from consumption towards non-consumption. This leads to idea of *existenzminimum* of maximum quality, which he agrees is the greatest challenge for designers, how to convince users to choose these proposals freely and how to be attractive to them with the same criteria of quality life. Likewise Manzini (2010) suggests forgetting that design was develop as response to industrial development, moreover the concepts of function, client, user and market should be revised. Besides society needs a new perspective of aesthetics in sustainability. He does, however, say that design can not change the world nor design lifestyles, but it can give form and offer new opportunities for new types of human behaviour, eventually these limits creates also possibilities and responsibilities in order to achieve sustainable society.

1.4 Interior design and well-being

Design is not luxurious nor new-generated ideas according to common fashion guidelines (Munari, 1993) but *"conscious and intuitive effort to impose meaningful order"* (Papanek, 1985: 4), moreover it should improve well-being (EPC, 2010) though maintain within basic eco-system and bio-capacity limits (Ferreira, 2003). Beyond subsystem of architecture or creation of internal space, Interior Design embraces

multi-disciplinary practices (IDEA, 2007) leading to innovative system (Lawson, 2005) planning approach, solving multifaceted challenge—design towards sustainability. We understand elements of room in relationship with room in the same way as we understand room in relationship to house or the interior design of whole house in relationship with exterior. Single piece must work as a unit and also as a part of composition. Interior is defined by architectural structural elements such as floors, walls, openings and stairways. As design elements in interior works all furnishings, such as seating, tables, work surfaces, lighting, storages, beds and accessories (Ching & Binggeli, 2005). To understand and trace the characteristic styles and concept of interior space, it is essential to recognize and organize the elements of which interior space is made. The relationship between interior and exterior is fundamental. It serves as instruction for all elements introduced in interior space. Interior design is fairly new discipline balancing between it feminine and masculine aspects of it (Kleinman, K. Merwood-Salisbury, J., & Weinthal, L., 2012). Schitich (2002) refers that the interior design idea expanded around 1800, later around 1900 it started to gain huge influence from architecture, even reflecting architecture in interior and in middle of 20th century along with Modernism, interior design started to gain conceptual background. DeJean (2009), however, suggests that initial idea of interior design, while still recognized as interior decoration, appeared along with behavioural change when concepts of home and privacy were reinvented, and broader perception of home and comfort initiated in 1670s. In 18th century the focus was on making "*homes livable, giving special attention to private spaces— now comfortable by definition, before meaning just opposite to public—that were inhabited and didn't merely serve for status representation*" (Klavina, Ferreira, & Pinheiro, 2013b: 271).

The expression *Mal-Estar*[16] in Portuguese signifies opposite to what is understood by *Well-Being. Mal-Estar* should be here understood as overall unsoundness, that could be covered by several meanings: "*A condition of damage or decay; a misconception that is fallacious and not true or valid; not mentally or physically healthy*"[17] whether it is physical, psychological or ethical among the others. Some say that human beings are thinking in language, whether it is spoken, visual or other, and clearly

[16] Book entitled "*Design e Mal Estar*". (Costa, 1998)
[17] These are the offered definitions based on definitions of word unsound offered by American Heritage Dictionary of the English Language available online in http://goo.gl/cxAp1

language is a limitation for creativity, thus leaning more languages and forms how to express yourself and how to think widens these boundaries of creativity by giving to one a capability to communicate concepts that does not exist in other language. Daciano da Costa (1998) criticized the visual and material garbage produced by designers and was suggesting cleaning up in a large scale. Likewise he lamented that still many of designers were used by business industry as cheap labour to increase sales instead of improving general well-being of society, similarly, he understands the difficulty to integrate design and designers in business activities due to difficulties to define design itself. While criticizing the design education, the author reflects that only internship in company can give the last missing element in design professional, as schools are unable to provide practice, they do, however, prepare for it, thus appointing for necessity of design education's continuity in real work environment in order one to be considered a design professional. However without stimulating creativity that comes from learning, cultural, and artistic among other sources, design professionals in business activities can lack good performance and success. The diversity of design, as some still practice somewhat styling (he believes design practice has more to do with ethics than aesthetics, although not excluding the last, but saying that design is to be considered *aesthetics of ethics*), some stress functionality in design and others defend sign-value or meaning of design object. He reflects two types of design processes: pragmatic functionalistic industrial design and poetic post-functionalistic critical design, where the last has for an objective to overcome the use and possession of objects. While defending the teamwork and multidisciplinary, claims that unsatisfied designers are projecting the objects with promotion of illusory lifestyles and concepts, which actually are reattached from real use and function of object, eventually causing possession of these objects in search for promised happiness related to them. Nevertheless he criticizes the mediocre design choices defended by misused concept of functionality and modernism, whereas opening the discussion of utopic struggles for designer to work guided by cultural and social attitude (Costa, 1998). Faulty interior design is one of core reasons for *mal-estar* (unsoundness) in design because it treats the space human being find themselves the most and malfunction of surrounding environment can cause various unwished effects on overall well-being.

> *"Well-being is most commonly used in philosophy to describe what is noninstrumentally or ultimately good for a person. The question of what well-being consists in is of independent interest, but it is of great importance in moral philosophy, especially in the case of utilitarianism, according to which well-being is to be maximized." (Crisp, 2008)*

Lawson (2005) reminds the existing gap between designers and end-users in projects where the paying client (usually exists information gap between clients and end-users as well, therefore misinterpreted objectives for design) is not the end-user, this results in misunderstood needs assessment and can eventually lead to design failure, if designer was not paying too much attention to user needs.

Manzini and Jégou (2003) give example of one of the extended home proposals in one of the case studies for 'Sustainable Everyday. Scenarios of urban life' to lower "*domestic space without penalizing its liveability, by freeing it of certain activities*," (Manzini & Jégou, 2003: 69) in other words, leave private areas only for activities evaluated for need of intimacy and open areas for socialization and saving space and resources by providing services.

Designers, unable to have universal knowledge about end-users, recognize importance of user research, since the way design relates to people has the only importance (Papanek, 1985). Interior designers, as team players, should demonstrate knowledge and skills in design towards sustainability (Zuo et al., 2010: 268-287).

In Ergonomics field there is a term User Centred Design (UCD) that can deal with some of social issues essential for sustainable design, which now must be included in design projects in order to get success in fulfilling the objectives of this concept. Term UCD appears in the 1980s (Abras et al., 2004). UCD requires active involvement of users and clear understanding of users, task requirements, correct distribution of function between user and system, iteration of design solutions and multi - disciplinary teams. The five processes in following order are essential in UCD development process: planning the UCD process, understanding and specifying the context of use, specifying the user/organization requirements, producing design and prototypes, performing user–based assessment. Well-being,

allied to human relations with involving environment, reinforces relevance of UCD approach in design process (The Ergonomics Society, 2008). Furthermore UCD is admitted as one of many design activisms that could integrate completely in sustainable well-being even if each of these several activities focuses on different spheres of well-being (Fuad-Luke, 2007).

1.4.1 Light & colour

The colour is not a physical element though it has physical qualities (wave length) thus it is natural that naming or choosing colours each of us will name or choose completely different from others doing the same exercise. Besides colour of any object changes significantly just by any variations of light projected on object whatever the difference of pigments, as ultimately, colour is reflected light and any changes of these light waves consequently changes reflected light – colour (Albers, 1975). Colour among other elements describing characteristics of any object (such as form, material etc.) is visible only if there is light, besides in a way the light creates space by opening it up, brightening it up (Böhme, 2009). However it clearly does not suggest this perception of space in a physical and measurable way, as the physical space exists even if it is dark. Eventually he suggests this brightened space created by light to call *clear space*, meaning to be able to visualize it more open, holding emotional experience of security, that everything in visible distance is controlled. Thus improving human well-being. Light and colour is one of the most essential characteristics of perception of spatial environment thus extremely relevant in interior design studies. Hårleman's (2007) study is developed in Sweden and departs form the differences of light within rooms facing north and south, and the fact that the colour perception in these rooms differ, even if both of them were painted with identical colours (paint). However, these differences in light might not be so severe in southern countries because the sun is higher thus appears more constant. Moreover, if the weather conditions are more constant, and do not change too much in daily basis, the appearance of light will be even more constant.

> *"Identical colourings in rooms facing different compass points will appear different. (...) Latitude, season, angle of sun, climate, humidity level, weather and quality of air are all parameters that influence the conditions of light." (Hårleman, 2007: 17)*

Hårleman's study was influenced by Hesselgren's theory of perception and the model for primary emotions that he borrowed from psychologist and researcher Plutchik. In her research is used a set of emotions by these authors listed in 1989: joy, acceptance, surprise, expectation, anger, fear, sadness and disgust. *Perceived colour* is described as *"perception that varies according to the viewing conditions"* (Hårleman, 2007: 27) and the term was used mostly to describe the user experiences in full-scale rooms facing north and south coloured with identical colours although perceived colour and experience of colour have clear differences. The *identity colour*, as variation of perceived colour, is used to describe the main perception of colour units while comparing them with *inherent colour*, which is the colour observed in controlled conditions. She refers to various positions, such as electromagnetic radiation, eye and sense of vision and others, from which the colour is studied, nevertheless she admits that there does not exist neither single nor a simple relationship between light emission and colour perception. However she describes that when electromagnetic radiation is reflected, it is the moment when physiological part of colour vision begins passing this information to retina of human eye. When this information is passing to visual centre of human brain starts the neurological process of colour perception; and here the perception of colour is influenced not only by physical characteristics of light and surroundings and specifics of sight, but also the previous experience, memories and other knowledge regarding the colour. Thus we assume colours to be warm, cool, suppressing, vivid or other according to our baggage of information. With no doubt, besides the physical characteristics colour, physiological aspects of sight specifics, brain function and capability to recognize each colour, there is also a significant baggage of information, emotions and interpretations, of what one thinks to be each particular colour. The study describes the spatial character and associative emotions of observers that were triggered by light changes on colours within full-scale room. Author also reveals importance of full-scale studies of colour for interiors, as it *"relates not only to size of colour samples used, but also the*

embracing quality of rooms" (Hårleman, 2007: 55), that can not be achieved with reduced scale models nor 3D models on computer screen. She also reminds a comparative investigation regarding sensorial emotion triggered by a colour in Greece and Sweden: "*both Greeks and Swedes describe the relationship between colour and this meaning variable similar ways"* (Hårleman, 2007: 34).

Author repeats that in design process the colour should clarify, enhance and highlight adequately instead of being just an independent commentary. Besides the designers should use their knowledge in colour, rather than just approach it intuitively or pass the job of colouring to youngest employees. She reminds that colour is able to give much more expression to built environments than it does when designers look to a space as an object needed for some colouring instead of social experience and wish to increase user's well-being in this space. Taking into account all the comments from author's part, this study is very relevant in working process of interior designer, helping to approximate the design project colours to real outcome situations thus having fewer flaws after project is completed. Yet is to be kept in mind that colour preferences are different from those familiar with colour studies (i.e. architects, designers) and those not familiar with such studies.

1.4.2 Design management, creativity, innovation, and the value of design

Design is believed to emerge with standardization of production started in England in mid-nineteenth century while, as a profession, it is believed to appear in United States in 1930s and started to invade most of business activities last quarter of previous century. It is considered that design management originated in Great Britain in 1960s and in 1975 was founded Design Management Institute in United States. Mozota (2003) shows that design and management are very similar activities due to the problem- solving, systemic and coordinating characteristics. In this way putting designer in functions of coordinator and manager of a project. She likewise suggests that design reproduces human wants and needs. However Papanek (1985) almost half century ago declared that, for many years, design has been moved by what human wants but does not need.

Cooper and Mike (1995) reinforced following four key sectors of contribution in company's activities required by management: (1) product design, (2) environmental design, (3) information design and (4) corporate identity design.

According to them the design should be understood as a management process. Nevertheless the design, as a problem solving activity, is dependent from the changes in technology as well as the society changes due to outcome's usability and trends in cultural use. However design can fail because of illusory status of great designer, which was attributed to one when appreciation of aesthetics was overshadowing function or usability. Consequently hiding a missing competence to resolve the problem due to insufficient knowledge or collaboration to obtain this knowledge, and, finally, failed communication between the designer and the end-user (common practice when client is not the end-user, for example, nor manufacturers of products, nor public space owners are the end-users of the design outcome).

Daciano de Costa (1998) believes that architecture and design are both project disciplines where both have as an objective to improve involving environment, both are disciplines where professionals have learned to interpret by drawing. Further, he admitted, the difference is in design project scale, thus argued that when architect starts to draw an object of use, he becomes a designer, contrary designer should not, in his opinion, start drawing buildings. Despite this claim, there exist many evidences, which show that the interpretation of one and other differ, thus it is questionable, if one should step in another's shoes so easy. Instead there should be created multi and trans disciplinary teams dealing and collaborating within same project. Although by the end of the millennium this author advocated the need for architects, designers among other specialists with drawing project culture to be integrated in vertical project system, after first decade of new the millennium there is growing number of who agrees that this should be somehow horizontal teamwork, thus more collaborative than vertical systems are by nature. Nonetheless he recognized the potential added value of design for economics.

There is a claim that design process should be in the centre of all business activities as it is the only one that transforms specifications from various areas such as ergonomics, technology, aesthetics among others into viable outcome whether its product, services or environments thus design strategy clearly plays essential role in companies identity. Moreover well-managed strategic design is linked with good performance of company (Cooper & Press, 1995).

Growing skills in creativity, idea generation, problem solving, and innovation is part of education process of designers (Mozota, 2003). While creativity has less to do with IQ, it is good to know that the driving source of creative thinking is more like an attitude or a set of mind, which is driven by the sense of dissatisfaction of something and the desire to change it for new somehow different and, hopefully, better, shortly, desire to improve quality of product and, eventually, quality of life. However creativity alone will not have innovation as a consequence, since innovation is dependent from radical changes in materials and technology or brand new ideas or constant design modifications (Cooper & Press, 1995), thinking of design as creative management and planning process. It is believed that designers bring creativity to business management process that was missing by conventional business managers, however it is clear that design scope, methods and objectives are constantly changing, influenced by changing values of design profession, design itself, global concerns and social and economic issues. Nevertheless it was stated that designers should shift from increasing the quantity of goods to improving quality of life, as, ultimately, design holds ability to see the bigger picture, thus reflecting the changing values of society.

It is extremely difficult to quantify the contribution of design to commercial value of the industry, although it is possible to determine that it improves effectiveness of services, and eventually, increases commercial value, however, higher commercial value not always signifies good quality design (Cooper & Press, 1995). Furthermore linking design and innovation increases economic value. Besides, while innovation is more preoccupied with advances in state-of-the-art technology, the design applies this technology to increase the value of products and services for demanding consumer society. Thus clearly showing the dependence of one from other in order to success. Moreover, when Schumpeter linked Kondratieff economy cycles to innovation cycles (Ferreira, 2008), was recognized the vital role of design in economy. It is certain also that design communicates values and meaning, whether it's symbolic, cultural, commercial or other, to consumer, therefore extending design's activity beyond problem solving. However within consumer culture often exchange-value is overrated as it follows up by lower use-value. Whereas some suggest that use-value is shifting to sign-value and criticize the use of completely disconnected promotional images of products/services from

their function thereby use-value, there exists idea of conceptual economy where there is no relation between sales cost and production cost (Cooper & Press, 1995). Moreover sign-value of products/processes is always interpreted within language and thus specific notion of what is real to one, and though designers anticipate the use-value products/processes for end-users (Verbeek & Kockelkoren, 2010), it is extremely difficult to anticipate sign-value in global society. Sign-value is meaning, significance to an individual.

Considering as most important evolution of design since 1990s with millennium challenges to design for economic and environmental sustainability (Mozota, 2003) with another direction of universal design by the end of first decade of twenty-first century it is possible to see growing amount of attempts (some resulting well and some not) to balance economic, environmental and social issues (Manzini & Jégou, 2003; Vezzoli & Manzini, 2008). Cooper and Press (1995) reaffirm importance of lifestyle in consumer culture, where each type of lifestyle is driven by different values triggering different choices in acquisition of products/services. They recognized four main value groups driving consumers in U.S. different type lifestyles: (1) Need-driven values, corresponding 11%, (2) outer-directed values (consume more in order to assert their status in social groups and achievements), corresponding 67%, (3) inner-directed values (consuming less, choosing goods led based environmental and ethical grounds), corresponding 20%, (4) combined outer and inner directed values, corresponding 2% of total.

1.4.3 Design and social change

In present times, in result of globalization, there is increasing availability for objects initially made for other culture. However Papanek believed that "*it is not possible to just move objects, tools, or artefacts from one culture to another and then expect them to work*," (1985: 18) referring, at that time, to Japanese culture and design artefact use in European environments.

Design lies, among others, between culture and commerce, thus designers are responsible for envisioning the direction in which the world will move in future and showing it to consumers, as design should increase quality of life (Cooper & Press, 1995). Irreversibly, leading to design of lifestyle rather than objects that is conducted by increasing populations, which should transform from the product-

based to the context-based (Vezzoli & Manzini, 2008) new models of sustainable well-being (Chapman & Gant, 2007; Fuad-Luke, 2007; Manzini, 2007). Consumer society built on belief that consumption of more expensive and exclusive goods and services reflects their status gave more weight to price than functionality, thus design can be seen as reflections of society changes over time (Cooper & Press, 1995).

Wood (2007) challenges us to dig deeper to understand ecosystem that supports our existence along with understanding the weight and processes of consumerism. In the same time defending that designers must shift the paradigm of consumer society, as the long result of nursing every consumer needs or illusion of needs, the consumer which thinks about freedom as rights to purchase whatever and whenever one wants, as well as disposing of if whenever one wants, forgetting the responsibilities for saving resources, resulted in design process, consequently designers, being deeply responsible for unsustainability. Furthermore author sees as negative the obsession of possessing and adjusting environment for ones needs instead of adapting to existing Nature and, ultimately, advocates cradle-to-cradle or zero-waste design.

Manzini and Jégou (2003) compares transition from rural societies to urban/industrial societies with transition from urban/industrial societies to sustainable urban environments in matter of size and nature, mentioning also the fact that transition to environmental sustainability will not be easy because of human behaviour, which makes human keen for well-being, so that eco-efficiency stays in second position. These authors defend that research programs and school network educational programs are essential to implement sustainable strategies because young people are more eager to learn and are more able to imagine changes of existing systems. Our society is affected equally by time spending tendencies such as the *time saturation*, which means filling time with diverse activities, not rare doing several things in the same moment and the *time acceleration* that refers to doing everything faster, which gives a chance of illusion of being able to do more, but, unfortunately, these tendencies do not represent more *quality time*.

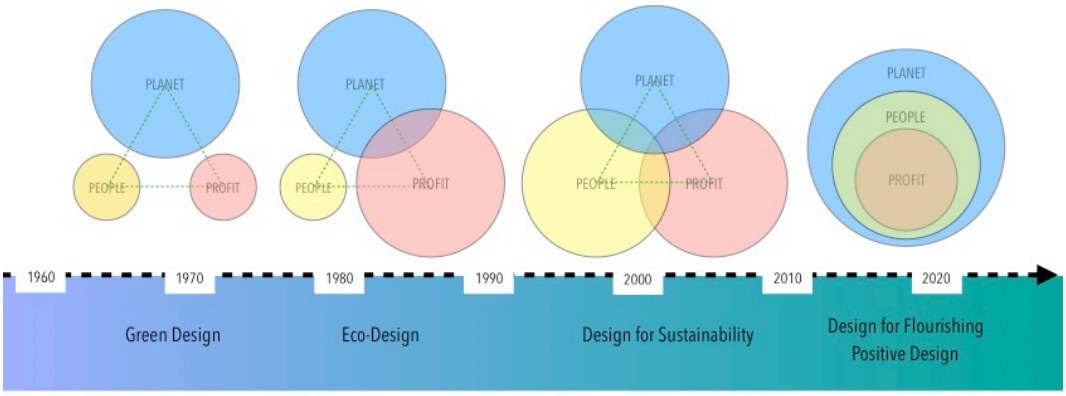

Figure 4 – Timeline of design evolution (Adapted from Klavina, 2010: 35)

In the last few decades after constant attempts to include social issues within process of design (see Figure 4), finally, starts the shift of society with changes in its consumer behaviour who become more analytic somewhat inner-driven and less outer-driven and mixing up of these values and having more pleasure from inner-driven values rather than outer-driven (Klavina, Ferreira, & Pinheiro, 2013b). Eventually shifting the paradigm in role of designer from visualising existing lifestyles based on outer-driven values to envisioning future lifestyles based on inner- driven values, such as ethics, equity, collaboration, ecology etc.

1.4.4 Thinking in new design identity

Richard Buchanan (2010) believes design is not only privileged for design professionals but also reflects culture as a whole. Therefore in twenty-first century it will not maintain in paradigm of twentieth-century with the rules of ever-shifting styles and obsession that new is always better. Author considers in responsibility of individuals and designers, however considers that none "*possesses all of the knowledge and wisdom required to understand the act of responsibility in this world*" (2010: 16). He shares opinion that designers who do not realize their identity and values, that don't take themselves seriously, will not survive in the world, which is still dominated by engineering and business professionals. Nevertheless he states that there are more designers that got lost in their way than those that successfully influenced their clients and general public. He debates the responsibility of design for human beings and the world positioning the four identified responsibilities and outcomes in opposite directions:

good resulting when "*affirming the proper place of human beings in the spiritual and natural order of the world*"; *just*[18] referring to "*supporting equitable relations between human beings, including the distribution of goods*"; *pleasurable* understood as "*satisfying the physical and psychological need of human beings*"; and *useful* stated to support "*human beings in the accomplishment of their intentions*", see Figure 5, adapted from Buchanan (2010: 20).

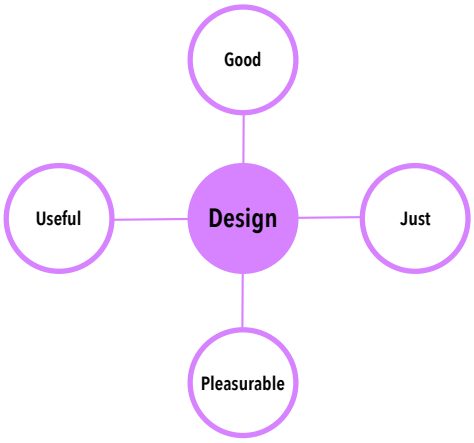

Figure 5 – Relationships Among the Ends or Purposes of Design (Adapted from Buchanan (2010:20).

Buchanan (2010) points out the dangerous choices to be made whether they are driven by individual vision of values or whatever the substitute for the old ideology of modernism may come in place. However recognizes the opportunity for designers to step in envisioning the future post-modern culture, besides states that it would rather be a culture of conversation and collaboration within framework than new agreement of ideological culture. Moreover, based on previously revealed four design purposes, he suggests that designers help the individuals to be placed within ones immediate context, despite continuity of mass production for ideologically abstract consumer.

Wolfgang Jonas (2010) is worried that design as a single discipline has still not gained it's place, and criticizes that other disciplines, including marketing, speak of design as a complementary substance of their own, not really a contribution by it's own for the culture, thus questioning how design itself could reach autonomy and why it has not yet.

[18] synonym to *fair, impartial, unbiased, ethical* etc.

> *"Design is not art because it does not aim at individual expression, but instead to serve various stakeholders, even though there are all of those intuitive, creative, and individual components. Design is not technology because it deals with fuzzy, discursive criteria rather than objective criteria, even though design shares many functional objectives. Design is not science because it does not offer new explanatory models of reality, but changes reality more or less purposefully, and yet the experimental process of research resembles the design process. Obviously, design is something very special."*
> *(Jonas, 2010: 38)*

Though various authors have been promoting that design thinking should be a model for scientific research, Jonas (2010) opposes it, saying that it cannot serve as basis for everything and anything else even if design is a cross-discipline and incorporates diverse professional subjects. Nonetheless design is oriented to future and is very changing in its very nature, it changes the world and is influenced by the changing world again, thus always and constantly evolving. Jonas (2010) believes that design could become disciplinary autonomous as a distinct co-system of economy, if it would transform its simple, sometimes naive purposes into generative purposes of values relative to the context of the general ecosystem. He offers methodology based on scenarios, where scenarios are understood envisioning the possible, probable, or preferable future or futures to be avoided and/or contain steps to achieve them. Author divides the design process in three main steps of (1) analysis, (2) projection and (3) synthesis, further explaining that in the first step should be made analytical scenarios, in the second phase – the context scenarios, finally, the third step is reserved for user scenarios. Moreover building scenarios requires constant open communication and participation of parties (for example, users, stakeholders and specialists among others) that influence and are influenced in context of this process, thus creating new information and knowledge.

Considering reflections of these authors, design practice, management and research are not always aligned, nor sometimes contributing for others successful development. There are different ideas, not only about the meaning of design, as also the future perspectives of it. Though overall preoccupation of design, as an emerging discipline, with and objective to improve future life is always present

clearly stating that designers take major part in future paradigm of design and can promote in a positive way not only for social, ecosystem and economical well-being, but also create new scenarios of sustainable well-being.

1.4.5 Interior design and subjective well-being

The inner spaces of built environment since the perception of comfort have interacted with users of spaces by changing and adding to each other's characteristics, thus evolving in perception of comfort and user behaviour associated with it. Interior design is essentially influencing user well-being, because how people perceive the space is closely linked to their satisfaction of space and sense of comfort. Most of the studies about Indoor Environmental Quality are done in built environment and engineering studies mostly based on objective qualities, and Perceived Indoor Environmental Quality is mostly studied within field of Environmental Psychology, where the subjective people-environment interaction is observed most closely.

Inspired by Positive Psychology field there has been emerging relatively new—after 1st decade of 21st century—field of Positive Design (Pohlmeyer, 2013). Positive Design also referred as Design for Subjective Well-being (Desmet & Pohlmeyer, 2013) or Design for Happiness (Casais, Mugge, & Desmet, 2016) has three main aspects: design for pleasure, design for personal significance, design for virtue. Design for Pleasure is about experiencing positive affect (hedonic), Design for Personal Significance is about pursuing personal goals and aspirations, and Design for Virtue is about being a morally good person. When these three aspects of Positive Design are treated in balance authors believe Positive Design enables and/or stimulates human flourishing (Desmet & Pohlmeyer, 2013). Nonetheless around the same time when our research was initiated focusing on indoor environment, another researcher begun her PhD research on symbolic meaning household products and influence on subjective well-being (Casais, Mugge, & Desmet, 2016) in TUDElft.

1.5 Experienced Well-being

With advances in subjective well-being research and flourishing there have been developed various instruments to measure it (Cummins, Eckersley, Pallant, Van Vugt, & Misajon, 2003; Cummins, 2012; Diener, 2009a; new economics foundation (nef), 2012), and one the main variables that could be linked to external conditions (nef, 2012) for well-being is found good accommodation. Therefore we consider, subjective well- being as essential aspect to be evaluated in order to promote flourishing of human-environment. Subjective well-being is main issue studied in Positive Psychology field or some call Science of Happiness. There is a theory of homeostasis of subjective well-being promoted by Australian researcher Robert A. Cummins—a pioneer of this theory (Cummins, 2014). Cummins defined SWB as combination of "*affective and cognitive evaluation of one's own life*" (2012: 89).

According to new economics foundation (nef) (2012) *dynamic well-being model* the *flourishing* consists of dynamic interactions between good functioning and needs satisfaction, and good feelings day-to-day & overall. Besides there this there are external and internal conditions contributing to functionality and satisfaction (see Figure 6).

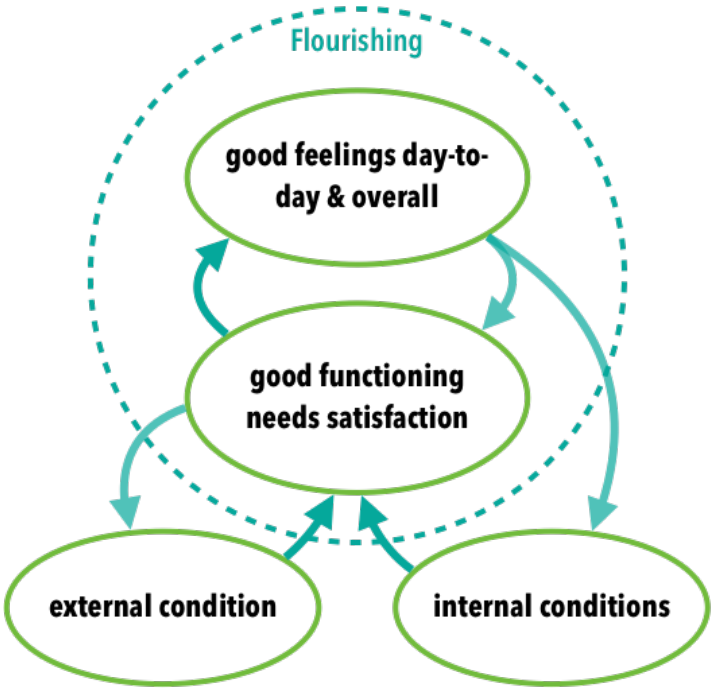

Figure 6 – Representation of Dynamic Well-being model adapted from nef (2012)

1.6 Hostel – evolutionary framework

Concept of hostel itself is not new, and there are various definitions of it. Immediate search in Google Search Engine will show you that hostel is *"an establishment which provides inexpensive food and lodging for a specific group of people, such as students, workers, or travellers*[19]*"*. It also indicates that hostel can be used just as short for youth hostel, with origins from Medieval Latin, Old French and English in general sense meaning a *"lodging, place to stay"*. This definition is identical to Oxford Dictionaries English Website definition of hostel[20].

Merriam-Webster Online dictionary [21] defines hostel somewhat similar to previous:

> *hostel*
>
> **1:** *INN (1: (a): an establishment for lodging and entertaining of travellers, (b): TAVERN; 2: a residence formerly provided for British students in London and especially for students of law)*
>
> **2:** *an inexpensive lodging facility for usually young travellers that typically has dormitory-style sleeping arrangements and sometimes offers meals and planned activities—called also youth hostel*
>
> **3:** *chiefly British: a supervised institutional residence or shelter (as for homeless people).*

Meanwhile Emma Martell (2017, Apr 1)[22] in Hostelworld Blog refers that hostel is *"a budget-friendly type of accommodation that focuses on a shared social experience"*. She also points out several sets of three words that Hostelworld travel community described as a hostel:

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[19] https://www.google.com/search?client=safari&rls=en&ei=Y7pZW5zSIpGzsAfVoYX4CA&q=hostel+definition&oq=hostel+definition&gs_l=psy-ab.3...0.0.0.339786.0.0.0.0.0.0.0.0..0.0....0...1..64.psy-ab..0.0.0....0.2H9yXySCISQ

[20] https://en.oxforddictionaries.com/definition/hostel

[21] https://www.merriam-webster.com/dictionary/hostel

[22] Martel, Emma (2017, Apr 1). What Is A Hostel? The Answer Will Change Your Travels Forever. Hostelworld Blog. https://www.hostelworld.com/blog/what-is-a-hostel/

"Embracing The Unexpected
Literally Adult Playgrounds
Social. Friends. Adventure.
An Experiences Imaginarium
Anything Can Happen
Diverse Social Exchange
Design. Creativity. Interaction.
Price. Location. Social."

Furthermore in Hostelworld on their YouTube Channel "Hostelworld – Meet The World" published a self-explaining video "What is a Hostel?"[23], which describes that hostels have become fun, delicious, stylish, colourful, social, central, unique, awesome. This video is a part of Hostelworld rebranding campaign 'Meet The World' that is targeting *"millennial audience who aren´t the average tourist. Instead, they are spontaneous adventurers who know that it's other people who shape their unforgettable travel experiences. Hostels put them at the heart of this, providing a unique environment"* (Hostelworld, 2015, May 21)[24].

HostelManagement.com Website (created in 2004) describes itself as The World's Largest Community of Hostel Professionals[25]. It has over 17 000 members together with HostelJobs.com. This industry website defines hostel as *"budget-oriented dormitory accommodation that accepts individual travellers (typically backpackers) for short-term stays, and that provides common areas and communal facilities"*. This website specifically indicates that word dormitory refers to ability to book an individual bed in shared room opposed to booking entire room in guest houses or hotels.

According to Portuguese most recent legislation (Decree-Law n.º 63/2015) Article 14 name 'hostel' can be used by local lodging establishment predicted in Article 3, point 1, line c)—lodging establishments with unit of room—, whose predominant

[23] Hostelworld – Meet The World. (2017, Sep 18). What Is A Hostel? YouTube Video. https://youtu.be/zXYHbyciUaI
[24] Hostelworld. (2015, May 21). Hostelworld Lounches Global Rebrand Encouraging Travellers to 'Meet The World'. Growing Youth Hostel Industry Market Share to Reach $320 Billion by 2020. Press Release. http://www.hostelworldgroup.com/~/media/Files/H/Hostelworld/press-release/hw-rebrand-release-us.pdf
[25] https://hostelmanagement.com

unit of lodging is dormitory, considering predominant always when number of guests in dormitory is superior than number of guests in room[26].

Based on these different definitions we will consider a *hostel as a budget-friendly accommodation that accepts individual travellers and offers shared social experience*. Thus according to this definition we will look over simple meaning of Inn or Lodging and require a possibility to book an individual bed besides entire room (e.g. room of 4 bunk beds). Besides this definition also clarifies that we are looking at traveller temporary accommodations not accommodation for homeless[27]. We will not mix it also with term '*hostal*' that comes from Old Spanish indicating boarding house or cheap hotel, this type of lodging is found in Spain and Hispanic America and is usually operated by family business. This type of lodging also doesn't require having dormitories[28].

1.6.1 Background and types of hostels

Based on this definition we identified two main types of hostels. Non-profit hostels operated by non-profit organisations or state and independent hostels managed by individual entrepreneurs. We found non-profit hostels to be around already for a century, while independent hostels seems to appear only in last decades of 20th century.

1.6.1.1 Non-profit hostels

German schoolteacher Richard Schirrmann, who identified need for temporary accommodation for students during class trips in 1909, opened the first hostel with these or somewhat similar characteristics in 1912. This means that somewhat similar idea of today's hostel was around already for a whole century—sharing room by renting beds. This idea of a youth hostel was accepted with great enthusiasm, and in 1932 the International Youth Hostel Federation (IYHF) was founded. In 2006 IYHF was transformed in Hostelling International (HI), and it is *"the only global network of Youth Hostel Associations"* (hihostels, 2013).

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[26] Free translation of point 1 of Article 14 of Decree-Law n.o 63/2015 "1 - Só podem utilizar a denominação **hostel**, os estabelecimentos de alojamento local previstos na alínea c) do n.º 1 do artigo 3.º, cuja unidade de alojamento predominante seja o dormitório, considerando-se predominante sempre que o número de utentes em dormitório seja superior ao número de utentes em quarto."

[27] In some countries a term 'hostel' is also used to refer to homeless shelters (Busch-Geertsema & Sahlin, 2007), which is no tour focus, as we are clearly talking about travel accommodations

[28] https://en.wiktionary.org/wiki/hostal and https://en.wikipedia.org/wiki/Hostal

HI members are required to be non-profit, non-political organisations *"They exist to do good – not to generate a profit"*[29]. HI promotes that hostelling is *"not just about having a place to stay; it's about having fun, experiencing different cultures and meeting new people"*. HI members ought to be: located in unusual, inspiring and diverse locations; offer good value for money; meet agreed quality standards; offer a safe environment for guest stay; give a guest comfortable night's sleep; provide friendly surroundings. HI also denotes that *"being a non-profit means that the money is put back into company to make the experience better for everyone"*[30]. HI network offers over 4000 hostels and more than 35 million annual overnight stays. HI believes that youth hostels have fundamental role in development of youth by offering international travel experience, test capabilities of survival in alien environment, profoundly working with socialization issues of young travellers.

> *"To promote the education of all young people of all nations, but especially young people of limited means, by encouraging in them a greater knowledge, love and care of the countryside and an appreciation of the cultural values of towns and cities in all parts of the world, and as ancillary thereto to provide hostels or other accommodation in which there shall be no distinction of race, nationality, colour, religion, sex, class, or political opinions and thereby to develop a better understanding of their fellow men, both at home and abroad." HI mission*[31]

In European level youth hostels integrated in this network are represented by European Union Federation of Youth Hostels Associations (EUFED), which represents 30 National Youth Hostel Associations, 26 countries, having *"20 million annual overnight stays within Europe"* (EUFED, 2013).

IYHF (current HI) and EUFED established *'The IYHF Environmental Charter'* in 1990's and since then have encouraged the member associations to contribute to realization of seven main aims regarding: consumption, recycling, pollution, energy conservation, transport, nature, and environmental education (EUFED, 2013). The HI sustainable tourism initiative currently is called *'Say HI to the World'*

[29] https://www.hihostels.com/pages/about-hi
[30] https://www.hihostels.com/pages/407
[31] https://www.hihostels.com/pages/407

along with *'HI Sustainability Charter'*[32] in partnership with The Global sustainable Tourism Council (GSTC)[33], which aims for recognizable accomplishments in three main areas of sustainability concept: social, ecological, and economical. These criteria should make a minimum basis for members associations. So far HI has 283 environmentally certified youth hostels.

In Portugal youth hostels are present since 1959 (Gonçalves, 2015). *'MoviJovem'* – *Pousadas de Juventude* Portuguese Youth Hostel Association was created in 1991 and currently is representing 52 (42 of them in continent) non-profit youth hostels of this network in Portugal (Pousadas de Juventude, 2018). In 2011 *Pousadas de Juventude*, managed by *MoviJovem* faced possible liquidation, however, after viability study by Deloitte in 2013 there was created another management model, liquidation order was revoked, and in 2014 *Pousadas de Juventude* commence to operate under new collaborative statute with *MoviJovem* still as manager of this network. Nevertheless under new management model 14 youth hostels[34] of continental Portugal will be offered in public contest to private sector to operate, while brand management, marketing, public relations, communication as well as relationship with HI maintains responsibility of *MoviJovem.* And although *MoviJovem* positions *Pousadas de Juventude* as low-cost accommodation, it was recognized that target audience of these lodgings is not limited to youth, national or foreigners, but open to anyone with open young spirit (Gonçalves, 2015). Yet in 2013 none of these youth hostels was yet certified by HI-Q standards for accessibility, comfort, cleanliness, security and privacy (hihostels, 2013). Nonetheless in 2011 *MoviJovem* compromised to implement various projects to reduce the consumption of resources without loss of comfort and signed protocol for measurement of ecological footprint, reductions of emissions with *Querqus* – National Association for Conservation of Environment. This effort to achieve better environmental footprint aligns with goals of HI Sustainability Strategy.

There are two youth hostels in Lisbon city, one in centre near Eduardo VII Park, other in *Parque das Nações* neighbourhood, both managed by *MoviJovem*. Nevertheless, since first years of 21st century there is a visible growth in number of

[32] http://res.cloudinary.com/hostelling-internation/image/upload/v1430476239/HI_Sustainability_Charter_Online_sa0ter.pdf
[33] http://www.gstcouncil.org
[34] Alfeizerão, Alijó, Alvados-Porto de Móis, Areia Branca, Arrifana-Aljezur, Bragança, Lagos, Lisboa, Lousã, Melgaço, Penhas da Saúde, S.Pedro do Sul, Vilarinho das Fumas, Viseu.

non-profit (Chart 1) and independent hostels (Chart 2) in Portugal and Lisbon Metropolitan Area, however while non-profit hostel growth has staled in last decade, independent hostels have more than tripled, both, in number of establishments and bed capacity, in this way stressing the importance to explore particularly the phenomena of independent hostels in Lisbon.

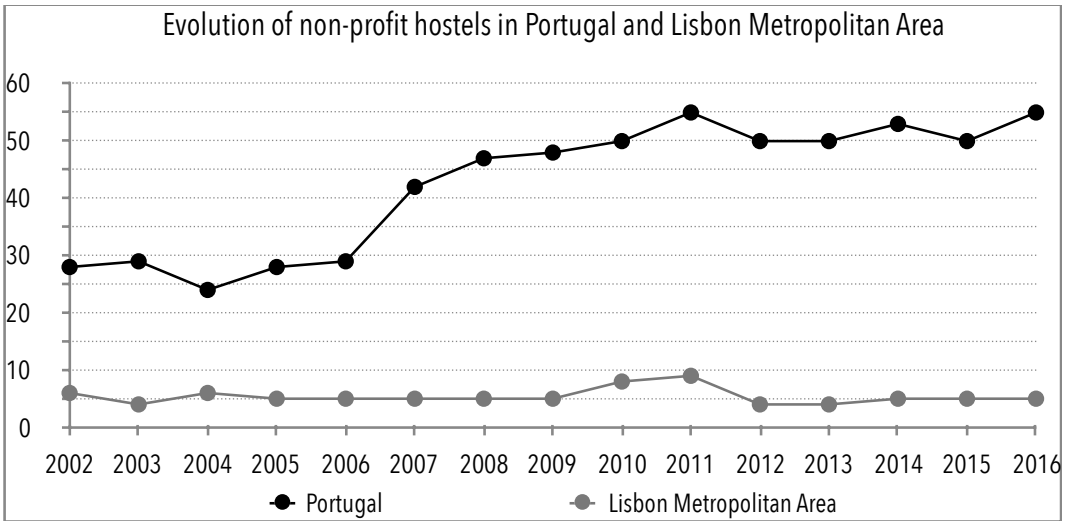

Chart 1 – Evolution of non-profit hostels in Portugal and Lisbon Metropolitan Area elaborated by Author (data source: INE, 2018)

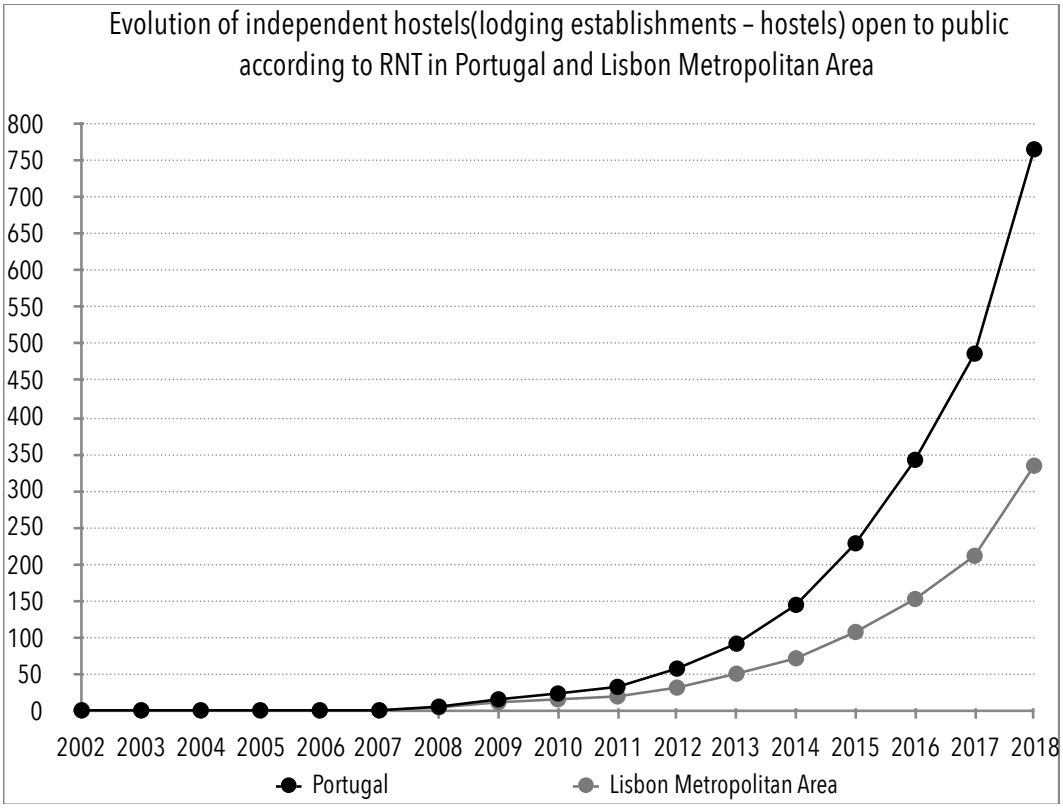

Chart 2 – Evolution of independent hostels in Portugal and Lisbon Metropolitan Area elaborated by Author (data source: RNT, 2018)

It is important to mention that number of establishments of these charts refer to Lisbon Metropolitan Area, which includes neighbouring towns, and data were collected in June of 2018 thus current number of establishments will necessarily be different from here represented. As referred earlier currently there are 2 non-profit youth hostels in Lisbon city and around 150 independent hostels[35] Lisbon city.

1.6.1.2 Independent hostels

Independent hostels are operated by individual entrepreneurs not by non-profit or state organisations, or simply to refer that hostel is not part of HI youth hostel network, which requires membership card in exchange to discounts on accommodation rate. Independent hostels have seen even greater growth in last decade in Portugal and around the world. According to Volante (2011) since last two decades of 20th century the demand for low-cost accommodation had a significant increase worldwide while in Portugal it would have been since beginning of 21st century. This could be the trigger for this budget-friendly type of accommodation growth, lack of initial legal framework as well as availability of low-cost transportation, social media and communication.

Due to the fact that hostel development hit the highs after 2010, only around 2010 there appeared first local studies in Portugal about hostels and travellers staying in hostels, most of these studies though are made in Master thesis level, and few scientific articles (see some of them Volante (2011), Rebelo (2012), Alves, Abrantes, & Omag, (2013), Oliveira-Brochado & Gameiro (2013), Pietrasz (2013), Saraiva (2013), Gameiro (2013), Gonçalves (2015), Coimbra (2015), Alves, Abrantes, Antunes, Seabra & Herstein (2016), Carapinha[36] (2016), Brochado & Rita (2017), Cró & Martins (2017). However, when we initiated research there were only two Master thesis in areas of 'Management', and 'Management and Sustainability of Tourism'. Overall most of master studies about hostels in Portugal have been in area of tourism, concentrating more on economical analysis and characteristics of travellers staying in hostels.

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[35] The evolution of specific numbers of Lisbon hostels will be discussed in later stages of this document.
[36] Researcher of this thesis was invited to workshop within ambit of this research an later invited to conjoint visits to hostels due to shared indicators of sustainability assessment based on LiderA.

1.6.2 Legal background

While non-profit youth hostels operating in Portugal are having their own specific rules as *'pousada de juventude'*, up till August 29, 2014 there was no legal framework for independent hostel in Portugal. Due to this reason during last decade there was great increase in independent hostels that operated on margin of legality.

1.6.2.1 Before legal framework of 'hostel'

Until end of 2014[37] hostels could fit most closely legally in Portugal to figure of *Local Lodging* (LL) created only in 2008 by 'Decree Law 39/2008' [*Decreto-Lei n.º 39/2008, de 7 de março*] of new juridical regime of installation, exploration and functioning of touristic enterprises (includes hotel establishments and seven other typologies with state mandatory classification system) in order to regulate services of temporary accommodations that does not fulfil necessary requirements to qualify as touristic enterprises, which gained term Local Lodging (LL)—except hostel, as it was not framed legally yet. This new touristic enterprise law likewise extinguished some type of enterprises, namely boarding house (*pensão*), motel (*motel*), shelter (*albergaria*) and inn (*estalagem*), that were actually more closely related with type of accommodation that hostel is. According to same law the licensing of hostel in local municipality was not possible yet but it could be sort of adapted under term *Local Lodging* [*Alojamento Local – Portaria n.º 517 of June 25, 2008*] that includes (1) Housing – unit of lodging is understood as autonomous building, (2) Apartment – unit of lodging is autonomous fraction of a building, (3) *Accommodation Establishment* (AE) – unit of lodging is composed of rooms. As LL was not considered a touristic enterprise, and it does not have permission for a specific classification system as one (Art. 3, Decree Law 39/2008), the register of LL required in local City Hall after simple requirement of register that identifies number of rooms, guest capacity etc. following Annex 1 example of '*Portaria 517/2008*'. Thus up till end of 2014 most of hostels tried to themselves within category of AE but as there was no legal framework yet specifically for AE that rents out bed, there were large amount of hostels that were not even registered in local City Hall and operated on margin between legal and illegal. Nevertheless AE should respect basic safety requirements, which obliges that electrical and gas

[37] The new Decree-Law 128/2014 of Local Lodging started to by applied only 3 months after it's publishing in August 29

installations fulfil legal norms. Besides it was required a plan of property indicating the units of lodging, and in case if the capacity of AE is equal or exceeds 50 people it required a project and equipment installation against fire risks. The capacity of AE is established by number of fixed beds installed in units of lodging. The AE should be installed in well conserved building connected to public communications. Each unit of lodging should have direct access to exterior to assure adequate ventilation conditions, besides which it should also provide security system that guaranties privacy of users. AE should also provide at least one sanitary installation for each three rooms. AE should always gather the requirements of hygiene and cleanliness.

Decree Law 39/2008 of tourism enterprises was altered by Decree-Law 228/2009, and later after 5 years on this new regime touristic enterprises by Decree Law 15/2014 in order to fit better existing touristic reality. Decree Law 15/2014 in Article 2 acknowledged that LL figure is to be governed by it's own decree-law. In 2015 this law suffered another alteration when Decree-Law 186/2015 revoked Article 3 (article acknowledging figure of LL), maintaining this alteration of touristic enterprise law in 2017 by Decree-Law 80/2017, as the LL gained it's own decree-law.

1.6.2.2 After legal framework of 'hostel'

So figure of *Local Lodging* created by Decree-Law 39/2008, altered by Decree-Law 228/2009, Decree-Law 15/2014 of January 23 gained it's own legal framework by Decree-Law 128/2014 [*Decreto-Lei n.º 128/2014*]on August 29, 2014.

Hostel gained legal framework by Decree-law 128/2014 of August 29 with legal effect 90 days after its publication, so November 27, 2014[38]. The general position of hostel did not change; it is still located under *Local Lodging* (LL), *Accommodation Establishment* (AE). However the 2014 law already carries some requests for AE to fulfil in order to be able to use publicly and commercially in documentation or advertisement the designation *'hostel'* (Point 3, Article 17), requiring most of the bed places has to be in dormitories, besides dormitories are considered rooms with minimum capacity of 4 beds or 2 beds if it is a bunk bed (Article 14), however

[38] http://www.ahresp.com/pages.php?id=251

Article 14 was completely altered in 2015 with Decree-law 63/2015, which now requests that: designation 'hostel' can be used only by LL establishments whose predominant unit of lodging is dormitory, considering that predominant means larger number of guests in dormitory than in rooms, and not specifying number of beds in one room anymore. The register of LL is made by prior communication to President of local City Hall, declaring (a) authorization of use or title of use of property, (b) identification of management of establishment, (c) address of management, (d) name of establishment, (e) capacity – rooms, beds, guests, (f) pretended opening date, (g) name, address, and phone number of person to contact in emergency. Later this data is to be submitted to *Turismo de Portugal IP* by City Hall, and made public for consult in National Tourism Register (RNT) [*Registo Nacional de Turismo*].

Likewise there must be fulfilled Security Requests regulated by law, with exception, if number of guests does not exceed 10 (previously it was 50 for LL). The transitional provisions (Article 33.) refer, however, that establishments that are already functioning with denomination 'hostel', are subject to comply the criteria established by this law in Article 14º in 5 years after decree-law enters in effect, which had deadline in November of 2019 but with altering decree-law of 2015 passed to 2020. The law also requests that data about hostel, e.g., capacity and any changes in data has to be communicated within 10 days from alteration, as well as in case of closing operation it is necessary to communicate it within 60 days after closure. By the middle of 2018 there were new proposals of legal framework for hostels discussed in Parliament, some of those suggesting framework change from Local Lodging figure to Tourism enterprises. For easier visualization of the evolution of legal framework for hostel see Figure 7.

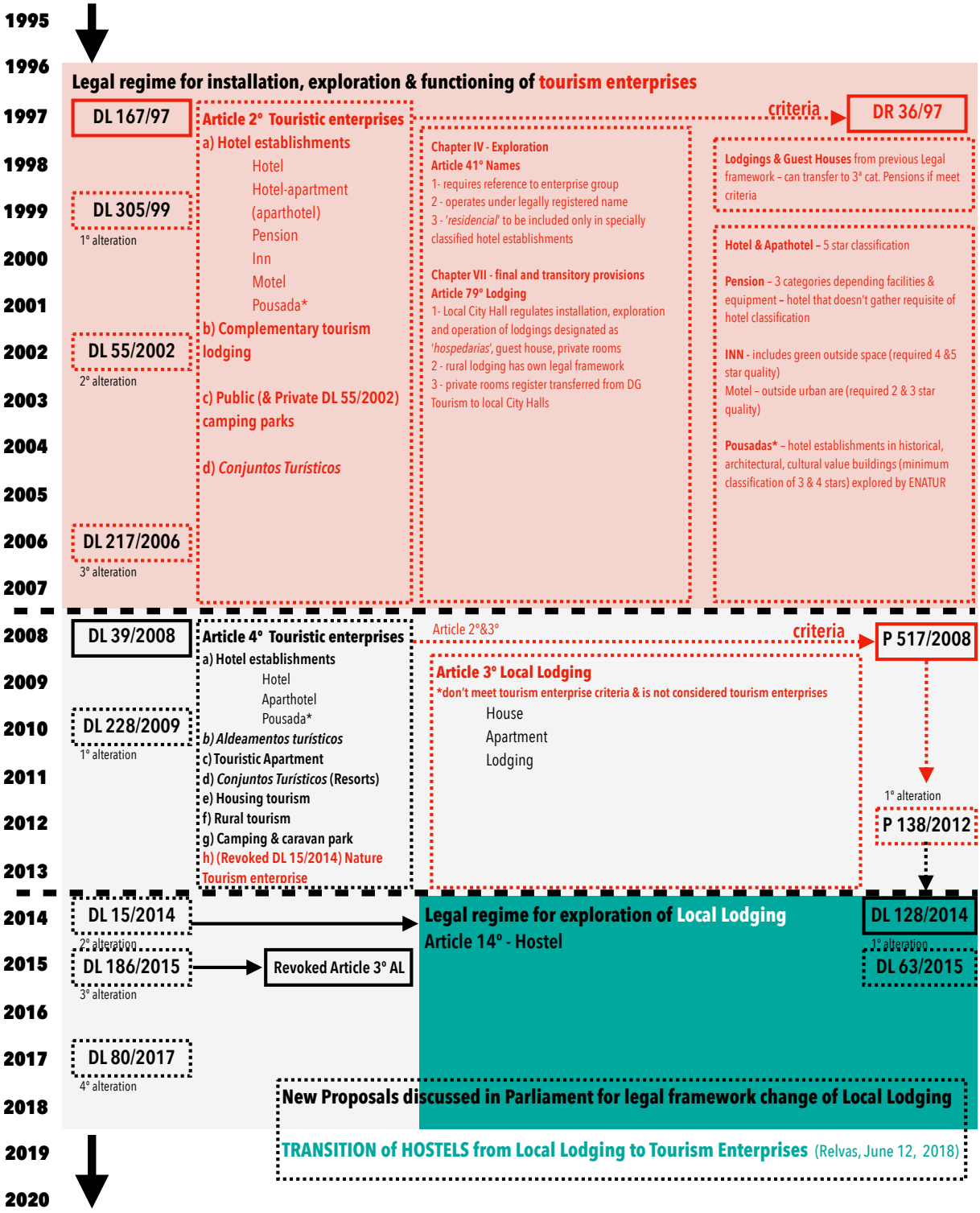

Figure 7 – Quick guide of Legal Framework of Hostels in Portugal, antecedents & proposals for future (Elaborated by Author)

1.6.3 Hostel guests

Most of studies on hostel guests have been done in Australia, where some of the first independent hostels emerged. In 1980's, 1990's and 2000's the term '*backpacker*' was most used to characterize these independent budget friendly travellers.

Loker-Murphy and Pearce (1995) research aim was to understand the phenomenon of backpacker through its multifaceted origins supporting contemporary definition and differentiation from other type of travellers. According to Loker-Murphy and Pearce (1995) origins of backpackers go along with broader history of tourism going back to Grand Tours of 17th and 18th century Europe.

> *One influence on contemporary backpacking stems from the travel behavior of the affluent, well-educated youth of the late Victorian period who set out on adventure trips to experience the hidden, strange, and exotic life of far away countries and unknown people. These enthusiastic adventurers often voluntarily submitted to extreme hardships and sometimes adopted the way of life of their hosts (Cohen 1973). These Grand Tours were very much looked upon as an educational finishing school likely to increase one's sophistication, worldliness and social awareness (Hibbert 1969; Swinglehurst 1974). Alderson (1971) noted that the places and routes visited in these early days were again the focus of youth travel in the 60s a parallel he characterized as the "New" grand tour.*
>
> *In Loker-Murphy and Pearce (1995: 820).*

Hedonic and self-developmental characteristics of Drifters and Wanderers are present also in current travellers staying in hostels. Likewise it is noted that travellers seek other's company, which differentiates them from tourists that tend to escape from other's company (Loker-Murphy & Pearce, 1995).

In small exploratory study in Australia in 1999 Firth and Hing (1999) explored 30 eco-friendly practices identified by literature review, they surveyed 6 hostels

regarding these practices and open ended interviews aided to obtain qualitative data related with water conservation, energy efficiency, transportation, eco-friendly, shopping, recycling and environmental philosophy. The sample of 60 guests (10 in each hostel) ranked these practices by importance in hostel choice. They found the following ranking in 1999: (1) Price – 37% of respondents; (2) Location – 27%; (3) Services and facilities – 15%. "*Only 2 (3%) respondents ranked implementation of ecofriendly practices in a hostel as the most important factor influencing their choice*" (Firth & Hing, 1999: 253). However they also fount that 17% of respondents admitted to be influenced by environmental awareness of hostels and encouraged to perform mild eco-friendly practices such as recycling during whole holidays in that location, while 12% said that even though they are environmentally conscious at home, the level of this responsibility lowered while on holiday. Nevertheless almost one third of respondents thought that lack of importance in ranking of choice of environmental practices implemented by hostel are due to lack of communication about it, as they found the existence of these practices only upon arrival at the hostel. And one forth of respondents said they would likely choose environmentally friendly hostel over other, if appropriately announced in hostel advertisement. Firth and Hing (1999) reinforce the importance to explore social and environmental impacts of hostels and their guests, and while local governmental, tourism industry, and operators have explored economical impacts, there is a lack of understanding about social and environmental impacts of these establishments. They conclude that more extensive studies about these issues could contribute to local environment by attracting 'low intensity' tourists.

Since change of century there has been great development of youth tourism accompanied by increasing numbers of hostels.

According to Murphy (2001) in study made in Australia, budget friendly issues were ranked as first reason of choosing backpacking, followed by opportunity to meet people, and then better/more 'real' travel experience.

Richards and King (2003) notes that in Worldwide study, carried out in 2002 by ISTC and ATLAS with 2300 responses, over 60% respondents were between 20 and 25 years old, and only 5% were over 30 years. Same study also noted that dominating amount of respondents identify themselves as travellers rather than

tourists, to extent that some of them marked traveller as their occupation. Authors also mention shortage of budget accommodation as reason of limiting further development of youth tourism in Europe. However, not also that hostels are rapidly opening across Europe, and that Internet is crucial to future of youth tourism.

The essential role of Internet and web based services in development of youth tourism is reflected in rapid growth of global hostel reservations provider. The first global provider of online reservations to Budget, Independent and Youth Travel (BIYT) was Web Reservations International (WRI)—an Irish based SME company. This is better known as online reservations site for hostel bookings – their most visited flagship website www.hostelworld.com. The software grew from 10 copies sold in 1999 to 100 by 2001, and 5000 by 2003, and company's revenue grew by 1436% from 2000 to 2002. BIYT market was expected to represent more than 25% of travel by 2005, and it includes students, youths, backpackers, and any independent traveller. They are described mostly as 'web-savvy' and value conscious setting trends for future travellers. In 2002, when WRI had their 1 million bed sale the company became noticed more broadly (Golden & Cunningham, 2005).

Nevertheless Nash, Thyne, and Davies (2006) mention, some advantages of BIYT: year round, country-wide travel; more likely to use public transport; longer stays in one place; likely return to travel places in later stages of life; tend to carry only essentials with them, thus contributing more for local businesses. Nash et al. (2006) also referred that since 1995 there have been difficulties to identify this type of traveller that has been referred to as: backpacker, youth tourist, traveller, non-institutional tourist, budget/economy tourist. In a study Nash et al. (2006) of 1200 questionnaires spread through 12 hostels of Scottish Youth Hostels Association network 309 were completed and analysed to understand importance/satisfaction of particular part of hostel/backpacking experience evaluated on 7-point Likert scale. In 2006 (Nash et al., 2006) results revealed that most of respondents stayed between 4 days to 2 weeks in one place; relied on information from maps, travel guidebooks, internet, word-of-mouth; over 60% of respondents stayed mainly in hostel, yet still noticeably 49% in SYHA network hostel while 15% in independent hostel. (Nash et al., 2006) study also confirms the price is number 1 for choice of

hostel, followed by location. Likewise cleanliness, self-catering/cooking facilities, 'no noise rule', lots of travel information, non-smoking policy, and value for money were some of higher ranked for importance and satisfaction in SYHA hostels.

Teo and Leong (2006) recognized that there has been so much changes in backpacker tourism, that there is need to reconceptualise the phenomenon, as in 2006 independent traveller might not be just looking for low-budget accommodation, but see travel as expression of identity.

Larsen, Øgaard, and Brun (2011) found that relaxation was the weakest motive of travel for backpackers as well as mainstream tourists, and not the strongest in backpackers as they expected. In this study was also found that there were actually fewer differences between mainstream tourist and backpacker than expected, with both of the groups identifying themselves as explorers. However backpackers were significantly less motivated to seek luxury and relaxation. Moreover this study found that having fewer differences between mainstream and backpackers doesn't mean that they see themselves as similar. Actually, backpacker tends to distance themselves from ordinary tourists, in fact it is noted that backpackers tend to judge themselves different from other backpackers as well.

However, nowadays travellers staying in hostels are not holding homogeneous characteristics same way as the hostels that they are staying are not homogeneous (Oliveira-Brochado & Gameiro, 2013).

> *"Staying in a hostel is an experience rather than an accommodation."*
> *(Oliveira-Brochado and Gameiro, 2013: 98).*

Based on findings of references in this section we propose that future youth travellers will have—already have though undefined—segment of *value conscious independent traveller* who are not necessarily looking for cheap bed but rather social and enriching accommodation experience (see Figure 8).

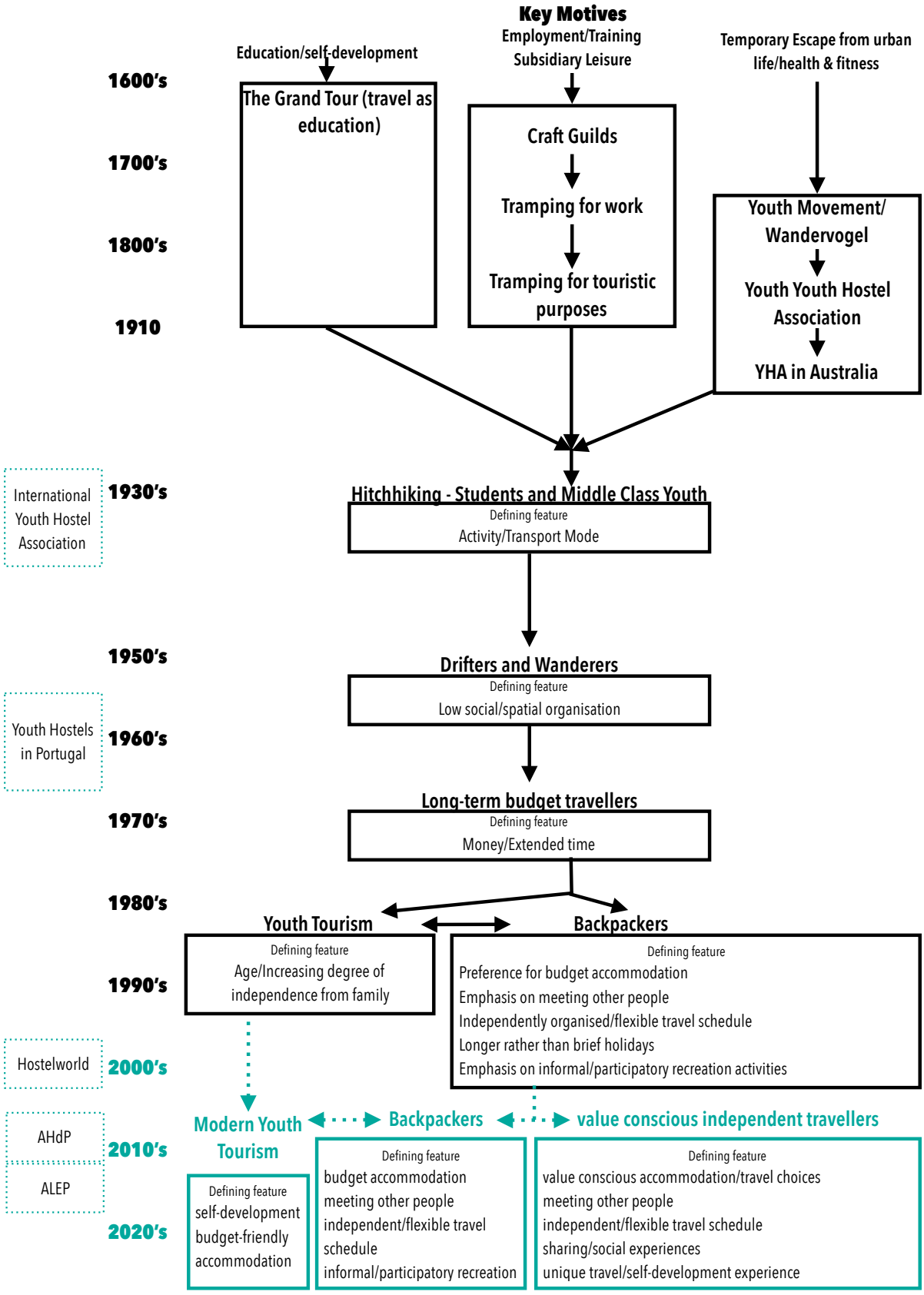

Figure 8 – Value Conscious Independent Travellers: Evolutionary Framework. Adapted from Loker-Murphy and Pearce (1995: 821). "Figure 1. The Backpacker Phenomenon: An Evolutionary Framework"

1.7 Analysis of evaluation approaches and tools

1.7.1 Positive Design or Design for Flourishing approach

So based on our prerequisite of design contributing for human flourishing we encountered Positive Design[39] or Design for Flourishing approach has evolved from advances in research on Emotional Design (Norman, 2004) and Positive Psychology field (Diener, Oishi, & Tay, 2018). TUDelft has promoted the approach. Even though the approach is based in product design, we saw possibilities of this approach to fit interior design, as we perceive the difference of product to interior design only in scale and attention to different specific characteristics.

In order to adapt this Positive Design approach (see Figure 9) for interior design we initiated analysis of existing tools and methodologies evaluating built environment quality, as interior is necessarily part of a built environment.

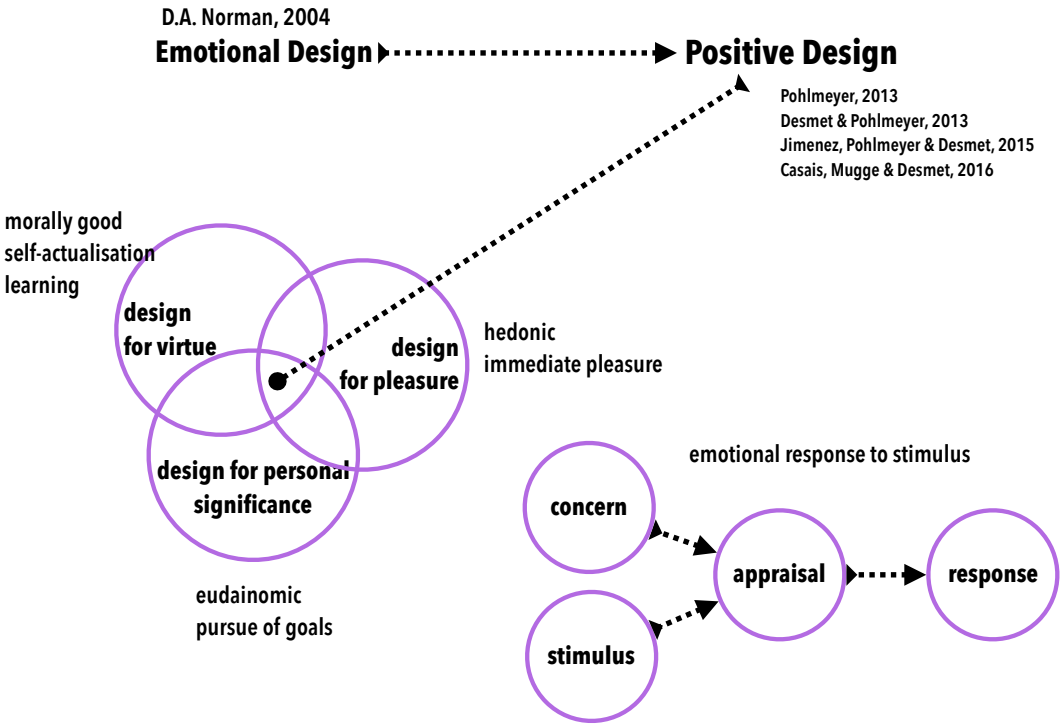

Figure 9 – Representation of Positive Design Approach adapted from Desmet & Pohlmeyer (2013)

[39] see also Chapter 1 1.4.5 Interior design and subjective well-being

Along with increasing awareness of environmental issues there has been a visible development also in built environment evaluation approaches. Most of them can be found by term 'building performance evaluation' (BPE) or 'building environmental evaluation' (BEE), and many of them include objective evaluation of building performance starting from planning stage to deconstruction. There are many international built environment evaluation systems involving different processes and tools of measurements, and many of them can be implemented at any stage of the built environment. We will see some of them, as well as a national evaluation system of sustainability of built environment, e.g. *LiderA*[40], developed by Manuel Duarte Pinheiro, to which we aim to contribute by exploring and characterising more aspects related to social systems.

1.7.2 Built environment and sustainability

There are several aspects that are evaluated in built environment. These include but are not unique to building energy performance, *indoor environmental quality* (IEQ), facilities, and occupant satisfaction. Some of these aspects can be better evaluated in building during its use, and the *Post-occupancy evaluation* (POE) serves perfectly for this, as it is capable to assess measurements of chemical and/or physical building attributes combining these measurements with user questionnaires, e.g. *Residential Satisfaction / Perceived Indoor Environmental Quality questionnaires*. Meir, Garb, Jiao, and Cicelsky (2009) note that POE will be inevitable step in order to achieve sustainability.

1.7.2.1 Design Quality Indicator and Achieving Excellence Design Toolkit

Regarding to design quality we found *Design Quality Indicator* (DQI), which is built on Vitruvian principles of durability, usefulness, beauty, and when all 3 qualities are balanced there is opportunity for excellence.

Same as DQI, *Achieving Excellence Design Evaluation Toolkit* (AEDET) has several areas of intervention and it was made for healthcare establishment, and it was built on DQI with common factors influencing design quality. These factors are: Functionality, Impact, Build quality. These factors then are made up by

[40] LiderA is voluntary national evaluation system of sustainability of built environment developed by Manuel Duarte Pinheiro. http://www.lidera.info

corresponding variables, e.g. use, access, space, character & innovation, etc. Currently there is updated evaluation tool for healthcare establishments, as DQI for Health, it has been developed as a design quality evaluation tool for all types of healthcare projects. This specific tool builds on the solid foundations of DQI whilst also incorporating the best of the now obsolete AEDET. 3 main sections – Impact, Build Quality and Functionality – split into 10 assessment criteria.

Due to fact that this tool AEDET is now obsolete and there is no free access to DQI for Heath or other industry specific tools we adapted some of the identified criteria that we found essential for evaluations of hostels from this tool (Figure 10). This tool however, is not a holistic sustainability assessment tool.

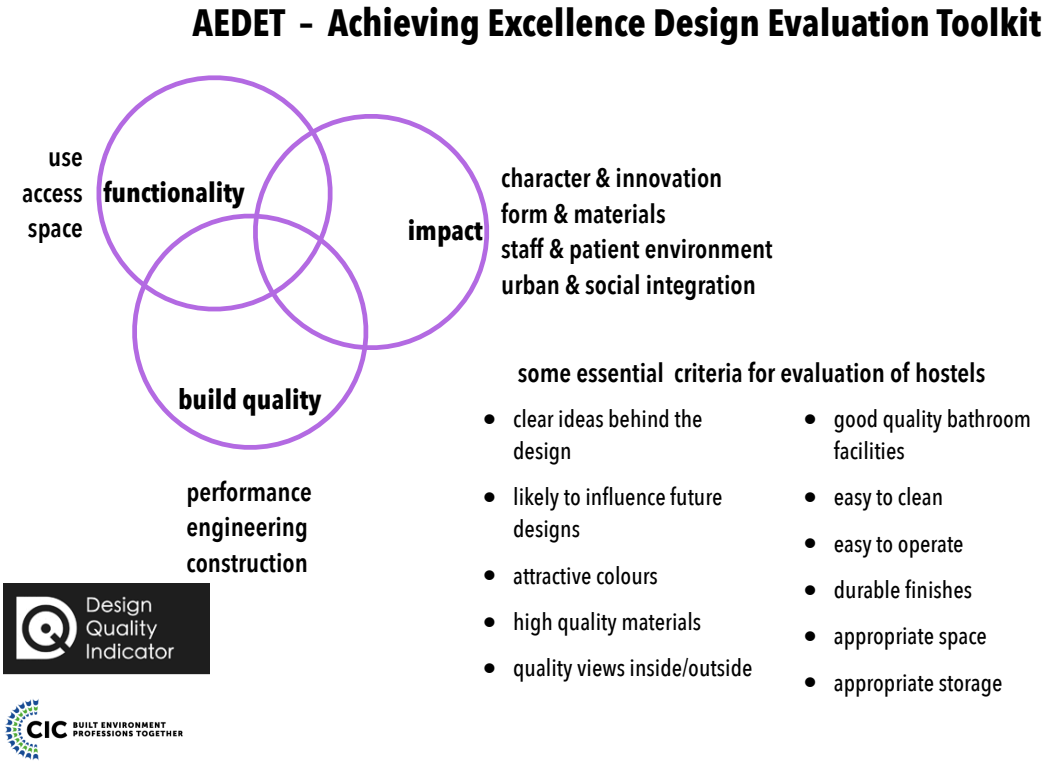

Figure 10 – Representation of AEDET

1.7.3 LiderA System

LiderA System works with several of sustainability concept (environmental, economical, social issues):

- local integration (soil, ecosystems, landscape and heritage),
- resources (energy, water, materials and alimentary production),
- environmental loads (atmospheric emissions, effluents, residues, exterior noise, and illumine-thermic pollution),
- environmental comfort (air quality, thermal comfort, illumination and acoustics),
- socioeconomic (acess for all, life cycle costs, economic diversity, amenities and social interaction, participation and control),
- sustainable use (environmental management, innovation).

In LiderA (Pinheiro, 2010) version 2.0 there are predefined 43 conditions for evaluation in total having seven main levels of classification. "A+" and "A++" are reserved for extremely good performance, while "A+++" for regenerative solutions (when solution gives back more than consumes). The system departs from common practice "E" (Figure 11).

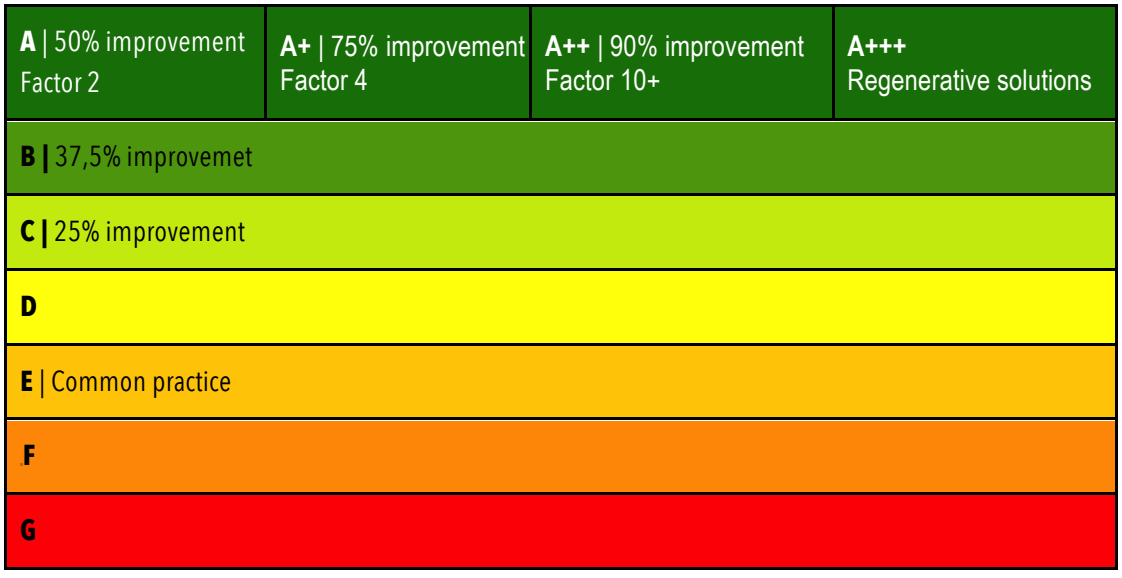

Figure 11 – Classification levels of LiderA System

LiderA (2013) environmental evaluation system can engage in any project phase, though better results would be if the collaboration starts from the initial/concept

planning phases. LiderA has developed an online catalogue of materials, products and services aligned with 4R's (2013) concept – reduce, reuse, recover, recycle. The website lists seven touristic establishments with "A"(3) and "A+"(3), and eco-camping site (Zmar) that has not yet been evaluated by LiderA.

After coming across several other (Ferreira, Pinheiro, & de Brito, 2014) *sustainability assessment tools* and found locally developed LiderA to fit best our project even though LiderA voluntary sustainability assessment system is based on balancing model of sustainability, the system itself is balanced in the way that the biggest weight of importance is related with environmental issues, next is social issues and then economical issues. This system can engage in any project phase, though better results would be if the collaboration starts from the initial/concept planning phases. LiderA has certified several touristic establishments but no hostels. So we believe we can contribute for LiderA assessment system by exploring hostel impact through more social and subjective evaluation approach (see Figure 12).

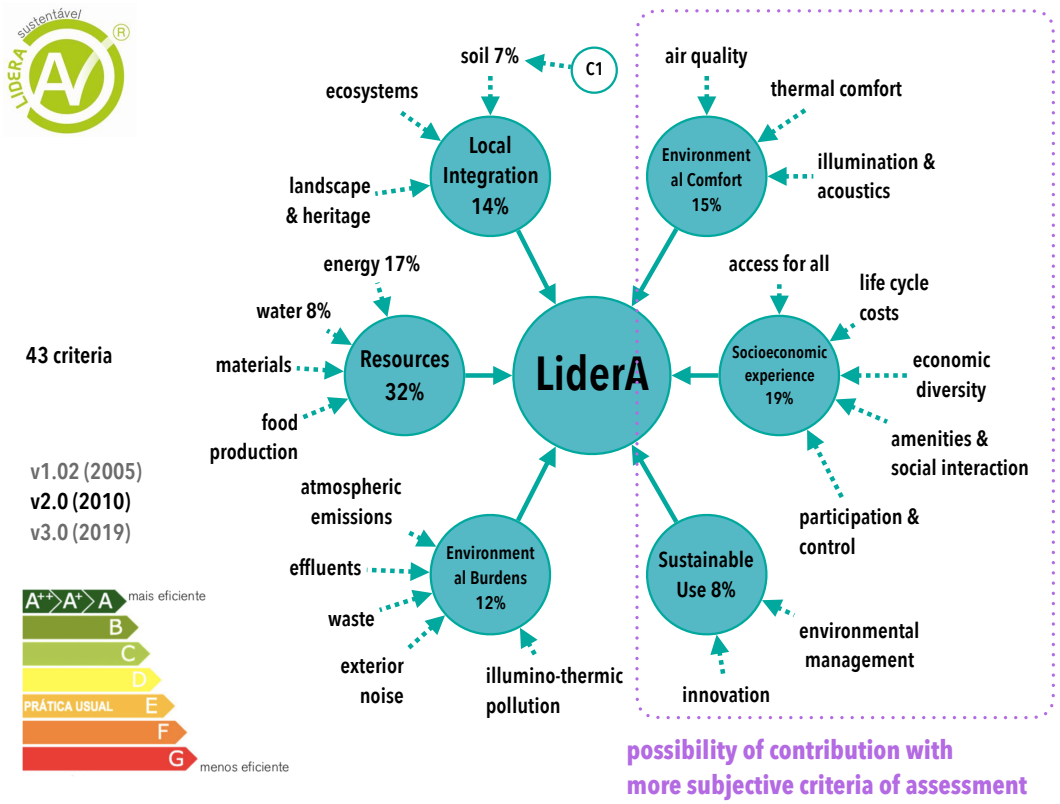

Figure 12 – Representation of LiderA sustainability assessment system (visualized by author)

1.7.4 People-environment relationship

Post-occupancy evaluation (POE) is a systematic and rigorous evaluation process of a functioning building after some period of time of being in use (Li, Froese, & Brager, 2018). According to Li et al. (2018) this type of evaluation process dates back to 1960's although some of early studies were not named as POE with the first publication using term 'POE' in title is found in 1975, which became mainstream in 1988. Nevertheless, Li et al. (2018) also distinguishes POE from Building Performance Evaluation (BPE) in that the BPE evaluates entire life of building starting from planning process, while POE concentrates on operational phase of built environment. In current research we are using this perception of POE as operational phase evaluation of built environment. There are different methods that POE can include, for example:

- *observation* made by professional while walking through building and obtaining visual cues and sometimes includes quick physical measurements and then classified in checklist,

- *building actual user feedback* in form of questionnaires, interviews or focus groups of facilitated discussions about characteristics of built environment,

- *physical monitoring* by obtaining objective measurements of chemo physical attributes and analysis of performance statistics (Bordass, Leaman, & Eley 2006) to evaluate Indoor Environmental Quality after building has been already used. It is suggested that this type of evaluation is made between 1-3 years after occupancy for residential environments, as before 1 year occupancy residents might not fully be fully immersed in using the space to understand the flaws or missing things in comfort, but after 3 years of occupancy people already tend to adapt, and often misjudge some flaws as fair because they have adapted.

Most POE evaluations include chemo-physical IEQ, such as indoor air quality, and thermal performance, as well as subjective measurements such as user satisfaction and use of space. POE measurement tools/techniques include occupant survey questionnaires, interviews, walk-through observations, metering & sub-metering, infrared thermography, air permeability tests among others.

1.7.4.1 Indoor Environmental Quality

Do to the fact that nowadays humans spend most of the day indoors, *Indoor Environmental Quality* (IEQ) is a construct that is essential to occupant physical and psychological well-being (Levin, 2006), as well as reflecting on job productivity, thus economical gains (Prakash, 2005). In is mostly assessed through objective building performance, which usually includes technical measurements of 3 quality dimensions:

Air quality is technically obtained by measuring air pollutant presence, e.g. VOC's, CO2, and Fungi in air.

Thermal quality is technically obtained by measuring temperature, humidity, mean radiant temperature, and air velocity.

Acoustic quality is technically obtained by measuring acoustic isolation, and sound / vibration barriers.

1.7.4.2 Residential Satisfaction

Residential Satisfaction (RSAT) survey performed by Amole (2009) is based on model that RSAT is influenced directly by objective measures of physical attributes (of hostel) and mediated by subjective variables becomes more reliable tool. The model of Residential Satisfaction (RSAT) by Amole (2009) applied in student residences in Nigeria evaluated subjective besides objective variables and their effect on residential satisfaction as an attitude in affective, conative and cognitive dimensions.

1.7.4.3 Perceived Hospital Environmental Quality Indicators

There is one study performing this Perceived Hospital Environmental Quality Indicators (Andrade, Lima, Fornara, & Bonaiuto, 2012) survey in Portugal with objective to holistically understand notion of physical, psychological, and social well-being of users of Portugal's hospital environments. The measurements were performed in three scales, two focusing on physical environments and one evaluating the social environment. It was done through user questionnaire completed by 562 users of 4 orthopaedic units in Portuguese hospitals with different age and stage of renovations. Two architects performed the objective evaluation of hospital environments.

1.7.5 Subjective well-being evaluation

Most research on experienced well-being would lay within field of Positive Psychology that explores Subjective Well-Being and Happiness. Most accepted evaluation of SWB is made by combining 'Life Satisfaction scale' with 'Positive and Negative Affect Scale' (Watson et al., 1988; Diener, 2009a).

1.7.5.1 Life Satisfaction

This scale was developed by Diener (1985) and has several other variations. It uses five statements about one's life in general, with which respondents reply in 7 point Likert Scale from 'Strongly agree' to 'Strongly disagree'.

1.7.5.2 Positive and negative emotions

Positive and Negative emotions are usually assessed by asking to respondents how often during some set of time they have been feeling a set of equal amount of positive and negative emotions (Watson et al., 1988).

1.8 Identified gap of knowledge

Due to the rapid growth of hostel establishment in Lisbon, there is evidence that there is need for study that explores and relates the characteristics of sustainability, subjective well-being, and design elements of hostel. We did not find any study measuring Perceived Indoor Environmental Quality, nor sustainability[41], nor experienced well-being in hostels of Portugal. We did find several studies related to Perceived Indoor Environmental Quality, however, most of them were done abroad or slightly different type of temporary accommodation–student residences.

In the process of analyzing the tools of evaluation and concepts we also created analysis files where we compared available and related tools based on several key characteristics, as most important being the ambit of study and factors or variables that were studied.

[41] Master thesis of Carapinha (2016) resulted from conjoint visits of this research due to shared variables of sustainability indicators in hostels based on LiderA sustainability assessment.

From this analysis we adapted several factors and characteristics from Model of Residential Satisfaction by Amole (2009), as Satisfaction in indoor environment is essential factor to concept of flourishing referred in dynamic well-being model. This specific model is based on understanding that use of subjective variables is essential to evaluate the residential satisfaction (see Figure 13).

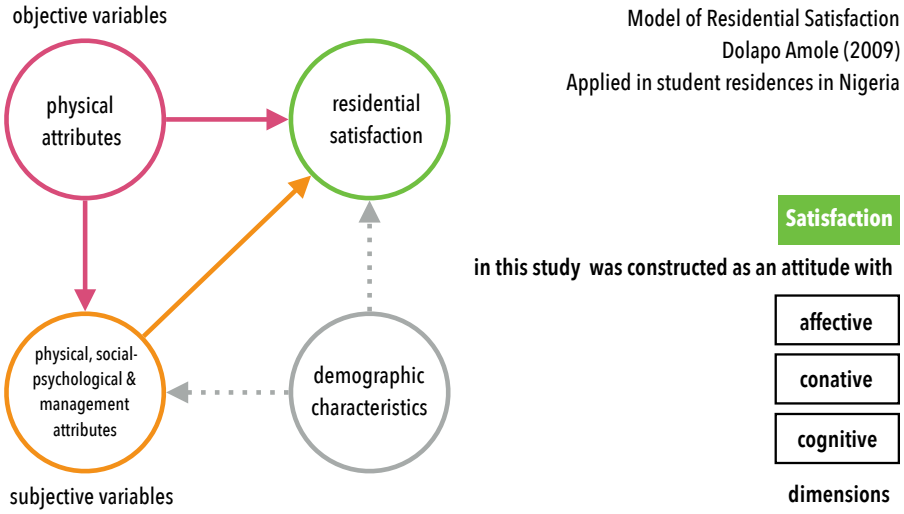

Figure 13 – Representation of Model of RSAT by Amole (2009)

This model however does not posses sustainability assessment, nor questions pro-environmental behaviours.

Study of Claudia Andrade (Andrade et al, 2013), was confirming the hypothesis that objective environmental quality affects satisfaction through perceived indoor environmental quality (Figure 14).

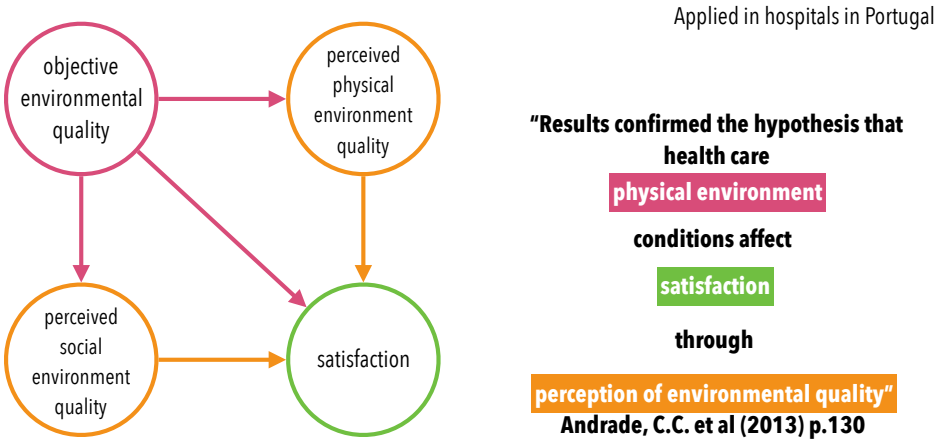

Figure 14 – Representation of study by Andrade et al. (2013) on Perceived Environmental Quality mediating role between Objective Environmental Quality and Satisfaction

This study does not posses sustainability assessment. Likewise it was applied in different context, namely hospitals, not hostels or travel accommodation.

Another important study in Tourism management area (Ramkisson et all, 2013) demonstrates that place attachment is essential for place satisfaction, as well as it has a strong positive effect on pro-pro-environmental behavior (Figure 15).

Ramkisson, H. et al (2013) / Tourism Management
Applied in natural park in Australia

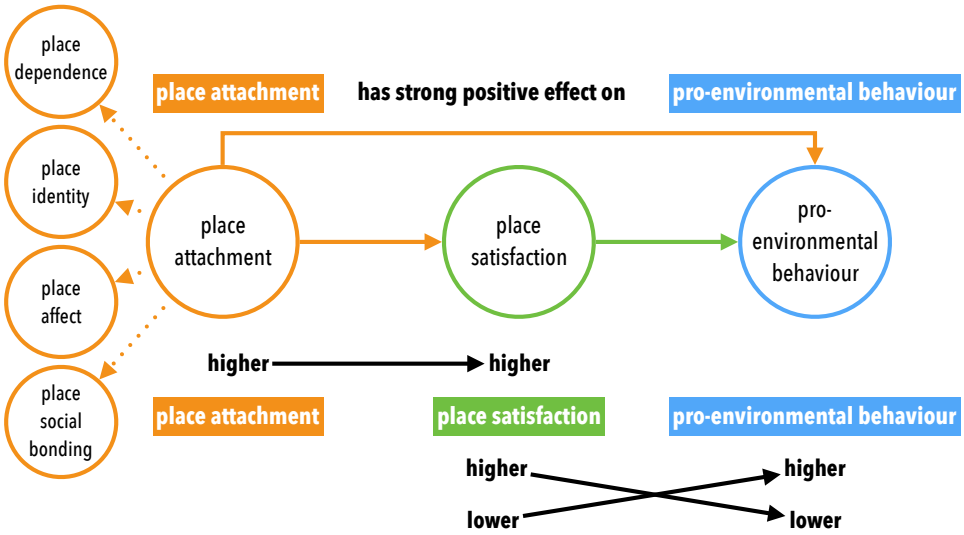

Figure 15 – Representation of study by Ramkisson et al. (2013) on Place Attachment effect on Place Satisfaction and Pro-environmental Behaviour

This study however does not evaluated objective design quality, besides it was applied in completely different context, namely outside environment, instead of indoor environment. We do believe the construct of place attachment could have similar effect on indoor environment place satisfaction and pro-environmental behaviours.

Given all these prerequisites and identified gaps in current research we present our Hypothesis along with our conceptual model for easier visual perception in next Chapter.

Chapter 2 Conceptual Framework

Introductory note. This chapter serves to define terms, relationships between main matters, as well as present a proposed approach of new paradigm of interior design and predicted relationships between main variables of study.

Conceptual framework refers to the process of construction of the model of analysis or building up relationship predictions between variables and agents; the process of visualising the whole system of analysis. In order to do this, it is essential to remind the main research questions.

2.1 Research questions and analysis overview

Our main research question of this study was *how emerging paradigm of interior design quality relates to perceived indoor environment, experienced well-being, and sustainability, and how these relationships can be evaluated in hostels of Lisbon?*

The complexity of question, naturally, created subsequent operational questions:

- What are the characteristics that describe emerging paradigm interior design quality in a hostel?
- What are the characteristics that describe perceived indoor environment in hostel?
- What are the essential characteristics that describe experienced well-being in hostel?
- What are the essential characteristics of sustainability of hostel?
- How interior design quality is related with perceived indoor environment, experienced well-being, and sustainability of the hostel?
- Is there a holistic approach that would take in account all these constructs to evaluate the whole system?
- Which existing methodologies can be adapted/upgraded to fulfil all these requirements?

2.2 Hypothesis and predicted relationship between factors

The initial hypothesis from research leading to proposal of study was that: "Interior designer, as an agent towards sustainability, can improve user's well-being and encourage new perceptions about it, simultaneously increasing design added-value of the end-product/system/service, while integrating and/or adapting the existing methodologies."

This initial hypothesis, however, was reformulated, later after 1st research moment, to better reflect the acquired knowledge from extensive analysis of existing literature on subject while maintaining the aim of study and answer to main research questions. Therefore, based on exhausting literature review conducted in lengthy first phase of investigation, we assume that *positive environmental design approach encourages thriving of hostel through perceived indoor environmental quality, which reflects on experienced well-being and subsequently hostel evaluation and pro-environmental behaviours*. We built a study model of based on it (Figure 16).

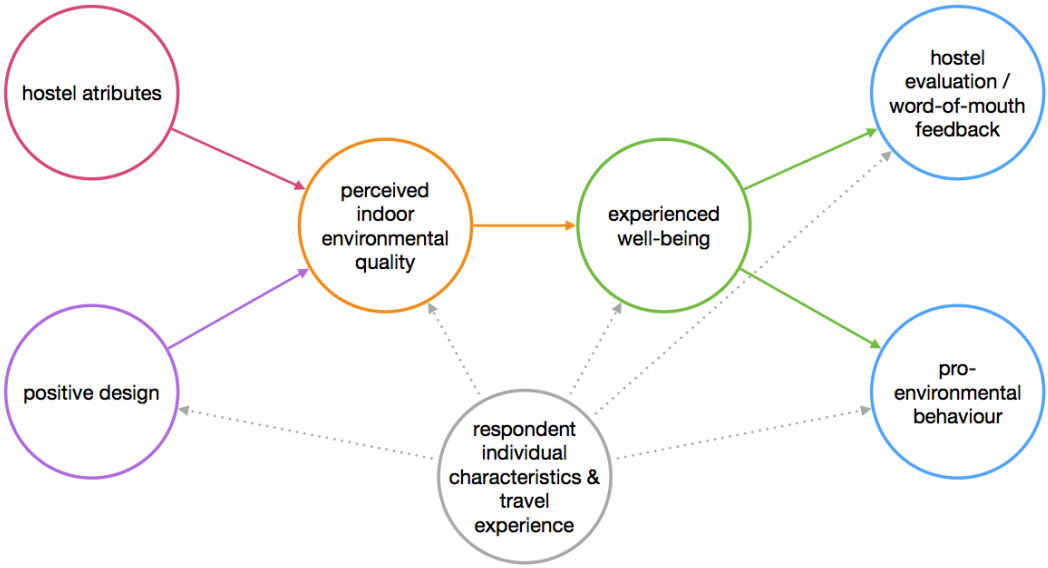

Figure 16 – Model study approach and hypothesis (Author)

Additionally, study theoretical model allows us to see several operational hypotheses showing the predicted flow of influences of the main hypothesis in detail:

H1"Positive environmental quality has an effect on perceived indoor environmental quality of the hostel"

H2"Perceived indoor environmental quality of the hostel has an effect on experienced well-being"

H3a"Experienced well-being has an effect on pro-environmental behaviour"

H3b"Experienced well-being has an effect on hostel evaluation/user feedback"

H4a"Pro-environmental behaviour has an effect on flourishing of hostel"

H4a"Hostel evaluation/user feedback has an effect on flourishing of hostel"

Nevertheless, due to complexity of this new conceptual model we need also to confirm internal constructs of model, namely, *Positive Environmental Quality*, *Perceived Indoor Environment Quality*, and *Experienced Well-being*.

To verify main hypothesis with these constructs and operational hypothesis of predicted relationship between them, we will need several different techniques and tools to, both, collect and analyse the data.

2.3 Conceptual model development

The process of development of our conceptual evaluation model of system initiated from core issues (Figure 17) identified during "*Laboratório II*" and is reflecting of 2nd moment of research.

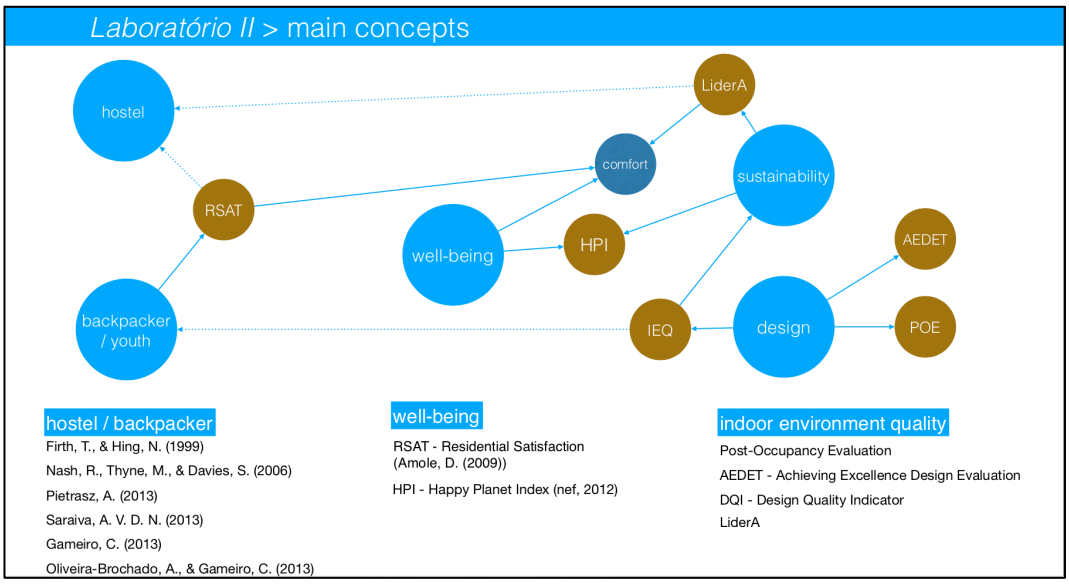

Figure 17 – Core issues identified during Lab 2

Then we started placing all the identified factors that affect each core concept in visual system model. Then we tried to place identified factors under core issues forming a cluster of factors according to their predicted causal relationships. Then we started to identify independent variables from previous studies on how each factor is measured. Meanwhile we also started to add items of measurement to each variable. Thus the two processes went along each other. Then in order to visualize better each issue we assigned colour code to each cluster.

In synthesis conceptual model is organized in following manner starting from left: predictors, mediators, and outcome (Figure 18).

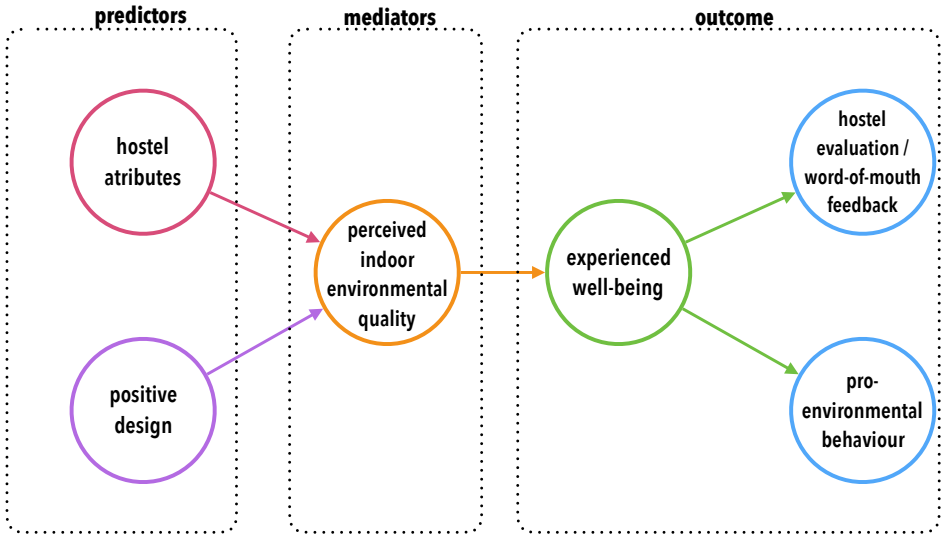

Figure 18 –Synthesis of conceptual evaluation model of the system (author)

Then each of the factors have variables or clusters of variables, which follows by items as shown in example (Figure 19).

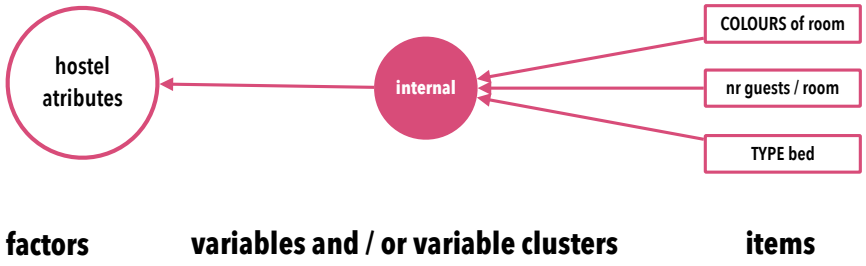

Figure 19 – Example of hierarchy in model (author)

The process of system evaluation model was long and exhausting and lasted throughout the time from Presentation of 2nd Research Report till presentation of study to Lisbon hostels where it was presented in synthetized version (Figure 20).

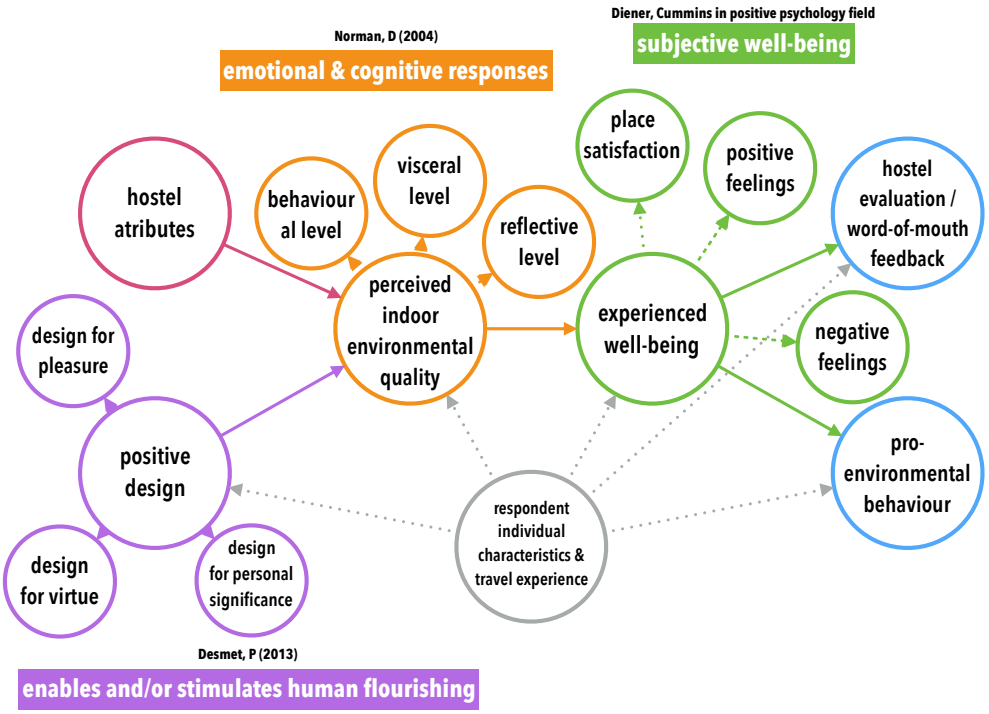

Figure 20 – Synthesis of system evaluation model (author)

The whole working visual conceptual model is very complex so we will shortly describe each of factors separately in next section. See whole model in Appendices in section of System evaluation model

2.4 Development of data collection instruments

As referred earlier, the development of observation protocol/guideline and questionnaire were developed along the development of and based on conceptual model referred in previous section. We initiated development of questionnaire in SurveyGizmo platform (Figure 21) due to its user-friendly development and visualization interface and other characteristics of free product.

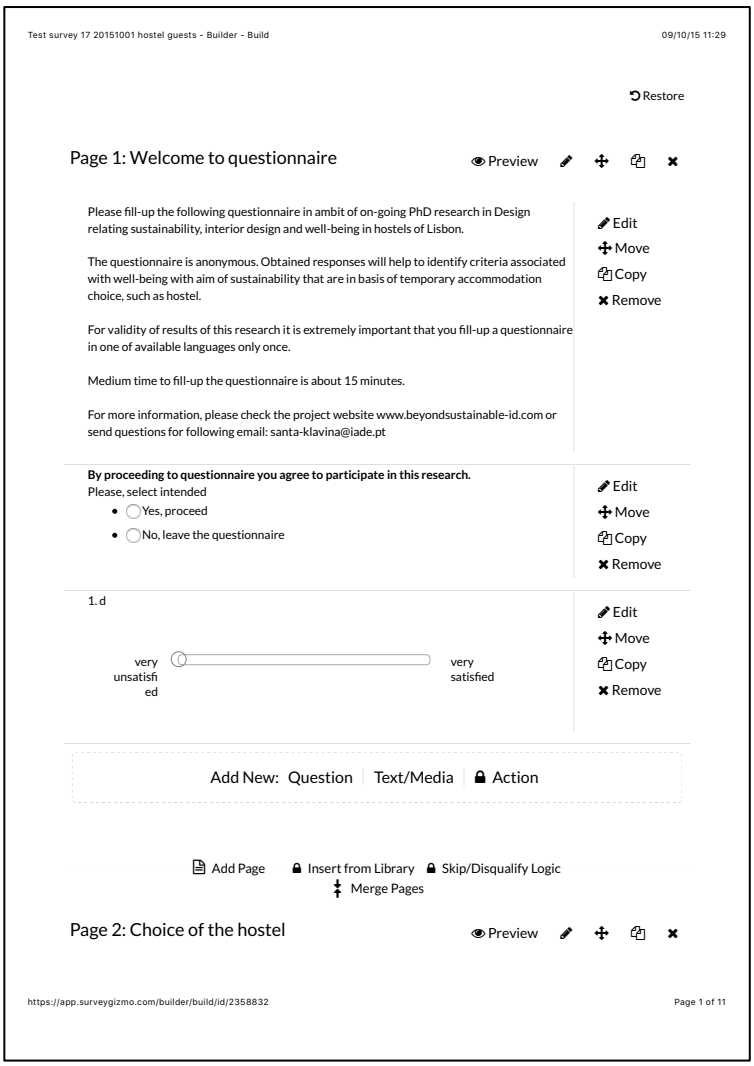

Figure 21 –Printscreen on 2015-10-09 of questionnaire on SurveyGizmo

However, over the course of process (suspension of activities for almost 2 years) were forced to migrate to GoogleForms (more limited survey platform) due to the fact that free product characteristics were changed dramatically on SurveyGizmo to the point that we wouldn't be able to collect necessary data on our existing questionnaire. We initiated process of migration by retrieving all the information

available from SurveyGizmo, and initiated inputting and adapting our questionnaire to characteristics of GoogleForms (Figure 22).

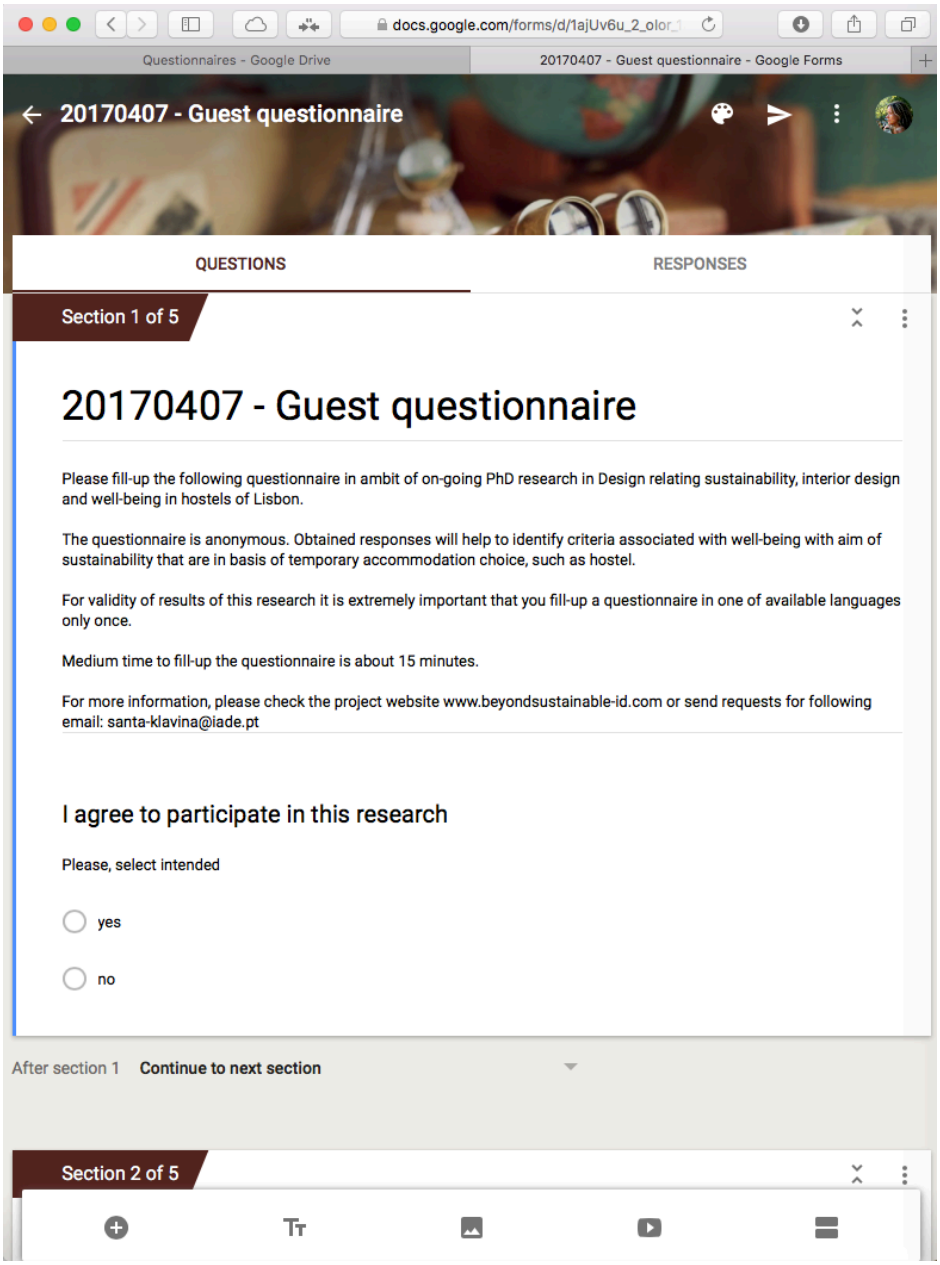

Figure 22 – Printschreen on 2018-04-05 of migration of questionnaire to GoogleForms platform.

This questionnaire was used as a guideline for observation, informal interview and perceived indoor environmental quality evaluation from in situ user experience by researcher. Following sections hold description of each of factors in visual form of conceptual model.

2.4.1 Hostel Attributes

We divided Hostel Attributes factor in 6 variables, each holding various number of items. These attributes are objective variables obtained by direct or indirect observation as well as informal interview to hostel representative during visit to hostel (Figure 23).

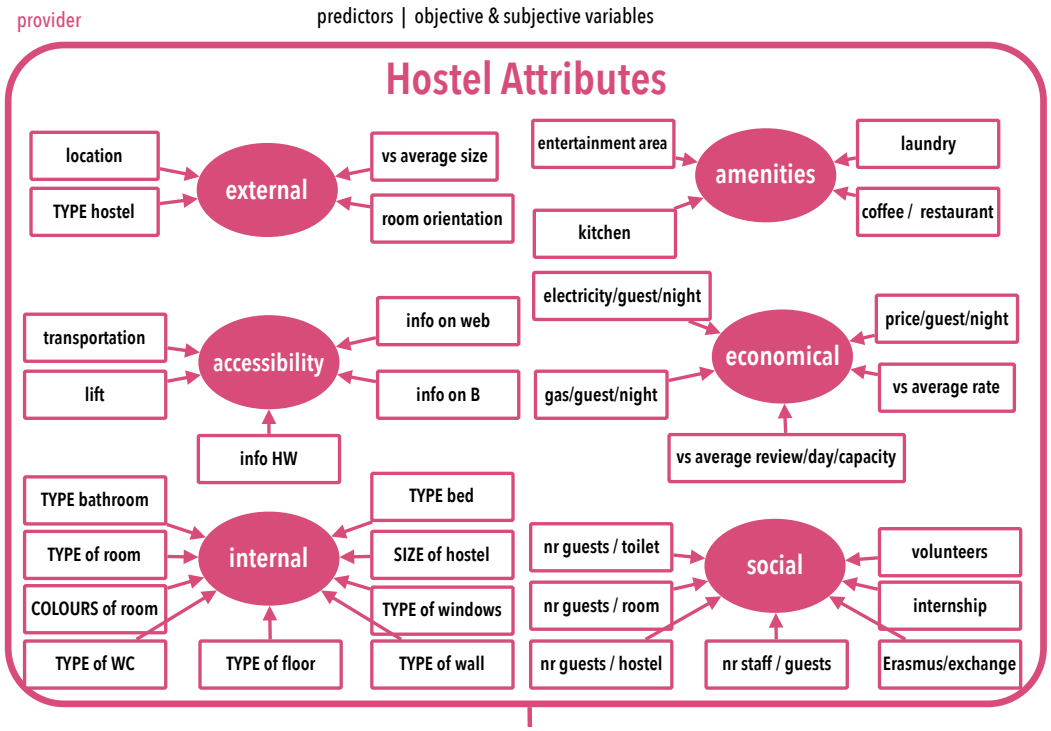

Figure 23 – Detail of model – Hostel Attributes (author)

Objective variables of hostel attributes in this case are variables such as TYPE of hostel, TYPE of room, TYPE of bed, TYPE of color, NR of people per room, access from street, room orientation, average review/day/capacity, access of information online about hostel. NR staff / NR guests

2.4.2 Positive Design Quality

Hostel Attributes and Positive Design Quality are situates on left side of model, which constitute the predictors of system. This construct is divided in 3 layers referring to principles o Positive Design: Design for Pleasure, Design for Personal Significance, and Design for Virtue. Positive Design approach attributes are subjective variables based on objective and subjective attributes. Such as presence of window (access to outdoors), presence of indoor plants, there is some studies

showing sense of belonging with being in contact with nature, besides there is evidence that indoor plants increase quality of indoor air (Figure 24).

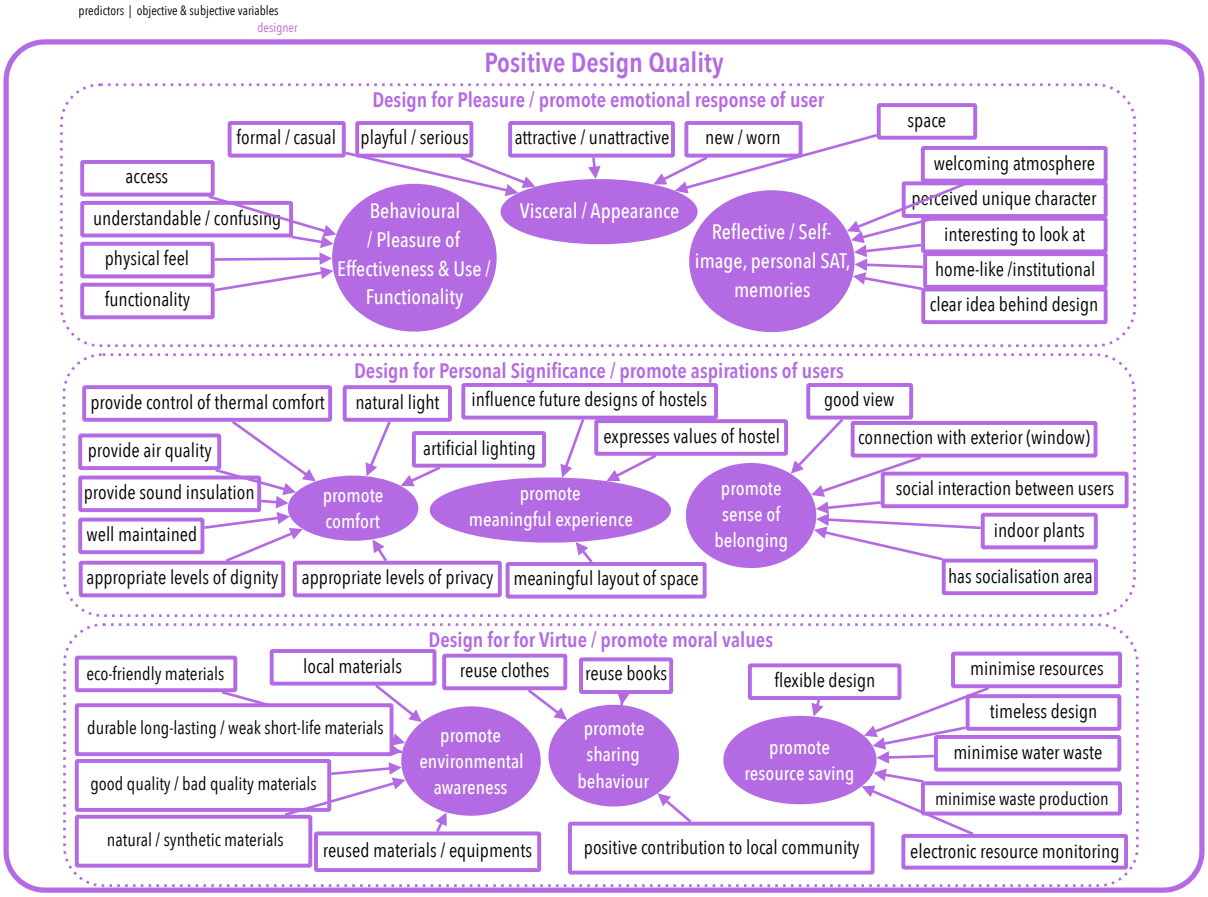

Figure 24 – Detail of model – Positive Design Quality (author)

Many items in this factor were adapted from LiderA and AEDET tools.

2.4.3 Perceived Indoor Environmental Quality

In this model Perceived Indoor Environmental Quality is organized in 3 clusters of variables according to level of emotional appraisal and response to environmental stimulus.

Visceral level of appraisal referring to immediate sensorial response feelings, like it's too cold or it's too hot, or it's too dark etc.

Behavioral level refers to functioning and ability to fulfill the operational needs of guest.

Reflective level referring to feelings of place affect, place social bonding, and place identity, e.g. I identify myself with this this environment, I feel like I belong here and similar. (Figure 25).

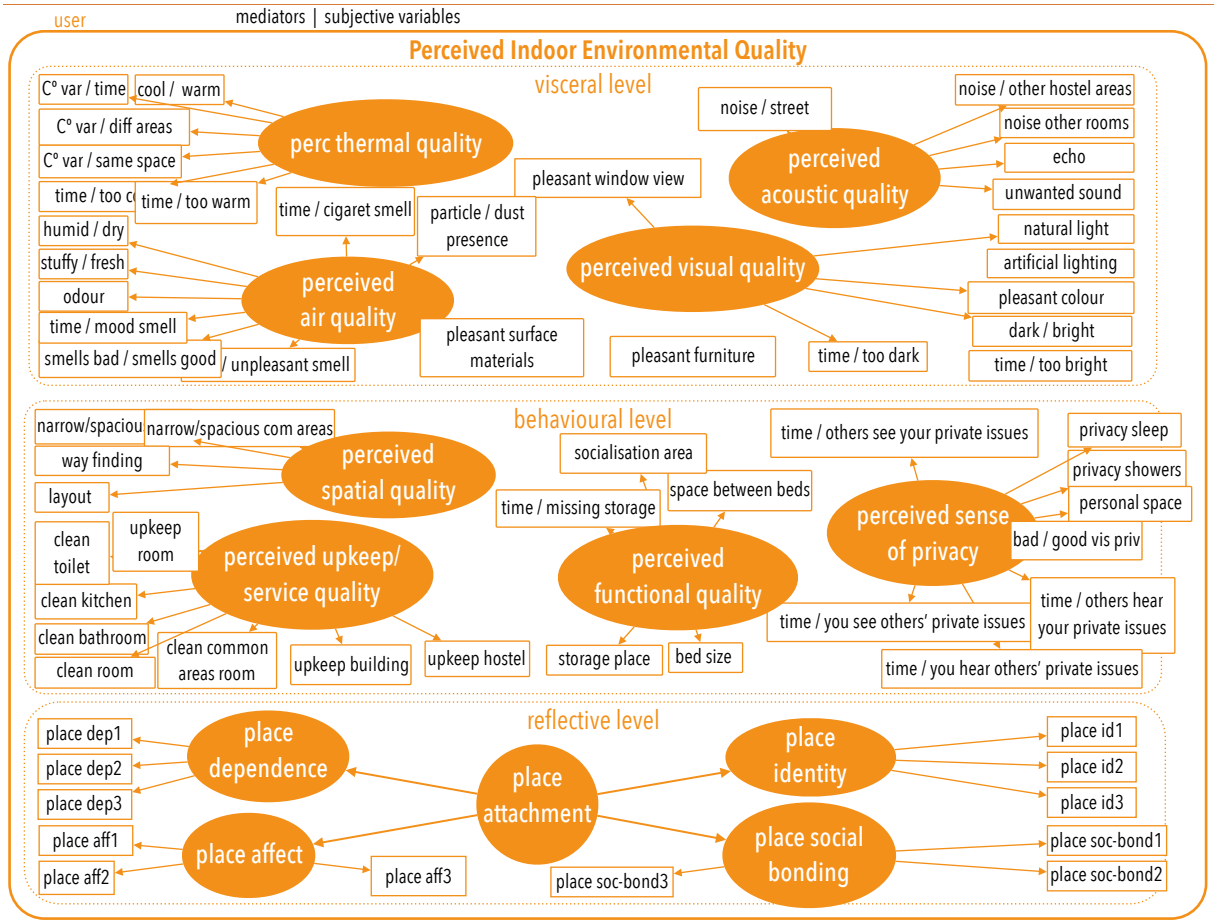

Figure 25 – Detail of model – Perceived Indoor Environmental Quality (author)

In this factor we adapted items from RSAT (Amole, 2009) questionnaire and Place Attachment questionnaire (Ramkisson et al, 2013). This factors in model situates in middle as mediating factor.

2.4.4 Experienced Well-being

In this model we constructed Experienced Well-being based on 5 variables: negative feelings, positive feelings, satisfaction with visceral level environmental qualities, satisfaction with behavioural level environmental qualities, and satisfaction with reflective level environmental qualities. These evaluations reflect directly on experienced well-being in hostel. In this factor items were adapted specifically to hostel environment from Positive and Negative Affect Scale by Watson et al 1988 and satisfaction with place from Ramkisson et al (2013) study

along with general and specific satisfaction assessments of functional characteristics of hostel (Figure 26).

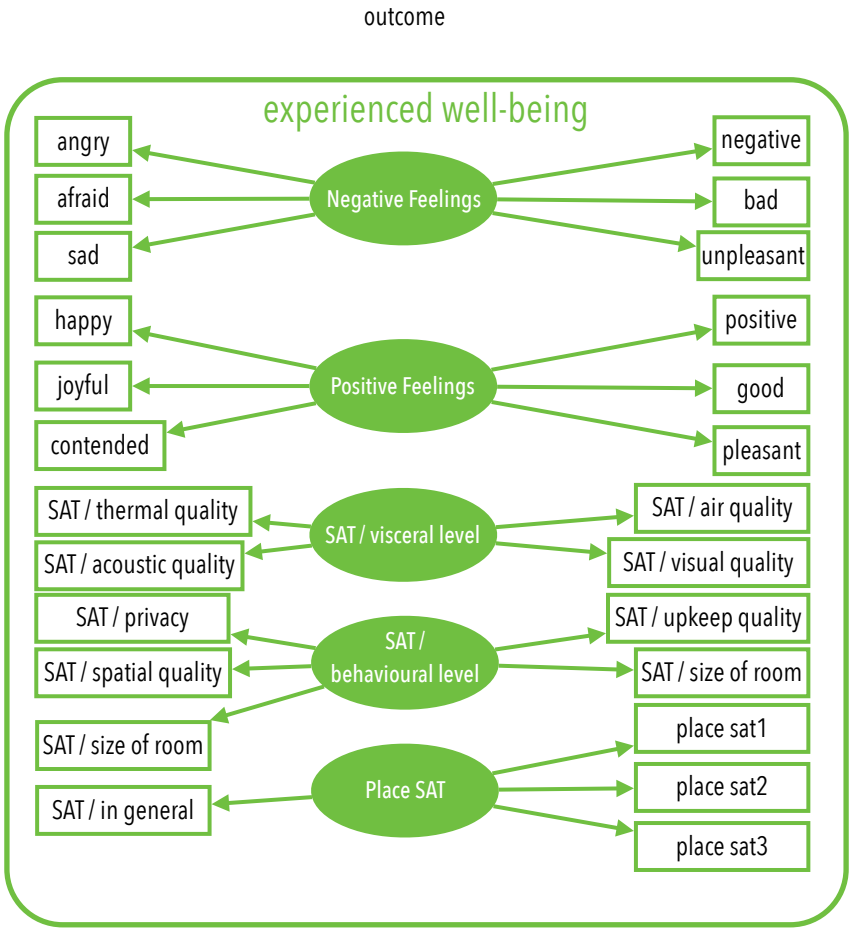

Figure 26 – Detail of model – Experienced Well-being

Experienced Well-being in our model is an outcome situated on right side along with Guest Feedback and Hostel evaluation, and Pro-environmental behaviour not described in detail in this section. Guest feedback refers to wish to change or maintain the accommodation establishment if such choice would be offered, as well as if they would recommend it to others, as well as rating given by guests on main booking engines. Gest feedback in this research was obtained through content analysis of online reviews. Pro-environmental behavior refers to daily practices and choices guest do within hostel, like recycling the waste, time they take to shower, if they try to adjust their clothing to thermal conditions in room or try to control the thermal conditions in other way. Some characteristics of pro-environmental behavior were identified through online reviews similarly as for guest feedback. See Appendices section of System evaluation model for detail of items.

Chapter 3 Methodology

Introductory note. This chapter serves to describe the main methodological approach and research design used in study as well as methods of data collection, analysis, universe and sample of study. Likewise we describe the tools and instruments used to collect and analyse data.

As referred in Introduction we followed methodological guidelines from Creswell (2009 & 2014), Saunders, Lewis, and Thornhill (2009) and Yin (2003). For the reminder, see Figure 1, we followed Research Onion layers (Saunders, 2015) to situate our research methodology:

> → Philosophies → Approaches → Strategies → Choices of methods → Time horizons → Techniques and procedures.

However to begin with describing our research according to Research Onion, the research design depends on nature of the research to be conducted. It can be exploratory, descriptive, or explanatory nature of research.

3.1 Research nature

Although this study could be described as somewhat mixed nature because it apparently contains:

- Initial research phase with essentially exploratory nature due to need to explore the phenomena and try to find the essential characteristics that best describe it;
- Second phase of study with descriptive nature, as we added new information about the issues and presented a conceptual model that could be used, both, as a guide in design process, and as evaluation methodology of existing environment
- Third phase of study of somewhat explanatory nature, given the fact that we assumed and tried to explain the relationship between the variables based on our conceptual model.

This is primarily a *study of exploratory nature* because its *purpose is to explore* and better understand the characteristics of emerging paradigm of interior design quality, and its relationship to people-environment relationship variables, and sustainability in hostels.

Nevertheless, after understanding the nature of research, it can be helpful to see through which research philosophy the inquiry will be viewed.

3.2 Research philosophy

There are five major research philosophies: positivism, critical realism, interpretivism (social constructivism – Creswell, 2009), postmodernism, and pragmatism (Saunders et al, 2015). However, before discussing research philosophy of this study, we have to mention that research philosophies can be distinguished by differences in beliefs and assumptions about the world; three types of worldviews usually differentiate them:

- Ontological – is about ones assumptions about nature of reality (Saunders et al, 2015) or on what we know is real (Creswell, 2009);
- Epistemological – is about ones assumptions about knowledge (Saunders et al, 2015) or on how we know something is real (Creswell, 2009);
- Axiological – is about values and ethics guiding researcher in research process (Saunders et al, 2015).

This study is based on *pragmatism philosophy*, which is most used by mixed methods researchers (Creswell, 2009: 10-11). Following this philosophy, researchers believe in aspects of different worldviews, they believe that there are things independent from perception based in objective worldviews such as natural sciences, as well as that there are things depending on perception and context, which are based on subjective worldviews, they focus more on research problem and use many available methods of data collection and analysis, thus mixed methods (Creswell, 2009 & Saunders et al, 2015).

3.3 Research (reasoning) approach

There can be also different approaches to thinking (reasoning) in research – deductive & inductive are very well known and described Saunders et al. (2009), while abductive[42] is basically a form of combination of previous two:

- Deductive – Theory → applied phenomenon to collect data;
- Inductive – Data collected from phenomena → transformed into theory;
- Abductive – Just enough data → to form presumptions.

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[42] http://elearning.net.marjon.ac.uk/research-skills/researchmethods/researchsocsci_mo_251110/html/course_files/deductive_4_2.html

Abductive reasoning means that at from just enough early observed data one can make initial assumptions, which then can be applied to later collected data, however if there are new unexpected data collected, these can encourage formation of new presumptions and so on. This approach is more suitable with exploratory nature case studies when there are large amount of unknown data and possible variables.

We used abductive research approach in study due to fact that initial phenomena of Lisbon hostels was observed, which inducted a formation of initial presumptions, these assumptions led to deeper indirect observation of contemporary phenomena as well as parallel exploration of existing bibliographical sources in order to build a new conceptual model of predicted relationships. This conceptual model allowed forming new hypothesis, which was followed by fieldwork in order to explore the phenomena in natural setting and test hypothesis derived from conceptual framework.

3.4 Choice of method

There are three main types of research methodology – qualitative, quantitative, and mixed methods research.

- Qualitative research is usually way to explore and understand social or human problem. It usually involves emerging questions and procedures, and written report tends to have flexible structure (Creswell, 2009).
- Quantitative research is usually way of examining relationship between variables in order to test objective theories. It involves statistical procedures and final report consists of introduction, theory, methods, results and discussion (Creswell, 2009).
- Mixed methods research combines qualitative and quantitative methods in order to strengthen the study by providing data from natural setting and experiences, as well as objective testing of data (Creswell, 2009).

All the previously made choices according to research onion layers have led us to choice of methodology. According to above our study fits best in *mixed methods research* category, as it does explore natural setting, and involves also more

objective data from quantitative methods. Likewise final report in form of dissertation is a mixed methods report, as it does have fairly structured form including introduction, theoretical framework, conceptual framework, methodology and discussion. However the writing style is more creative and open than quantitative study reports dealing only with objective data might be.

There are also several aspects of mixing the methods. Methods can be mixed by timing, weighting, type of mixing, and theorizing (Creswell, 2009: 206-216).

- Timing means that qualitative (qual) or quantitative (quan) methods can follow one after other or both methods can be used in same time. This usually is indicated by arrows showing the direction from one method to other or name 'sequential' or '+' sign if both are performed in same timing in research designs.
- Weighting means that one or other method can be dominating and other can be complementary, or both methods can be equally important. Dominating method is usually represented in 'UPPERCASE', while complementary is 'lowercase' in methodological description and research design section.
- Mixing refers to way how both are combined, they can be integrated, connecting, or embedding.
- Theorizing refers to them being explicit or implicit. This just means that mixed methods study may be guided by a theory (explicit), which in this case is represented in beginning of report as theory or worldviews and orienting lens through which questions are asked, and which guides all the steps of research. This type of theorizing is called transformative. Implicit means that there is no specific theory guiding the research – instead theory could be formed from collected data.

This is three-phase exploratory sequential embedded mixed methods study (Creswell, 2009; Heyvaert et al., 2013), and for sake of reminder from '

Brief note on research design' of Introduction of this document these phases are:

> *The first phase was qualitative exploration of characteristics of interior design quality, people-environment relationship, and sustainability in hostel, as well as existing methodologies that evaluate these concepts.*
> *Findings from this embedded (QUAL, quan) phase were then used in second phase of research to construct conceptual model evaluation of this system that identifies and explores the main positive interior design characteristics that influence people-environment relationship, and build instruments of evaluation*
> *In third phase of research these instruments were used then to validate conceptual model and test operational hypotheses if/how these characteristics relate interior design quality to perceived indoor environment quality, experienced well-being, pro-environmental behaviours at Lisbon hostels and sub sequential sustainability of these entities.*

Complete Research Design of the study describing each data collection steps and ways of mixing methods can be seen in Introduction section in Figure 2.

3.5 Research strategy

Research strategy refers to approach used to fulfil set objectives of research. These may include, experiment, survey, case study, action research, grounded theory, ethnography, archival research among others (Saunders, 2015).

Case study is good to answer research questions starting with '*how*' and '*why*', they don't require control over behavioural events, and are extremely fit for contemporary event studies. This strategy has been most used in psychological, economical, and social sciences (Yin, 2003).

Case study is: *"a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence"* Robson (2002:178) *in* Saunders et al. (2009).

According to previous research choices, given the fact that our research question asks:

How emerging paradigm of interior design quality relates to perceived indoor environment, experienced well-being, and sustainability, and how these relationships can be evaluated in hostels of Lisbon?

and because the intention is to explore Lisbon hostels within real life context through mixing variables of psychological, economical and social character in contemporary natural setting we chose *case study strategy* to be most fit to achieve research goals.

Case studies can be categorised by number of study cases: single case or multiple case, and by depth of study: holistic case or embedded case. Besides this, depending on purpose of research they can be explanatory, descriptive or exploratory (Yin, 2003).

A single case would be a single company within industry, or a single phenomenon within a context. It can be a unique case that is an extreme of some sort, standing out of other in same context.

Multiple cases would be several companies within industry. Many times multiple cases are chosen over single case because often they are easier to generalize findings and need less justification of case choice than single case.

Holistic case would study the phenomenon as a whole.

Embedded case would mean a study of sub-units of single phenomenon. This is different from multiple case studies in that the multiple cases do not require treating data from each case combined, they can very well be comparative case studies completely different from each other and not drawing common conclusions. Embedded case, however, requires that researcher approaches sub-units from perspective of whole system and after study of each sub-unit is able to draw conclusions from each sub-unit to describe the whole system (Yin, 2003, Saunders et al., 2009).

Current research fits better with *embedded single-case study* (Yin, 2003), as we do pretend to study Lisbon hostels as a whole system, while exploring some of individual hostels (embedded entities within a system), despite the attempt to characterise system holistically.

3.6 Time Horizon

This is a cross-sectional study with some longitudinal aspects based on literature review, empirical secondary data, and direct & indirect observation. This study is generally *cross-sectional study of Lisbon hostels*, due to fact that most of data comes from snap-shot of particular state in specific time, however, due to its mixed methods design it has some aspects of longitudinal study as well, namely, some data gathered as snap-shop each year state of phenomena, in this way allowing to study observe some changes in development of phenomena through the time.

3.7 Techniques and Procedures

Case study approach encourages use of various data sources, data collection and analysis techniques and procedures (Saunders et al., 2009).

Data collection process with aim to answer research questions and verify hypothesis had three main techniques: content analysis, observation and questionnaire filled by researcher in this exploratory phase. Content analysis and observation technique was used to gather data about hostel attributes, Positive Design Quality, and hostel evaluation. Questionnaire was used to gather data about hostel attributes, *Positive Design Quality*, *Perceived Indoor Environmental Quality*, *Experienced Well-being*, hostel evaluation, and pro-environmental behaviour.

3.7.1 Systematic observation

The observation was divided as *direct observation* on site by main researcher, and *indirect observation* by gathering visual information and guest reviews about the place on two main hostel booking websites, as well as other information and reports about the place available mainly in *World Wide Web* [WWW].

3.7.1.1 Direct observation

Main researcher performed direct observation during visits to hostels that agreed to participate in this research. The visits to hostels occurred between middle of March & middle of June of 2016. In order to organize these visits there were performed several preparatory steps.

3.7.1.1.1 www.facebook.com/beyond.sustainable.id

This Facebook page (Figure 27) was developed in order to disseminate main activities of research as well as offer more proximity to target audience with ability to mark visits through constantly updated calendar (Figure 28) of availability for visits etc.



Figure 27 – Printscreen of project page on Facebook

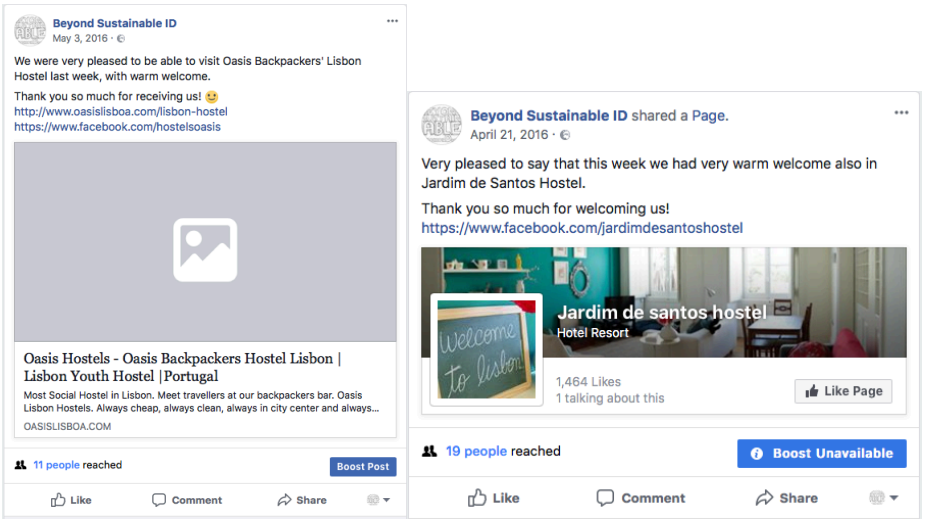

Figure 28 – Printscreen of some of posts on project page

3.7.1.1.2 Co-organisation of workshop "Sustainability, interior design, and guest emotional bond with hostel"

This workshop was identified as essential to involve representatives of hostels in a study. It took place in IADE Lounge on day 4 of March 2016. We organized it in order to present the ambit of study and obtain access to identified 128 hostels. This number refers to the list of hostels in Lisbon city not Metropolitan Area, besides this fact, number refers to list that went through methodological inclusion and exclusion process referred earlier (e.g. removing entities that do not offer single bed rental, and manual double checking for duplicated identification).

The process of organizing involved:

- identification of email contact form, which we were able to identify for 76 from 128 hostels (Figure 29);
- send out 1st invitation (see Invitation to Workshop in Appendices) to workshop about 2 weeks before the date;

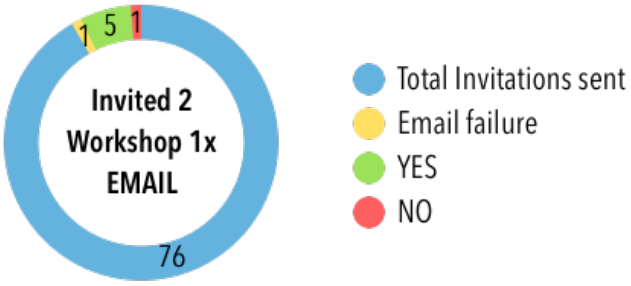

Figure 29 – 1st invitation and responses

- contact presenters & prepare event program;
- send out 2nd invitation to workshop 2 days before the date (Figure 30);

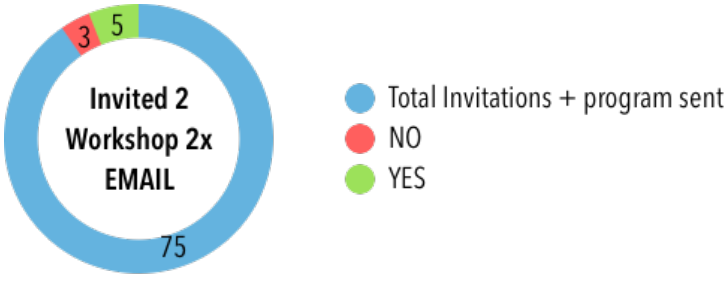

Figure 30 – 2nd invitation and responses

On the day of event there were present 4 hostels, from these 3 showed great interest, 1 hostel representative left event before debate, and later was not reachable through any of identified contacts. Note: from 3 that showed interest, 1

didn't go through with participation due to impossibility to arrange schedule for visits although we suspect there might be other underlining reason, like unwillingness to participate.

3.7.1.1.3 Visiting hostels to survey and gather data about interior design and sustainability in hostel

Due to lack of responses during workshop we continued to contact hostels on various attempts through various sources to solicit participation in study (Figure 31).

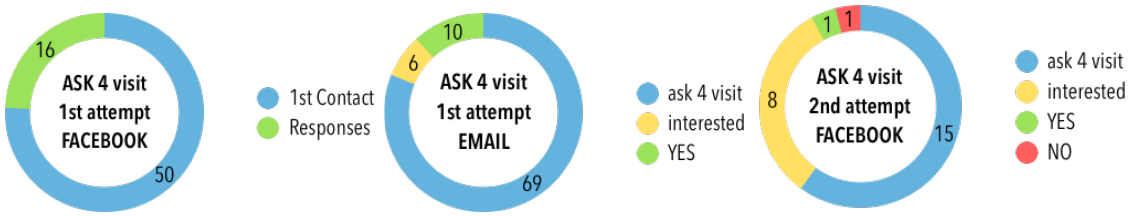

Figure 31 – 1st & 2nd attempt asking for visit via email & Facebook and responses

After lack of responses through available contacts, we also went to several of identified hostels with attempt to get in touch with manager or owner of hostel. In most of occasions, the manager was not present and never got in touch with researcher. In one occasion manager was in situ but refused participation indicating lack of interest to participate in local academic studies, to our surprise, as this hostel have had been participating in local tourism related studies as one of top list hostels in Lisbon.

After all these steps we were able to visit 11 hostels. The intention of these visits was to meet with manager/owner of hostel, explain the aim of study, obtain, if possible guided tour, and, if possible already gather data about sustainability and interior design.

We were able to gather visual data by taking photographs in 10 of hostels during the visit. During these visits we gathered data about sustainability and interior design as well as wrote down responses manually due to perceived sense of unwillingness to participate in most cases if there would have been present a digital recording equipment of conversation. We solicited also further information

not available at the moment of visit, as well as possible best times when we could come for follow-up visit and to collect data from guests.

These initial visits in 11 hostels run from March 17 till May 18, 2016. There were some rescheduled, and some cancelled visits. Some visits that awaited confirmation, which we did not receive till moment devoted for visits.

There were some hostels that we identified as important to visit, did receive demonstration of interest, but no confirmed visits.

3.7.2 Hostel interview, checklist

In order to crosscheck information gathered through observation, and to gather information on some attributes unavailable through observation, we elaborated a hostel questionnaire/checklist/interview guideline. The target audience of this questionnaire was responsible person from hostel, either manager or owner. In this exploratory study the answers to questions were gathered during informal interview, and filled in by researcher, who asked the questions based on guideline of questionnaire. Questions in this instrument are related with LiderA sustainability indicators, as well as general objective data about type of hostel and some main characteristics.

3.7.3 User questionnaire

To gather the data for the concept of *Perceived Indoor Environmental Quality* (PIEQ), *Experienced Well-being* (EWB), and *Pro-Environmental Behaviours* we elaborated a questionnaire, which adapted questions from *Residential Satisfaction* (RSAT) questionnaire by Amole (2009), *Perceived Hospital Environment Quality Indicators* (PHEQI) by Andrade et al. (2012, 2013), and for reflective level of our model related with emotional guest bond with hostel, we adapted questions from Ramkisson et al (2013) study on *place attachment*. This instrument in current study was used as initial guideline for researcher in order to evaluate PIEQ during hostel visit based on personal user experience, however, it could be applied for guests and staff (with specific occupational adaptation) of hostel in larger scale experience evaluation.

3.8 Viability, significance and anticipated outcome

Insight from this study could help the interior designers in choice of project methodology that reduces impact environment, as well as contributes for experienced well-being of temporary accommodation user, subsequently broader new opportunities for clients.

3.8.1 Critical factors of success

Proposed research project was approved for Doctoral Studentship from FCT thus easing the financial requirements to perform the research. Other critical points of research would consist of the favourable results of following research process steps:

1) Correctly/incorrectly established primary criteria (researcher);

2) Correct/incorrect qualitative data interpretation;

3) Availability/unavailability of entities to participate.

3.9 Criteria for selection of embedded cases

The amount of hospitality establishments that call themselves a hostel in Lisbon has more than tripled since 2012, when research proposal for this study was approved. There is still no official categorized detailed data about *hostel* in official statistics website (INE) given the fact that there was no legal framework for it in Portuguese law till August 29, 2014—*Decreto-Lei n.º 128/2014*—and amended edition on April 22, 2015—*Decreto-Lei nº. 63/2015*. Thus the initial idea of the universe of hostels and potential guests were gathered from any available data, such as booking websites, Lisbon Municipality Website, Association of Hostels in Portugal website, few Master thesis in area of tourism and management that with attempt of collecting this information. To crosscheck gathered information we solicited information about register of hostels and their localization to Lisbon Municipality. This task turned out to be quite exhaustive, because there is a constant on-going evolution of these establishments, and there was no legal framework that defined hostel. Thus we applied methodological exclusion and

inclusion criteria in several stages of data gathering process to select the entities for case study of hostels in Lisbon.

3.9.1 Empirical data sources about hostels

We started research on hostels by consulting vast number national websites and international booking websites by keyword 'hostel' search in Google Search engine followed by listing hostels available in Lisbon.

The initial inclusion criteria when selecting data obtaining sources was to exist on one of following databases:

1) Official and local sources:
    a. Lisbon City Hall[43] Figure 32, and Lisbon Tourism[44] official websites in order to obtain officially registered hostel list;

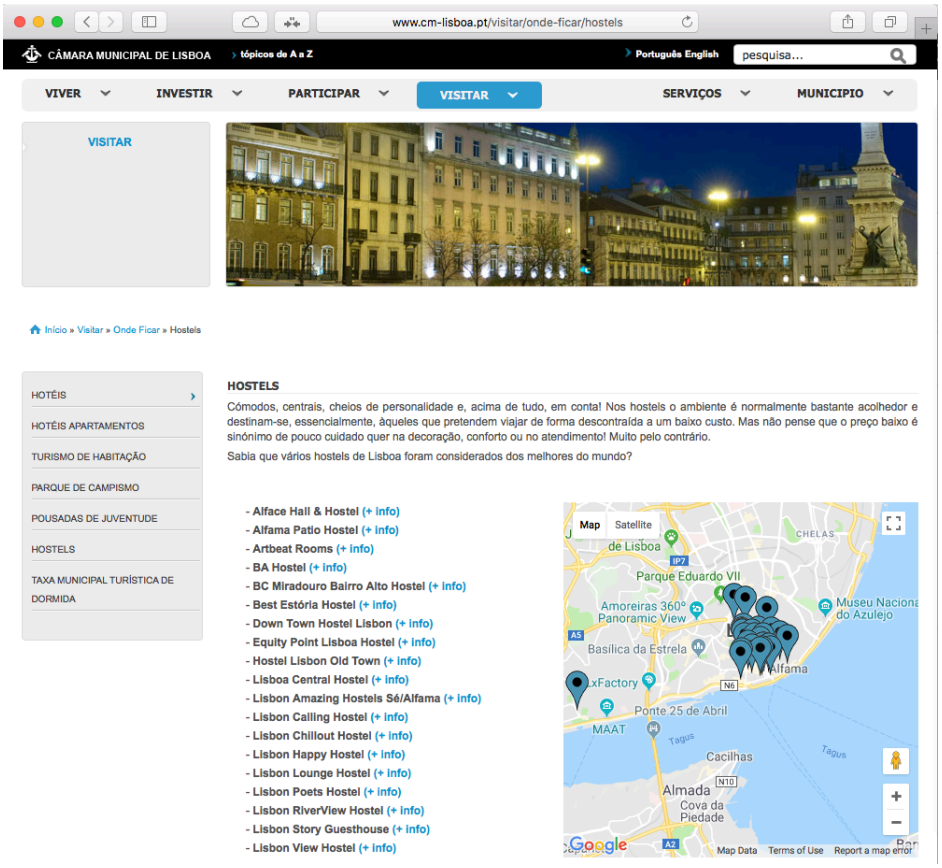

Figure 32 – Printscreen on 2018-02-23 of Lisbon City Hall official website Hostels section

[43] http://www.cm-lisboa.pt/visitar/onde-ficar/hostels
[44] https://www.visitlisboa.com

Lisbon City Hall website has a short list of hostels with links to respective websites of each hostel and short description, it doesn't allow booking from this site. Lisbon Tourism website shows hostels with Tripadvisor Traveller Ratings and booking is possible with Booking.com plugin;

b. Lisbon tourism guide blog[45] is online since 2010 as personal blog transformed in bilingual Lisbon city touristic guide with 135000 followers in Social Networks (Figure 33);



Figure 33 - Printscreen on 2018-02-24 of LisbonLux.com website

c. Lisbon City Hall (in presence).

2) Association and reward websites:

a. AHdP website[46];

[45] https://www.lisbonlux.com/lisbon-hostels/

AHdP represents Hostels (Figure 34) in Portugal awarded by Hostelworld.com HOSCARS in 2008, 2009, 2010, 2011, and 2012. On January 31, 2013 it listed on website 23 hostels in Lisbon.

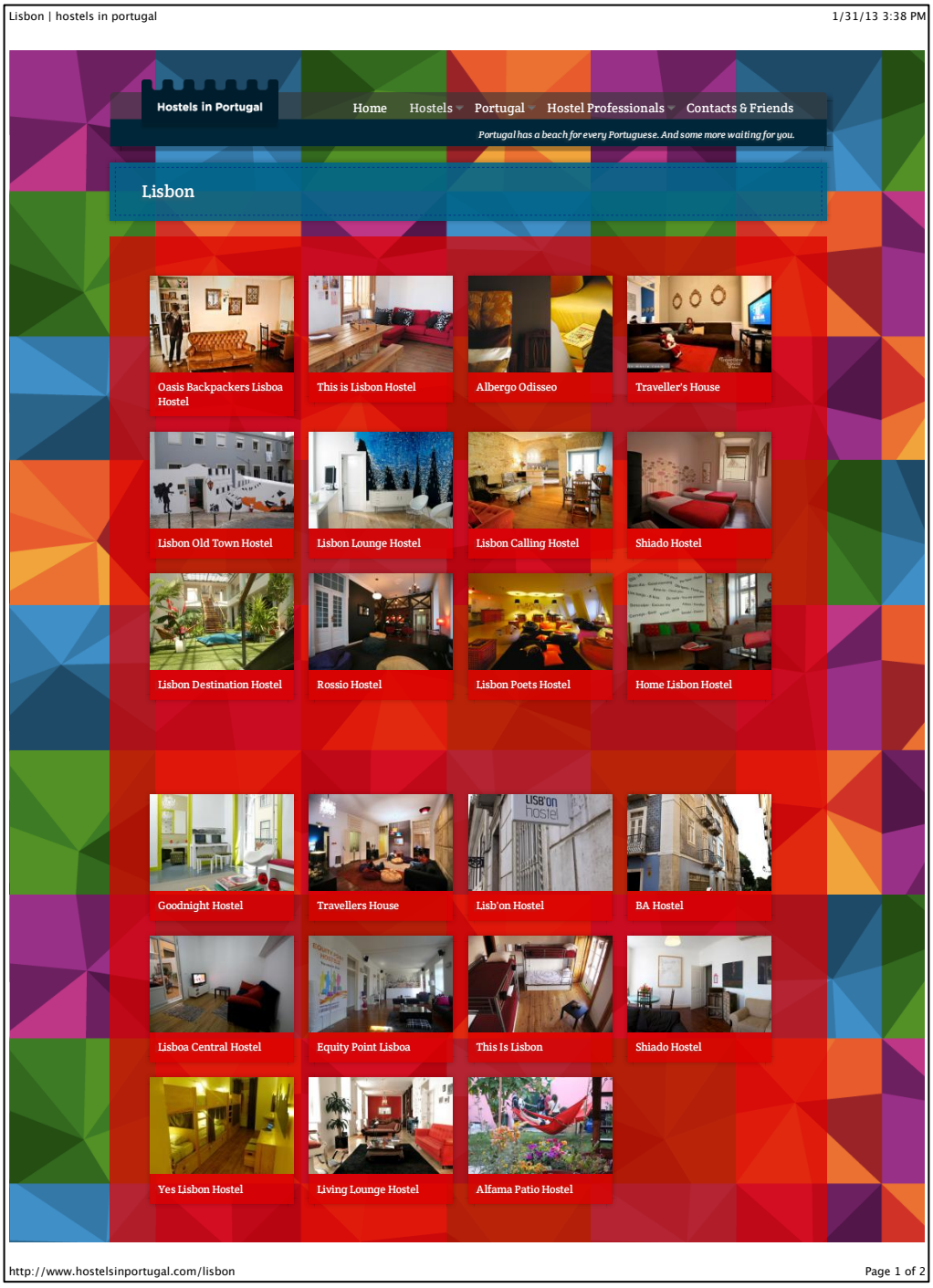

Figure 34 – Printed page in pdf file of Member Hostels on Hostels in Portugal Association official website on 2013-01-31

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[46] http://www.hostelsinportugal.com consulted during initial research on hostels, currently without operating website, instead has Facebook page https://www.facebook.com/Hostels-In-Portugal-221822214547064/ , which has been quite quiet lately, and 1st photo post on October 10, 2011 lists 31 Member photos and contacts in Portugal.

b. Luxury hostels[47] on Budged traveller website by Kash Bhattacharya;

Luxury Hostels of Europe idea was born on December 2011 with growing traveller segment of 30-39 year olds who want more than sleeping in cheapest bed available but still be budged conscious and have social travel experience in mind. Project initiated as a 6 month travelling, where Budget Traveller visited 50 Luxury Hostels all over the Europe resulting in a guidebook with identical title of 40 hostels (Figure 35).

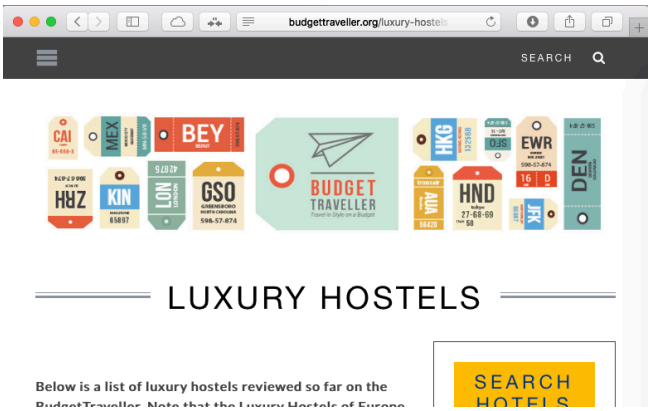

Figure 35 – Printscreen on 2018-02-24 of Luxury Hostels website

c. HOSCARS by Hostelworld.com.

HOSCARS[48] are annual hostel awards since 2003 based on reviews & ratings on Hostelworld.com booking engine. It is most relevant and internationally recognized worldwide hostel award system. The awards are announced in beginning of year based on past year's review score in different categories (Figure 36).

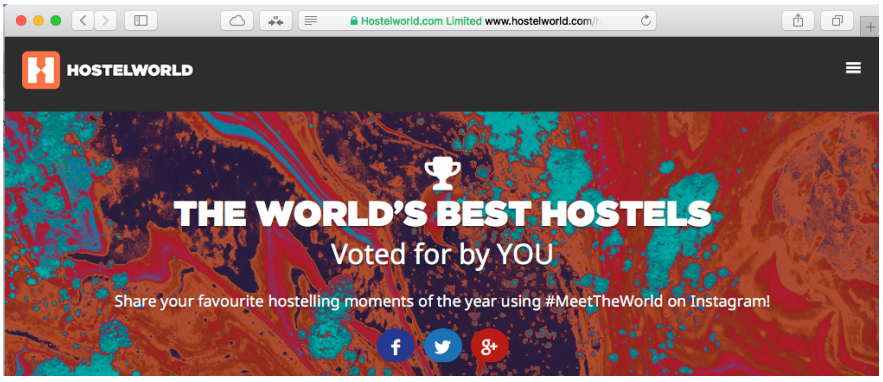

Figure 36 – Printscreen on 2018-02-24 of HOSCARS awards website

[47] https://budgettraveller.org/luxury-hostels-of-europe/
[48] https://www.hostelworld.com/hoscars

3) Various booking websites.

After analysis of booking website dynamics and background check we proceeded following initial exclusion criteria:

1) Exclude translated versions of booking websites;

Hosteis.com & Pousadasdejuventude.com are a database with main registered online address Dorms.com, however it is unique (Loechl, 2016)[49] in a way that it will appear adapted to 15 different language of full site of user searching for hostels, e.g. (Figure 37). It is owned by Backpacker Hostel Dorms Limited and based in Ireland. This database claims to have 30 000 youth hostels and low-cost accommodations available all over the world.



Figure 37 Example of versions of Dorms.com in different languages

2) Exclude websites that are not direct booking agents;

Tripadvisor.com[50] is not a direct booking agent website (Figure 38), it scans data over number different external booking websites showing average price per room, while booking is available through Booking.com plugin.

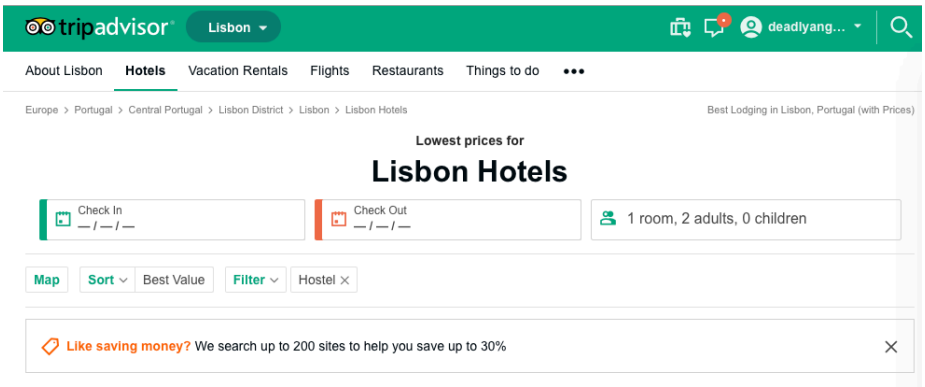

Figure 38 – Printscreen image on 2018-02-23 of Tripadvisor website

[49] https://hostelmanagement.com/sponsored/dormscom-ota-you-need-check-out
[50] https://www.tripadvisor.com

Cheap-Hostels.org[51] website (Figure 39) is owned by Student Holidays Ltd is a EuroEducation's guide to student & youth hostels Worldwide, however it has an external booking engine plugin (Hostelworld.com) and booking page[52] made for EuroEducation Net Ltd.

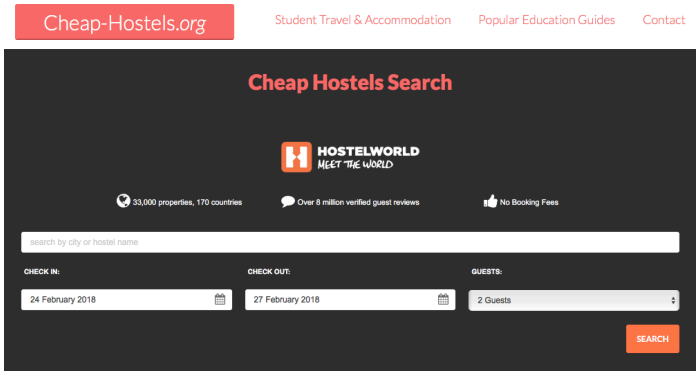

Figure 39 – Printscreen on 2018-02-23 of Cheap-Hostels.org website

3) Exclude websites that don't allow property search without entering date of stay thus not allowing to view total number of registered properties;

Hostelsclub.com[53] (Figure 40) has it's own booking engine of more than 30000 properties listed, however it doesn't allow to browse through properties without entering specific dates of stay, thus it was impossible to list all the registered properties at a certain date.

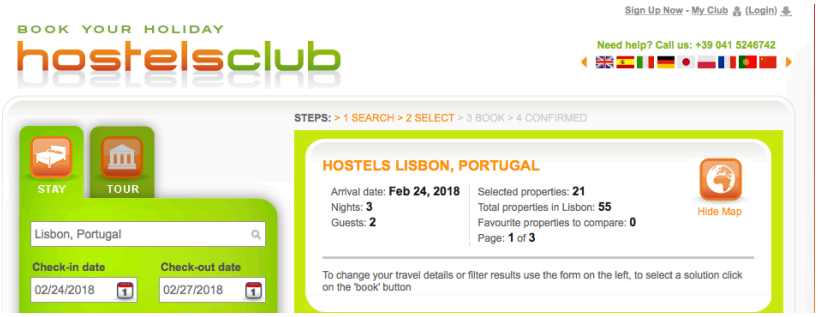

Figure 40 –Printscreen on 2018-02-23 of Hostelsclub.com website

After visual observation and content analysis of maintained databases after initial exclusion criteria we proceeded with following additional exclusion criteria:

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[51] http://www.cheap-hostels.org

[52] http://www.reservations.bookhostels.com/studentholidays.com/findabed.php?ChosenCountry=Portugal&ChosenCity=Lisbon

[53] https://www.hostelsclub.com

1) Exclude booking engines that don't have their own reviews;

Europeanhostels.com[54] was founded in 1999 with home office in New York, U.S. as one of the first European hostels booking website (Figure 41). Nevertheless, it shows only a small list of hostels on website, which doesn't correspond the number of registered hostels on other databases, besides it has ratings of properties based on reviews average from Hostelbookers.com and Hostelworld.com.



Figure 41 – Printscreen on 2018-02-23 of Europeanhostels.com website

2) Exclude websites with less number of reviews.

Hotels.com[55], founded in 1991 as Hotel Reservations Network and currently affiliate to Expedia, Inc. based in U.S., positions itself as leading provider of hotel accommodation worldwide with local websites in 41 languages and more than 25 million real guest reviews (Figure 42). However, as name indicates the websites focus is on other type of properties, it does not allow browsing through properties without entering specific dates (though indicates that besides e.g. 97 available hostels there are 67 unavailable).

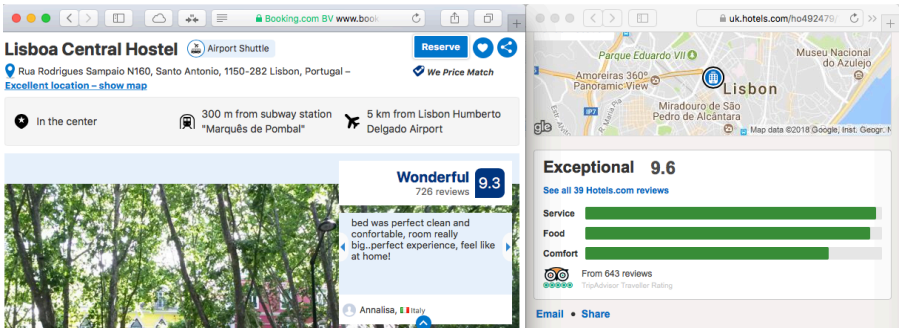

Figure 42 – Printscreen on 2018-02-24 illustrating larger number of reviews for the same hostel in Booking.com than Hotels.com

[54] http://www.europeanhostels.com
[55] https://www.hotels.com

Hostels.com [56] offers over 33000 hostels, B&B's, budget hotels & other accommodation for online reservation (Figure 43). It was acquired in 2003 and is now owned by Hostelworld.com Limited and based in Ireland, thus integrating in Hostelworld Group [HSW]. It doesn't allow browsing freely through all the properties without entering specific dates but has written number of total properties and available ones (e.g. 162 Lisbon Hostels, 75 available).

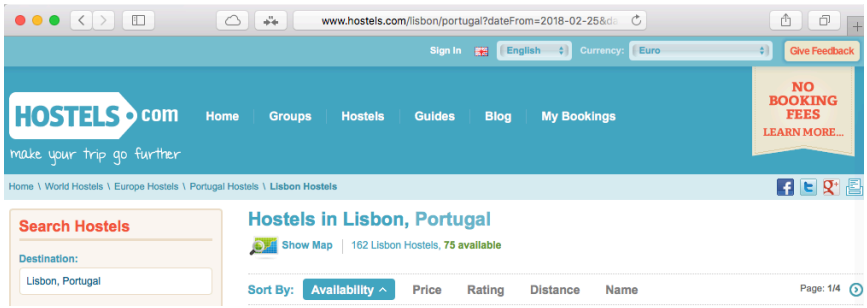

Figure 43 – Printscreen on 2018-02-23 of Hostels.com website

Hostelbookers.com [57] was acquired in 2013 and is now by Hostelworld.com Limited. It has it's own rating & reviews system (Figure 44).



Figure 44 - Printscreen on 2018-02-24 of Hostelbookers.com website

However we excluded Hostels.com & Hostelbookers.com from further data collection process due to visibly lower number of reviews compared to flagship of HSW – Hostelworld.com (Figure 45). "*Hostelworld Group (HSW) is a leading brand for Millennials and other budget-conscious travellers seeking adventure and social travel experience*."[58] It is based in Ireland.

[56] http://www.hostels.com
[57] https://www.hostelbookers.com
[58] http://www.hostelworldgroup.com

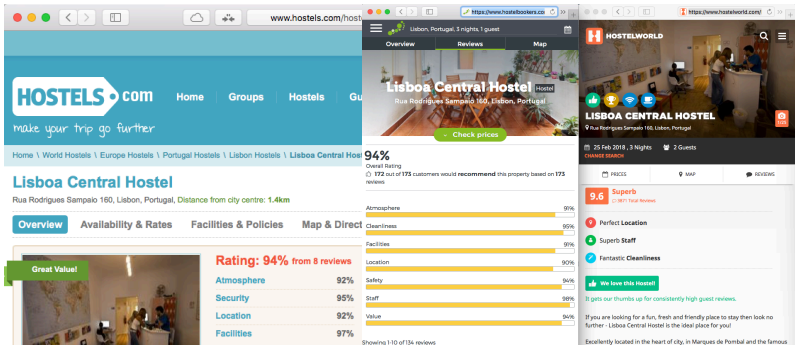

Figure 45 - Printscreen on 2018-02-24 of Hostels.com, Hostelbookers.com & Hostelworld.com website differences in number of reviews for the same establishment

Booking.com[59] was established in 1996 in Amsterdam and is one of largest travel e-commerce companies in the world. It is available in over 40 languages, has over 1,6 million diverse types of properties registered and over 1,5 million room nights reserved every day (Figure 46). We maintained this database due to visibly larger amount of reviews for hostel type of accommodations than Hotels.com.

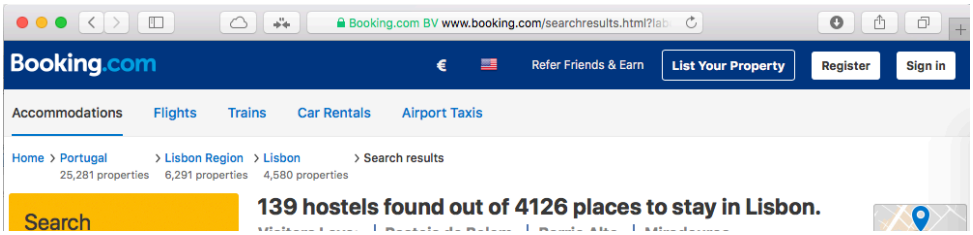

Figure 46 – Printscreen on 2018-02-27 of Booking.com

Hostelworld.com (Figure 47) was launched in 1999. It is flagship and leading brand of HSW. It operates in 19 different languages and reviews about 35000 properties in more than 170 countries.

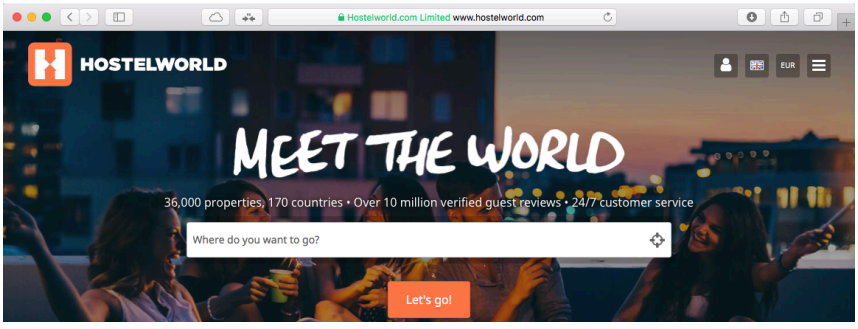

Figure 47 – Printscreen on 2018-07-20 of Hostelworld.com

See Figure 48 for synthesis of detailed process of inclusion and exclusion criteria.

[59] https://www.booking.com

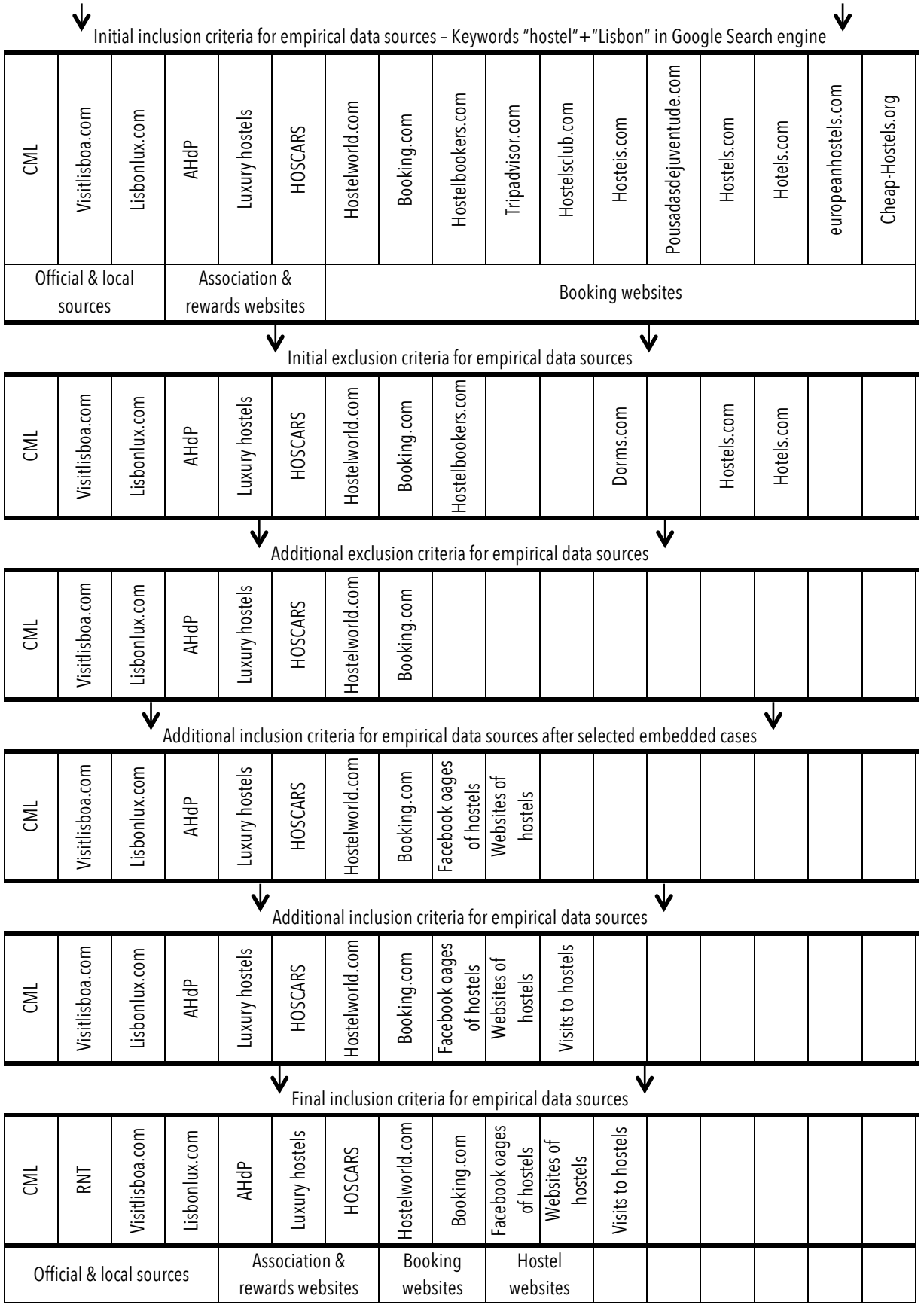

Figure 48 – Inclusion and exclusion criteria for empirical data sources (Author)

We began to track these changes on two main hostel booking websites Booking.com and Hostelworld.com along with Lisbon Municipality website and *Turismo de Portugal* website in hopes to obtain trustworthy information. While gathering data about universe of hostel establishments through various sources, it became clear that due to different raw numbers (Figure 49) we obtained there must be done some filtering of raw information to obtain real number of universe of hostels.

Excluding criteria after comparing hostel register on databases:

- conflicting address over registered databases;
- not selling single bed;
- combing duplicate registers, when in online booking engines there is clear evidence that establishment has a capacity of combining all the duplicate registers of less capacity.

Register date \ Database	CML	RNT	AHdP	Luxury hostels	lisbonlux.com	visitlisboa.com	Hostelworld.com	hotel.com	hostels.com	europeanhostels.com	hostelsclub.com	booking.com	Dorms.com	Cheap-Hostels.org	Hostelbookers.com	tripadvisor.com	HOSCARS
2008		1															
2009		6															
2010		10															
2011		11															
2012		15															
2013	29	29	23	6	21	18	45	44	43	35	20	31	43	50		55	9
2014		42										78			65		
2015		77										79					
2016		111										104					
2017		158															
2018	28	166			34	15		93	162			139	109		160		

Figure 49 – Raw registers on different databases (elaborated by author)

At first there was a scarce information that first hostel in Lisbon appeared in 2005 (*Revista Turismo de Lisboa* 63, March 2009, p.4), so relatively new type of touristic accommodation. Two years later *Revista Turismo de Lisboa* 87 [RTL87] (March 2011, p.10) reported following evolution in number of hostels from 2006 to 2010.

We initiated to track the evolution of the number of hostels [60]from 2013.

Since 2013 official website of *Câmara Municipal de Lisboa* [CML – Lisbon City Hall] had changing list of establishments in category of hostels from 29 in 2013 to 30 on January 24, 2015, then back to 29 in May of same year. We also obtained a list of 29 hostels from CML[61] on June 24 of 2013; however, already initially we excluded from that list 3 establishments that just by name were identified as *guesthouse* or *pension*, thus maintaining *26 hostels* from this official list (

Figure 50). Nevertheless on January 31, 2018 CML website listed only 28 establishments in category of hostel. From this list *Artbeat Rooms* and *Lisbon Story Guesthouse* we don't consider in this category for reasons mentioned above, likewise, we excluded repeated listing of the *BC Miradouro Bairro Alto Hostel*, and *Pensão Royal* already doesn't appear in this category anymore.

1. Alface Hall & Hostel	15. Lisbon Happy Hostel
2. Alfama Patio Hostel	16. Lisbon Lounge Hostel
3. Artbeat Rooms ← *excluded*	17. Lisbon Poets Hostel
4. BA Hostel	18. Lisbon RiverView Hostel
5. BC Miradouro Bairro Alto Hostel	19. Lisbon Story Guesthouse ← *excluded*
6. Best Estória Hostel	20. Lisbon View Hostel
7. Down Town Hostel	21. Next Hostel
8. Equity Point Lisboa Hostel	22. Pensão Royal ← *excluded*
9. Fusions Hostel	23. People Hostel Lisbon
10. Hostel Lisbon Old Town	24. Rossio Patio Hostel
11. Lisboa Central Hostel	25. Shiado Hostel
12. Lisbon Amazing Hostels Sé/Alfama	26. Smile Hostel
13. Lisbon Calling Hostel	27. The Independente Hostel & Suites
14. Lisbon Chillout Hostel	28. This is Lisbon Hostel
	29. Yes! Lisbon Hostel

Figure 50 – Hostels listed in Lisbon Municipality

Meanwhile we created a table of information about object of study and gathered data from main booking websites, such as Booking.com and Hostelworld.com.

[60] (Chart 3).
[61] Received e-Mail from *Direção Municipal de Planeamento, Reabilitação e Gestão Urbanística / Departamento da Informação Georgráfica e Cadastro / Divisão de Informação Urbana Georreferenciada* with information solicitated locally in Lisbon City Hall Central building at Campo Grande 25, Lisbon.

Without selecting specific dates of staying on January 31, 2018 one of most used booking websites Booking.com indicated that there are 136 properties in category 'hostel' out of 4058 places to stay in Lisbon (Figure 51).

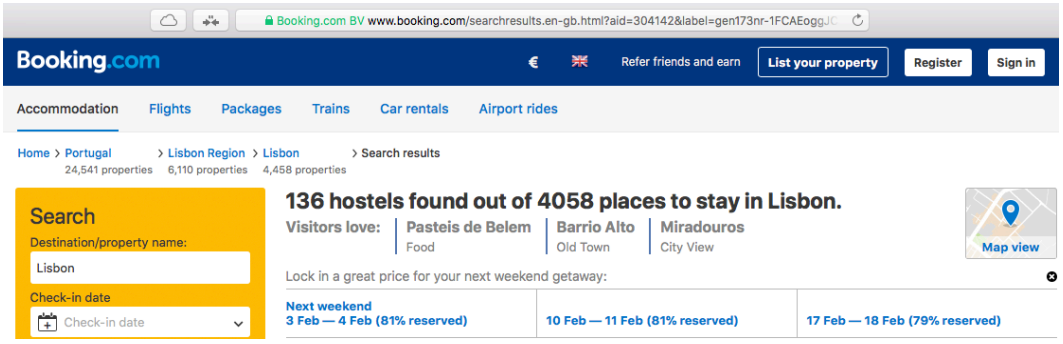

Figure 51 - hostels in Lisbon

By the end of our research project we consulted again the online resources to verify if there is any information about accommodation establishment of this category—*hostel*. We came across updated website of *Turismo de Portugal, I.P.* that directed us to National Tourism Register [RNT] website[62] where we could finally consult and obtain data about this specific category (Figure 52).



Figure 52 – Printscreen on 2018-02-27 of RNT consult website

[62] https://rnt.turismodeportugal.pt/RNAL/ConsultaRegisto.aspx?Origem=CP&FiltroVisivel=True

So according to data obtained from RNT website we found that on 27th of February 2018 there were 166 registers[63] of Local Lodging [*Alojamento Local - AL*] within category of hostel in Lisbon city. However, in reality, we speculate that due to changes in legal framing that required specific type of accommodation and number in order to be considered a hostel, many of these registers actually belong to the same Hostel, meaning that users see several legally different registers as a same hostel establishment. The website[64] of *Associação de Hostels de Portugal* (AHsP) – Hostels in Portugal Association had a list 21 hostels of Lisbon. AHdP represents hostels of Portugal that were awarded by Hostelworld "Hoscars" in 2008, 2009, 2010, 2011 & 2012.

3.9.2 Hostel guests

The only data available about the capacity of hostels in Lisbon is in Master thesis (Saraiva, 2013) in Tourism area in 2013 and is stated to be 1483, retrieved from respondent hostels. This data however does not contemplate the totality of hostels, as not all the hostels participated in survey conveyed by Saraiva (2013). The capacity by a hostel revealed in Saraiva (2013) was above 50 beds for 57% of respondent hostels. In Saraiva (2013) questionnaire participated 111 respondents, 86% of them were younger than 30 years, which means that 14% were over 30 years old, with medium age of 26 years. 74% were university students or had a university degree. More than a half of respondents were from Europe (51%) followed by North America (23%), Central & South America (10%), Oceania (10%), and Asia (6%). There is no centrally available statistical data on how much guests are staying in hostels, however, if we chose to represent 30% of approximate (according to Saraiva (2013) about hostel capacity) capacity of hostels, the size of this sample would be around 500 respondents. In another study about service quality in hostels (Master thesis in area of Marketing), the as minimum sample size was defined as 200 respondents, and were obtained answers from 313 respondents, from whom 50.8% were male and 49.2% female (Gameiro, 2013). In Gameiro (2013) study the sample mean age was 25.74 years.

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[63] (Chart 3).

[64] Not operating at the moment www.hostelsinportugal.com, currently AHdP has Facebook page https://www.facebook.com/Hostels-In-Portugal-221822214547064/

Chapter 4 Research findings

Introductory note. This chapter serves to describe collected data by Embedded Single-Case Study strategy through empirically collected primary data using direct observation technique, and secondary data using archival research and indirect observation.

Currently Hostelworld defines small hostel up till 75 beds, medium from 76-150 beds, large hostel from 151 – 350 beds, extra large hostel 350+ beds (between 2012-2014 small hostel was considered up till 50 beds, medium 51-100 beds, 101-250 beds, and extra large hostels were with minimum 251 beds. In 2013 interview AHdP (Abrantes, 2016: 641) indicated that would consider for Portugal small hostel 30/35 beds, medium 35-60 beds, and large over 60 beds. In fact, in Appendices section Hostelworld awards from 2006-2018 (WW, S, M, L, XL categories) elaborated by author[65] it is very visible that most of award winning Portugal's hostels are in 'Small' and 'Medium' categories of Hostelworld classification.

4.1 Lisbon hostels – main characteristics

In general Lisbon Hostels are very heterogeneous.

Guest Policies

> *"We welcome travelers of all ages. However we don't accept guests UNDER 7 years and OVER 49 years old to dorms. Over 49 years old can book only private rooms" The Swallow Hostel*[66]

Currently there are 7 Lisbon hostels in Best Luxury Hostel List[67]: Lisbon Poets Hostel, The Independente Hostel & Suites, Stay Inn Lisbon Hostel, Lisbon Calling Hostel, Goodmorning Lisbon hostel, Home Lisbon Hostel, and Lisboa Central Hostel. However, in 8 best budget places to stay [68] in Lisbon BudgetTraveller tags 8 hostels: Lisbon Central Hostel, Goodmorning Lisbon hostel, The Independente Hostel & Suites, Home Hostel, Lisbon Poets Hostel, Lost Inn Lisbon Hostel, Lisbon Calling Hostel, and HUB New Lisbon Hostel. 15th annual HOSCAR awards of 2017 (based on reviews of 2016) hold again several Lisbon hostels at the top 10 lists of the world, ranking in category Best Small

[65] data collected on https://www.hostelworld.com/hoscars between 2012-03-01 - 2018-07-25
[66] https://www.hostelbookers.com/hostels/portugal/lisbon/248661/
[67] Last visited on 2017-09-15, see for more information http://budgettraveller.org/best-hostels-of-europe/
[68] Last visited on 2017-09-15, see for more information http://budgettraveller.org/8-of-the-best-budget-places-to-stay-in-lisbon/

Hostel (1-75 beds): Travellers House as 3rd, and Lookout Lisbon! Hostel as 7th; while category Best Medium Hostel (76-150 beds) is dominated repeatedly by Lisbon hostels, 6 out of 10 in 2017 awards: 1st – Home Lisbon Hostel, 2nd – Yes! Lisbon Hostel, 3rd – Lost Inn Lisbon hostel, 4th – Goodmorning Lisbon hostel, 6th – Lisbon Destination Hostel, and Lisboa Central Hostel as 9th. Nevertheless, Goodmorning Lisbon hostel also holds Best Atmosphere Worldwide award in 2017.

There was accelerated evolution in number of independent hostels since 2009 (Chart 3) observed through various sources, and there is visible discrepancy between reported raw numbers of hostels.

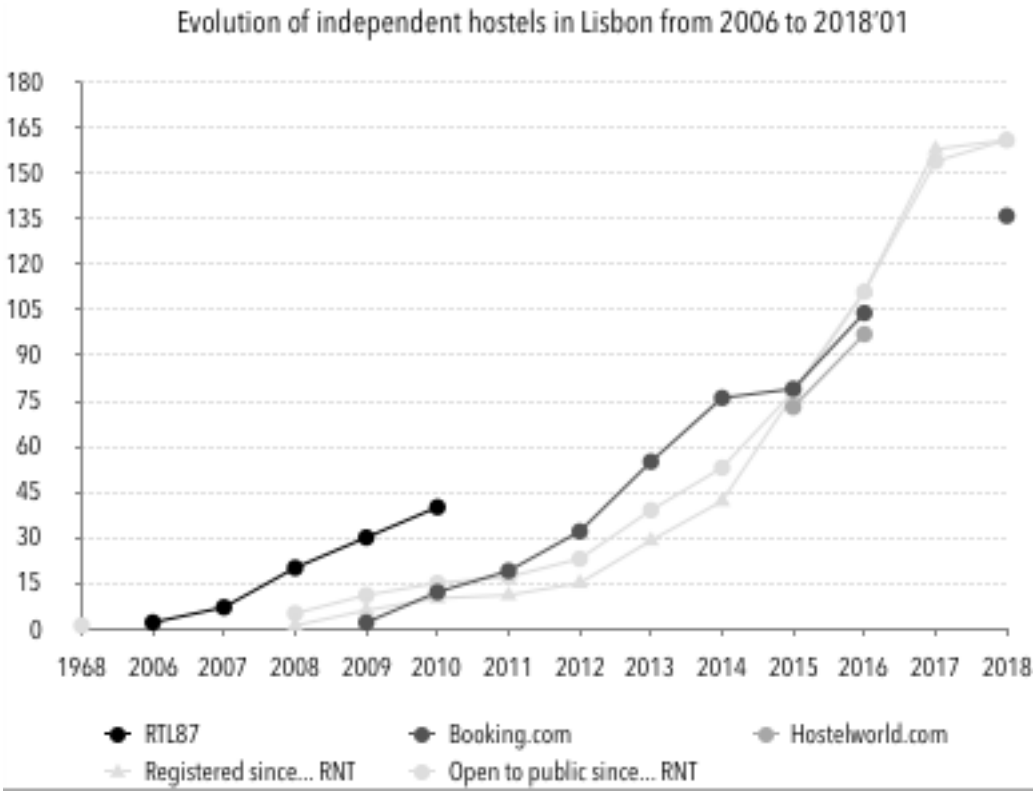

Chart 3 - Evolution of Independent hostels in Lisbon from 2006 to 2018'01 elaborated by Author (data source: RTL87, Booking, Hostelworld, RNT)

Equally there was very rapid increase in room number and guest capacity within hostel establishments (Chart 4).

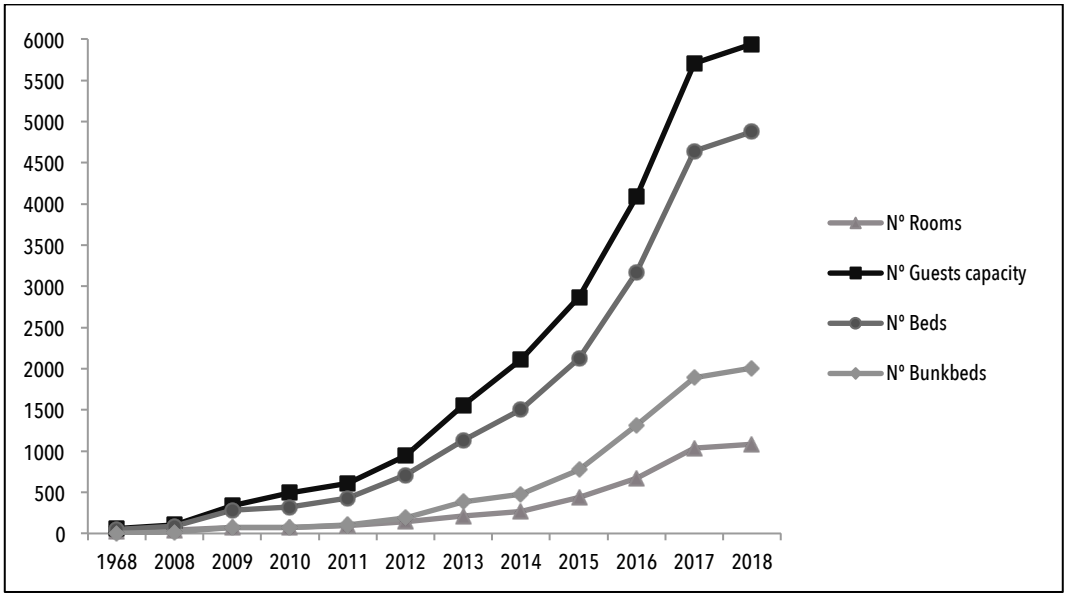

Chart 4 – Number of registered rooms, guest capacity, beds & bunk beds in hostels (data by RNT, visualization by author)

4.1.1.1 Lisbon hostels evaluation & eWOM

The average number of reviews for Lisbon hostels is 1024 reviews in Hostelworld and 663 reviews in Booking. Likewise the average rating of Lisbon hostels in Hostelworld is 8,5, while it is slightly lower – 8,1 in Booking. Chart 5 demonstrates the distribution of hostels based on rating and number of reviews. It is clearly visible that in general Lisbon hostels tend to have higher ratings and lower number of reviews on Hostelworld; while on Booking there are more hostels with lower ratings but higher number of reviews.

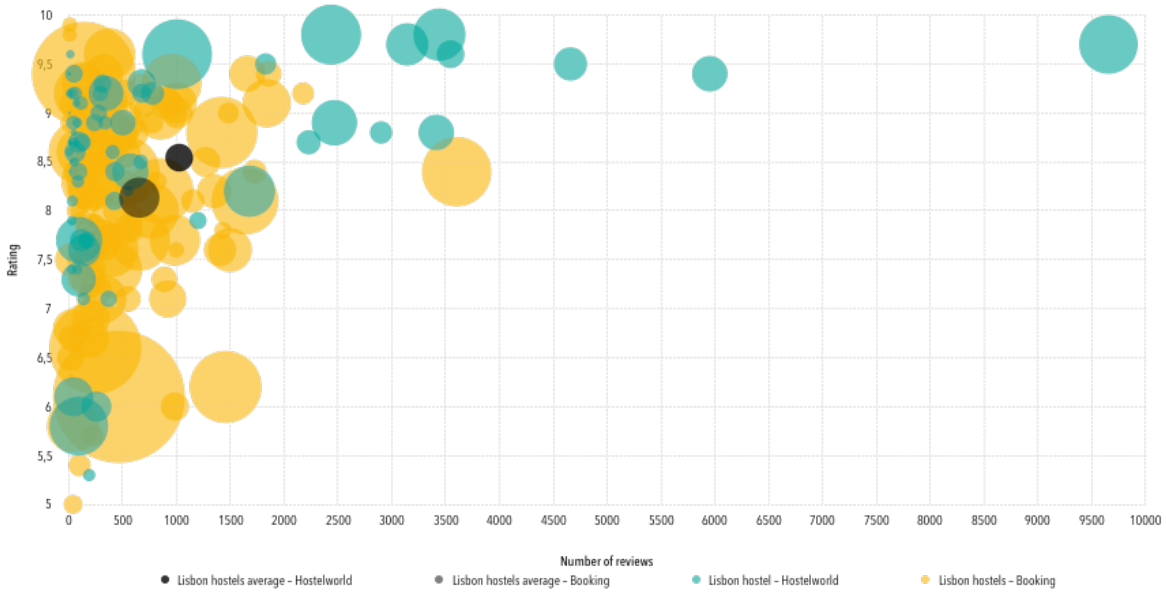

Chart 5 – Individual Lisbon hostels vs Lisbon hostels average online WOM characteristics

The size of the bubbles represents review/day/capacity ratio. Ratio refers to quantitative relation between amounts, the synonyms of this is proportion, percentage, fraction, and correlation[69] etc. This calculation was done in Apple Numbers desktop application applying following function to gathered data:

$$\mathbf{R \div N \div D = X}$$

R – number of reviews[70]

N – reported number of guest capacity

D – number of days between reported opening and data collection day

X – daily review percentage of review/capacity ratio

The calculation of ratio between three amounts instead of two was necessary to eliminate bias of data interpretation because of large amount of reviews for some hostels that are open for much longer time than others. This chart also demonstrates that the amount of the reviews found for each hostel does not necessarily correlate with obtained rating, as there are variations where higher rating has larger amount of reviews, and opposite, as well as lower rating with large amount of reviews and less amount of reviews. There is also visible differences in evaluated characteristics by guests, likewise associated to review/day/capacity ratio in Chart 6.

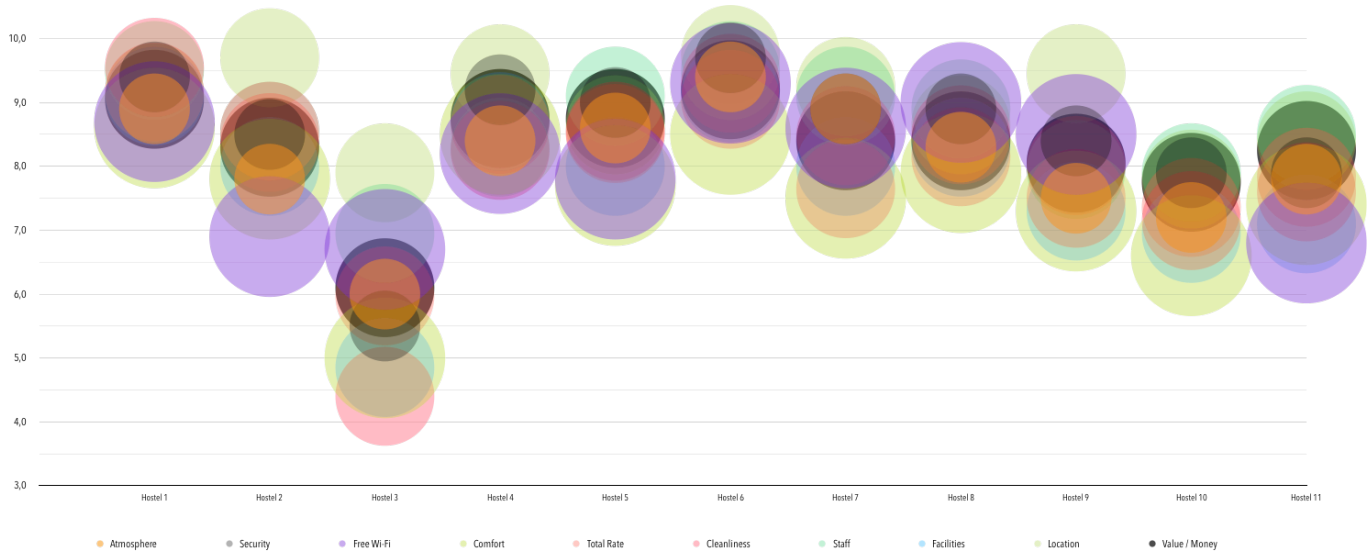

Chart 6 – Evaluation of different characteristics in Lisbon hostels, bubble size refers to review/day/capacity ratio

[69] https://en.oxforddictionaries.com/definition/ratio
[70] in each of the booking engines separately

4.2 Lisbon hostels – observed scenarios

Data in this section were mainly obtained through direct and indirect observation method, as well as informal interviews with representatives of hostel (managers or owner of hostel). Indirect observation refers to data collection through information available to any guest before reserving an accommodation – mainly online-based sources. Direct observation refers to observation, visual data collection (photographs), and evaluation of hostel characteristics in observation protocol during walk-through.

4.2.1 Hostel A

4.2.1.1 Hostel attributes

Hostel A (Figure 53) is located on of main Lisbon Avenues. It is small hostel with maximum guest capacity of 48 people distributed through 4 dorms and 1 double room. The typology of this hostel is – apartment. Hostel has 3 showers and 3 bathrooms. There is no lift in building, and hostel is located in 2nd floor (Portuguese reference), which means the entrance from street is called ground level is on 0 floor. Beds are custom-made of solid wood, and in dorms the beds are 3 storey bunks. For security, each room is equipped with electronic key.



Figure 53 – Hostel A – hostel attributes (photo credit: author)

4.2.1.2 Hostel evaluation & eWOM

As you can observe in (Chart 7) Hostel A has above average evaluation of Lisbon hostels. Nevertheless, it is also visible that Hostel A gets half of the online feedback compared to Lisbon hostels on average. However, it also has almost triple amount of review percentage per daily capacity in Booking, which could mean that it has higher preference on Booking than Hostelworld or Booking clients are more motivated to leave a review.

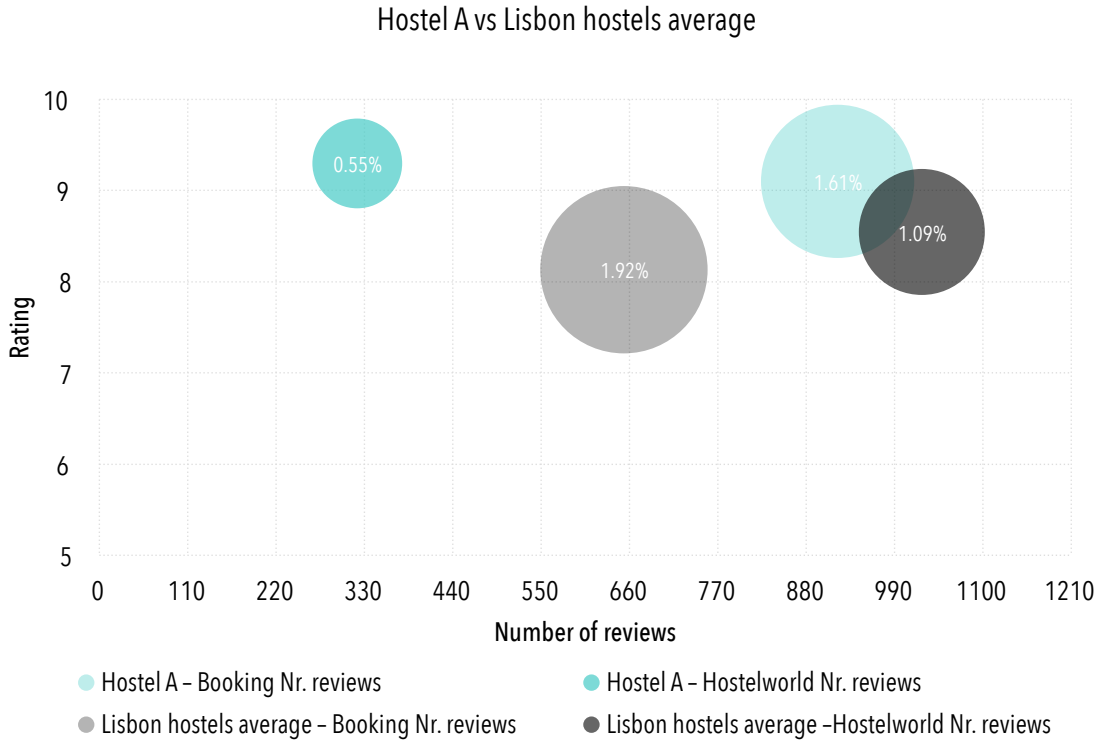

Chart 7 – Evaluation of Hostel A – Nr of Reviews, Review rate & % of Nr reviews/daily capacity (elaborated by Author)

We likewise also do not believe these feedback percentages correlate with occupancy rate, because there is evidence that hostels have high occupancy rate, e.g. booking availability observed online, as well as several hostel manager mentioned this fact in informal interview. However daily occupancy rate is not available by any sources, as for now hostels are not obliged to submit these information to any official statistics[71].

[71] This applies to all the observed hostels

4.2.1.3 System characteristics

We were able to identify many characteristics of our model during direct observation in hostel, as well as find correspondences through content analysis in guest feedback (Figure 54).



Figure 54 – Some of system characteristics identified in Hostel A (author)

The dominant colour of this hostel is white, and bright colours appear in decorative elements. When asked about the choice of colour, the owner, who also works at hostel receiving guests, responded that the white was chosen intentionally due to fact that it "transmits sense of cleanliness", which from owners point of view has been major problem in other less rated hostels. According to owner white also helps with cleaning procedures due to the fact that anything dirty and unclean is visible on white, thus facilitating recognition of spot to be cleaned.

4.2.2 Hostel B

4.2.2.1 Hostel attributes

Hostel B (Figure 55) is located near *Largo Camões* square and it is located in last two floors of old palace type building with entrance of monumentally high ceilings, which immediately transpires grandness to visitor.



Figure 55 – Hostel B – hostel attributes (photo credit: author)

4.2.2.2 Hostel evaluation & eWOM

As you can observe in Figure 56 Hostel B has slightly above average evaluation of Lisbon hostels. It also has higher review number/capacity rate in Booking, which could mean that it has higher preference on Booking than Hostelworld. We did not obtain data necessary to create review/rate/ day ratio for this hostel.



Figure 56 – Hostel B – evaluation (print screen from Hostelworld & Booking websites on 2017-05-11 & 2017-05-24 respectively)

4.2.2.3 System characteristics

Due to the fact that hostels are very changing system, some opening, and some closing, we were not able to gather exactly the same data in all hostels that we were able, however even with some missing data we were able to identify many of system characteristics in hostels and respective feedbacks (Figure 57).



Figure 57 – Some of system characteristics in Hostel B (author)

This hostel transpires sense of history; the place looks renovated with respect to old wall paintings of several centuries (Figure 58).

For security dorms have entrance by code, while double and family rooms are equipped with manual keys.

Most of furniture was arranged in antiquary stores or similar.

This hostel was open with intent to accommodate arriving students from exchange programs linked with other activities of owners.



Figure 58 – Hostel B common room (Photo taken during visit by Author)

4.2.3 Hostel C

4.2.3.1 Hostel attributes

Hostel C (Figure 59) is located near Bairro Alto. This hostel is located in historical building, however, it is nor monumental but rather residential, thus the ceiling height is lower and over all configuration of spaces leave slightly cramped feeling.



Figure 59 – Hostel C – hostel attributes (photo credit: author)

This hostel has self-made dorm bunk beds of local wood materials. During the visit they were expanding to have some more dorm space.

4.2.3.2 Hostel evaluation & eWOM

As you can observe in Chart 8 Hostel C has below average evaluation of Lisbon hostels. Nevertheless, it is also visible that Hostel C gets less half of the online feedback compared to Lisbon hostels on average. However, it also has almost six times of amount of review percentage per daily capacity in Booking, which could mean that it has higher preference on Booking than Hostelworld or Booking clients are more motivated to leave a review.

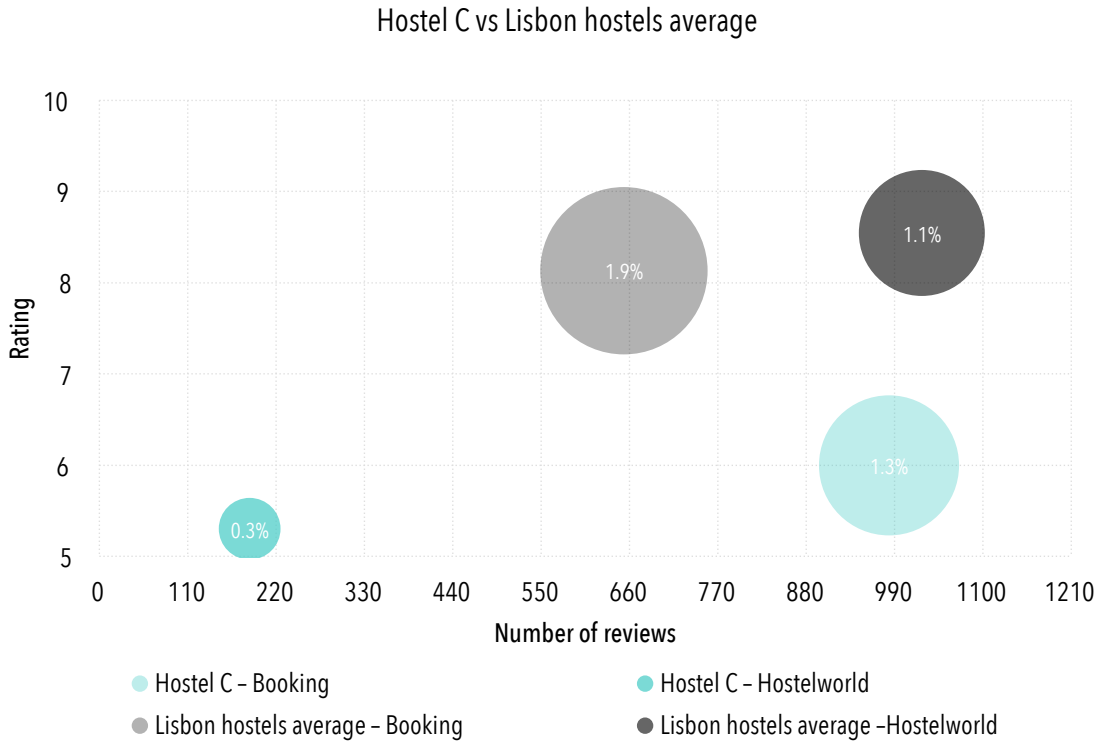

Chart 8 – Evaluation of Hostel C – Nr of Reviews, Review rate & % of Nr reviews/daily capacity (elaborated by Author)

4.2.3.3 System characteristics

This hostel had dominantly light colours, double rooms were very spacious, and however, we experienced dorms quite cramped. Contributing factor to cramped feeling was found low ceilings in one of visited dorms. However this hostel was one of few hostels that actually had guests using the common space while we were visiting, and the general atmosphere was quite welcoming. As a plus of this hostel has to mentioned attempt for reducing environmental impact by creating self-made beds from know local supplier of wood. Presence of indoor plants helps to bond with nature besides the fact that indoor plants contribute for better indoor air quality. Most of windows were double and recent contributing for thermal

comfort. Initial impression first walking into hostel provides feeling of someone's home, and the hostel promotes itself as local experience. As a minus, there must be mentioned a general feeling that, there might be some issues with upkeep of space, however during this research we did not identify specific reasons – why (Figure 60).



Figure 60 – Some of system characteristics identified in Hostel C (author)

4.2.4 Hostel D

4.2.4.1 Hostel attributes

Hostel D (Figure 61) is located between *Cais do Sodre* and *Bairro Alto*, it is located in palace type building, which it occupies the whole building. This hostel had two great terraces outdoors, thus enhancing the value for price of stay.

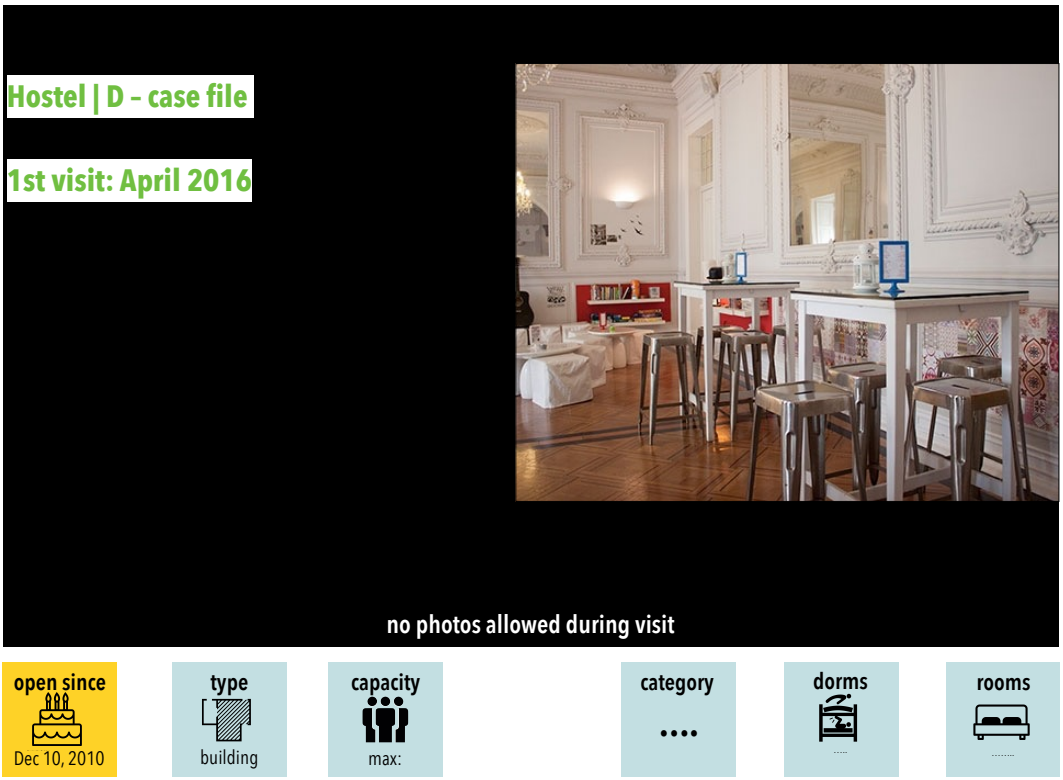

Figure 61 – Hostel D – hostel attributes (photo credit: hostel website)

The owner of the hostel has design background according to manager of hostel, which visibly has been influencing the design of indoor spaces. The predominant colour of the hostel is white, however it doesn't look flat and sterile due to fact that the walls have historical frizzes on them and floors are parquet in natural wood tones.

4.2.4.2 System characteristics

This hostel had some of well designed common areas of visited hostels. The spaces were not cluttered, including common kitchen, where guest can cook their own food. There was a sense of intentional design decisions (Figure 62).

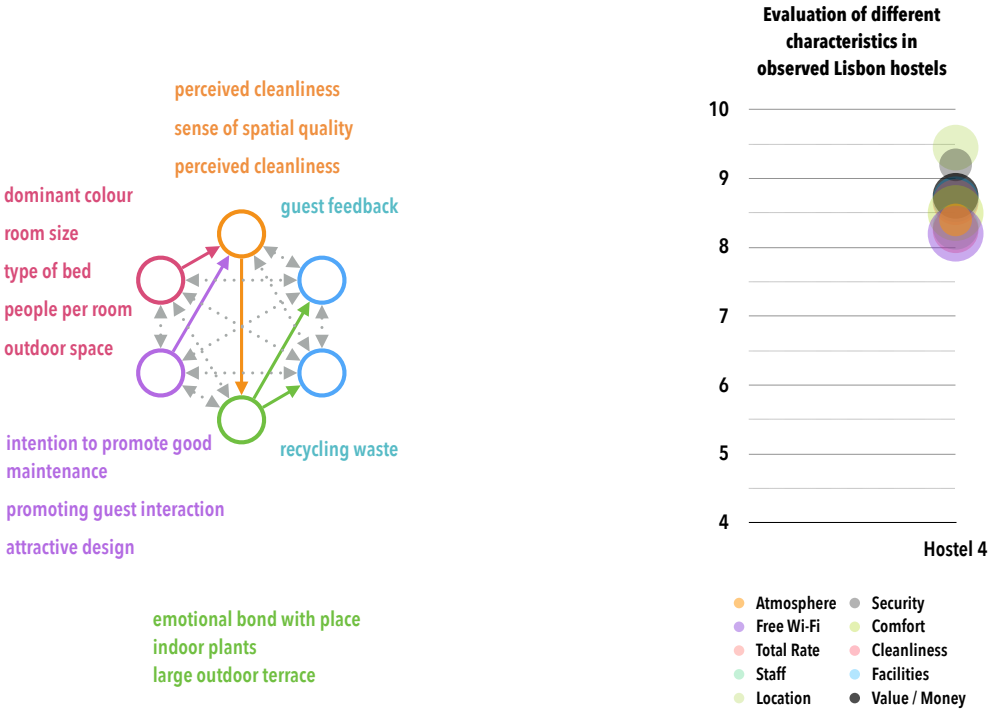

Figure 62 – Some of system characteristics identified in Hostel D (author)

This however, was also one of least responsive hostels to our research project, we did not receive permit to take photos of space, nor received additional information solicited upon visit during informal interview.

4.2.5 Hostel E

4.2.5.1 Hostel attributes

Hostel E (Figure 63) is located in apartment building and occupies 1 apartment. This hostel had clear thematic themes for each room related to music, which are reflected in room design, and as personal touch, each bunk bed is assigned with name of musician rather than number. The owner of the hostel revealed that he has a friend who is decorator.



Figure 63 – Hostel E – hostel attributes (photo credit: author)

4.2.5.2 Hostel evaluation & eWOM

As you can observe in Chart 9 Hostel E has above average evaluation of Lisbon hostels. Nevertheless, it is also visible that Hostel E gets half of the online feedback compared to Lisbon hostels on average. It also has almost double amount of review percentage per daily capacity in Booking, which could mean that it has higher preference on Booking than Hostelworld or Booking clients are more motivated by hostel experience to leave a review.



Chart 9 – Evaluation of Hostel E – Nr of Reviews, Review rate & % of Nr reviews/daily capacity (elaborated by Author)

4.2.5.3 System characteristics

This hostel was one of few visited hostels that had visible clear idea behind hostel design. It had lot of attention to detail (Figure 64) in line with design thematic. In this given example even the colour of decorative light was adapted to thematic in order to give a guest more real experience of the pretended style.



Figure 64 – Detail of bed & room identification (photo credit: author)

The dorm rooms were equipped by solid wood bunk beds, each room decorated according to one specific style of music or musician. Reclaiming old furniture or

deconstructing and giving new life to old element generated most of furniture and decor elements. (Figure 65)



Figure 65 – Different dorms (photo credit:author)

In this hostel we were able to identify many of our system model characteristics (Figure 66).



Figure 66 – Some of system characteristics identified in Hostel E

4.2.6 Hostel F

4.2.6.1 Hostel attributes

Hostel F (Figure 67) is located in *Cais do Sodre*. It has large terrace on top of the building overviewing the river. The design of hostel is youthful and owners of architectural background definitely had some saying in that.



Figure 67 – Hostel F – hostel attributes (photo credit: author)

4.2.6.2 Hostel evaluation & eWOM

As you can observe in Chart 10 Hostel F has above average evaluation of Lisbon hostels and larger amount of reviews. However review percentage per daily capacity shows opposite trend to average Lisbon hostels, meaning that in this case Booking review percentage per daily capacity is only 2/3 of Hostelworld. This could imply that this hostel has higher preference from Hostelworld clients or they are more motivated by hostel experience to leave a review.

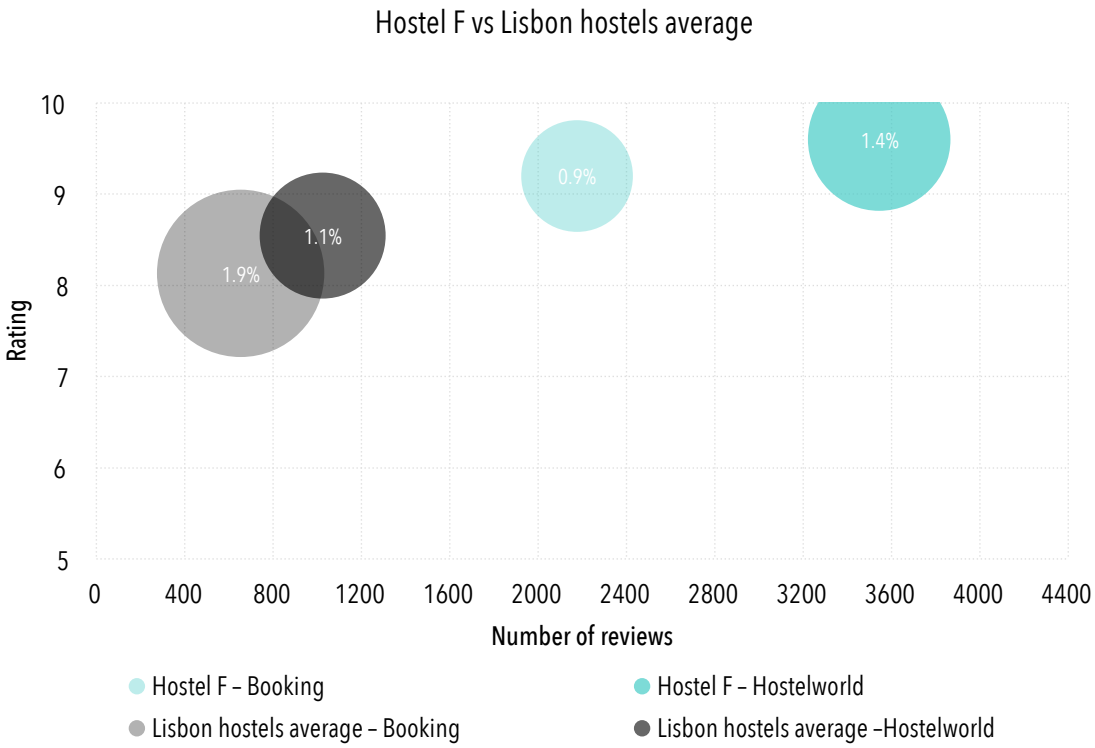

Chart 10 – Evaluation of Hostel F – Nr of Reviews, Review rate & % of Nr reviews/daily capacity (elaborated by Author)

4.2.6.3 System characteristics

This hostel has large rooftop terrace (Figure 68), which not only used by hostel guest but there are often event made in collaboration with Erasmus Student Network (ESN) in Lisbon. This contributes for social bonding referred in reflective level evaluation of feelings.



Figure 68 – Rooftop terrace (photo credit: author)

Hostel has large common spaces, and there are lot of elements contributing for reclaiming variable of system model (Figure 69).



Figure 69 – Entrance stairway (photo credit: author)

4.2.7 Hostel G

4.2.7.1 Hostel attributes

Hostel G (Figure 70) is located in historical building and has small terrace. Though during the visit of hostel, the manage showed us the main building, according to reviews on booking agent websites, this hostel is distributed through 2 or even 3 different buildings.



Figure 70 – Hostel G – hostel attributes (photo credit: author)

4.2.7.2 Hostel evaluation & eWOM

As you can observe in Chart 11 Hostel G has above average evaluation of Lisbon hostels in both websites. Hostel G review percentage per daily capacity shows opposite trend to average Lisbon hostels, meaning that in this case Booking review percentage per daily capacity is only 1/5 of Hostelworld. This could imply that this hostel has higher preference from Hostelworld clients or they are more motivated by hostel experience to leave a review.

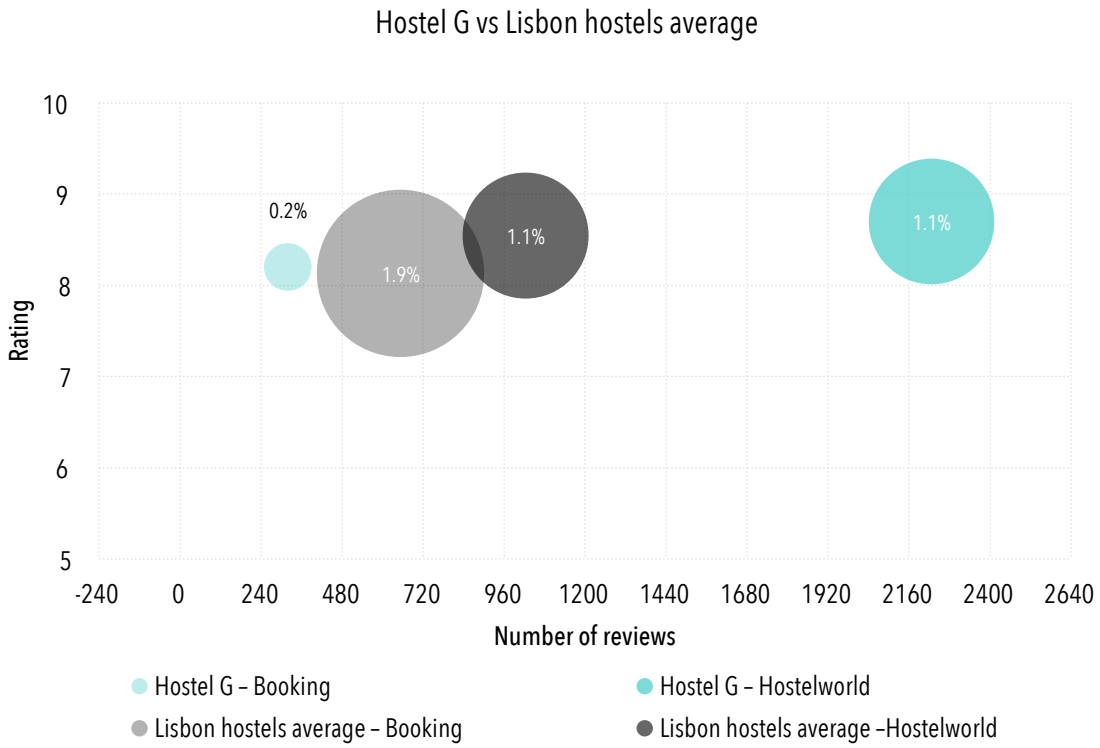

Chart 11 – Evaluation of Hostel G – Nr of Reviews, Review rate & % of Nr reviews/daily capacity (elaborated by Author)

4.2.7.3 System characteristics

Hostel has relatively large uncluttered common spaces (Figure 71), however the dorm (Figure 72) we were able to observe seemed cramped.



Figure 71 – Common Areas (photo credit:author)



Figure 72 – Common Area (photo credit: author)

This hostel is one of few to posses outside space, and it has many green plants, some fitted in fixtures made from reclaimed pallets (Figure 73).



Figure 73 – Outside area and green plants (photo credit: author)

4.2.8 Hostel H

4.2.8.1 Hostel attributes

Hostel H (Figure 74) is located in plane Bairro Alto and is occupying whole historic building. They have not changed layout of building thus general feel walking through hostel is somewhat labyrinthic.



Figure 74 – Hostel H – hostel attributes (photo credit: author)

4.2.8.2 Hostel evaluation & eWOM

As you can observe in Chart 12 Hostel H same evaluation in Hostelworld as average evaluation of Lisbon hostels, while it has above average evaluation of Lisbon hostels in Booking. Review percentage per daily capacity follows similar trend to average of Lisbon hostels, which is just under a half of daily reviews per hostel capacity in Hostelworld compared to Booking.

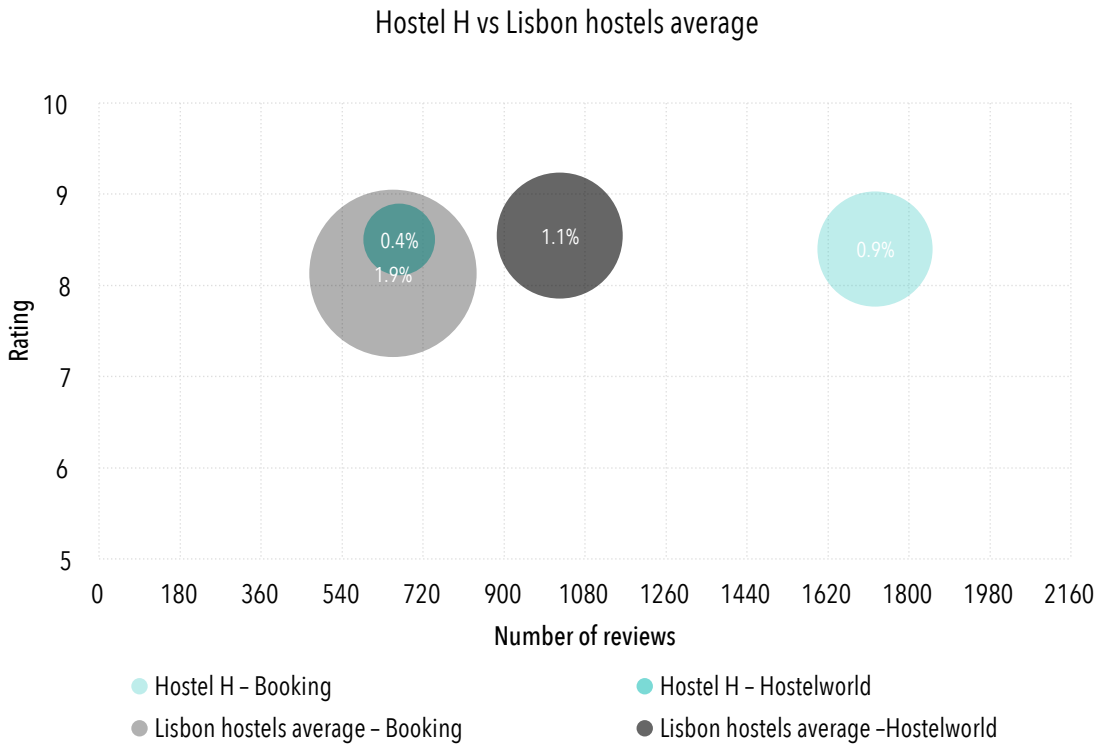

Chart 12 – Evaluation of Hostel H – Nr of Reviews, Review rate & % of Nr reviews/daily capacity (elaborated by Author)

4.2.8.3 System characteristics

This hostel is really focused on social sharing experience (Figure 75). It has large and different common areas including a room of balls (Figure 76).



Figure 75 – Area to share books (photo credit: author)



Figure 76 – Common areas (photo credit: author)

4.2.9 Hostel I

4.2.9.1 Hostel attributes

Hostel I (Figure 77) is located in pure Baixa (Downtown) of Lisbon. The hostel is occupying the whole building. Even though the building itself has more than century, it has undergone several reconstructions, and the indoor environment before hostel there was practically and open space. Thus all the indoor spaces in this hostel have been constructed especially for this purpose – hostel.



Figure 77 – Hostel I – hostel attributes (photo credit: author)

4.2.9.2 Hostel evaluation & eWOM

As you can observe in Chart 13 Hostel I has below average evaluation of Lisbon hostels in both booking engine websites. Review percentage per daily capacity follows similar trend to average of Lisbon hostels, which is 1/3 of daily reviews per hostel capacity in Hostelworld compared to Booking.

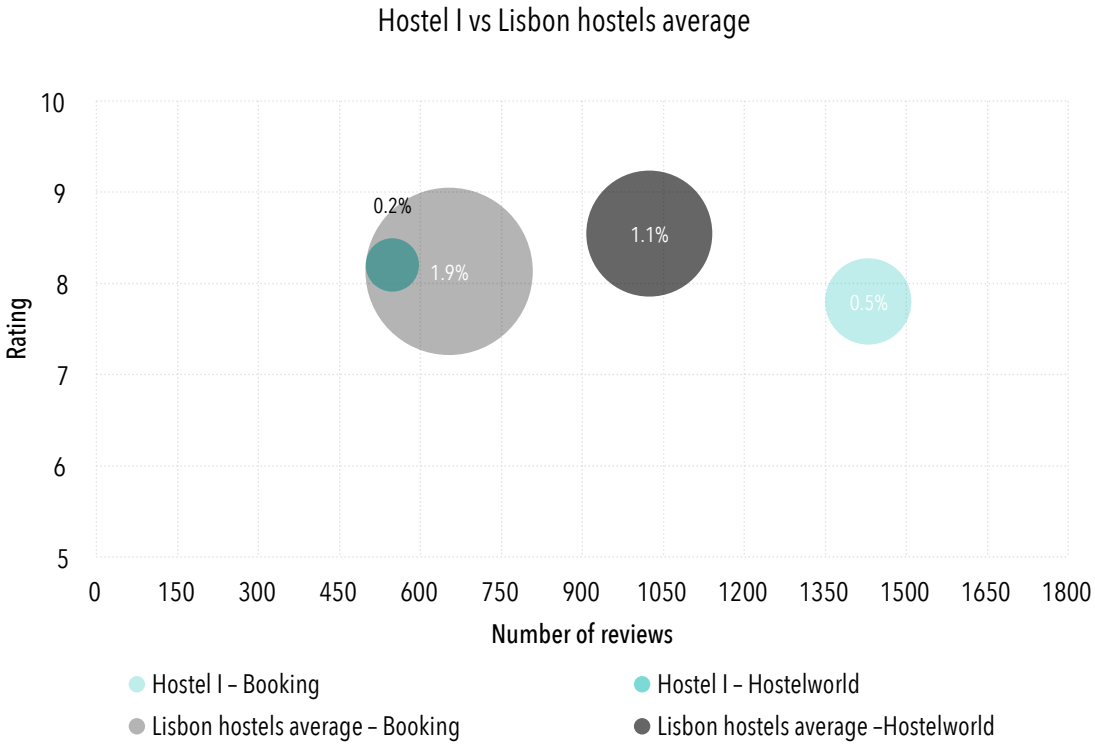

Chart 13 – Evaluation of Hostel I – Nr of Reviews, Review rate & % of Nr reviews/daily capacity (elaborated by Author)

4.2.9.3 System characteristics

Hostel has different colour themes for each floor. Dorms had built-in bunks constructed, which difficult somewhat with flexibility of space. There's no possibility of just removing one bunk from space to open space up, and no availability to change configuration of bunk placement (Figure 80). General feeling of hostel was cramped, industrial type hostel with few to no sense of home (Figure 78).



Figure 78 – Common area (photo credit: author)

This hostel however was one of very few that had WC adapted according to Accessibilities law of access for wheel chair (Figure 79).



Figure 79 – Accessible WC sign (photo credit: author)



Figure 80 – Dorm (photo credit: Carapinha, Rita)

4.2.10 Hostel J

4.2.10.1 Hostel attributes

Hostel J (Figure 81) is located in historical apartment building. It has high ceiling, however there is a general feeling of missing natural light in half of hostel due to fact that it is placed close to other building and facing North with common room windows, where people would try to interact most.



Figure 81 – Hostel J – hostel attributes (photo credit: author)

This Hostel seems to be closed at this point, due to fact that it is not possible to find any new confirmation about it, no home website and unavailability of booking through no online agents. This seems to be happened late 2017, so during the scientific activity break between mid 2016 and early 2018. Due to this gap between data collection and analysis, we were not able to correlate obtained data during visit through observation with guest feedback online, as there were no recent references of this establishment available anymore.

4.2.11 Hostel K

4.2.11.1 Hostel attributes

Hostel K is Small category hostel opened in 2006 (Figure 82).



Figure 82 – Hostel K – hostel attributes (photo credit: author)

4.2.11.1.1 Location

This hostel is located near '*Jardim de Santos*' garden in '*Largo Vitorino Damásio*', indeed west façade of building is facing the garden and north façade and entrance in building is from square Figure 85. According to Santos (2006, p.376) the area of '*Largo Vitorino Damásio*' square was developed after silting and earthwork operations of landfill in 1867 and subsequent urbanization process. Before that there was a beach and port of fishermen and shipyards. Nevertheless Santos (2006, p. 378) also refers that most of area around this square was constructed in end of 19th century, as well as, that the southern part of this square (the building block of hostel is located in southern part) was partially under water line according to older local plans till 1787. Figure 83 compared to Figure 84 shows that the area of '*Largo Vitorino Damásio*' as well as existing building area in 1856 was known as '*Praia de Santos*' (Santos beach); Calçada Marques Abrantes and Santos-o-Velho church in both figures were used as references for comparing.



Figure 83 – "Atlas da carta topográfica de Lisboa: n.º49" (Filipe Foloque, 1856-03)[72]

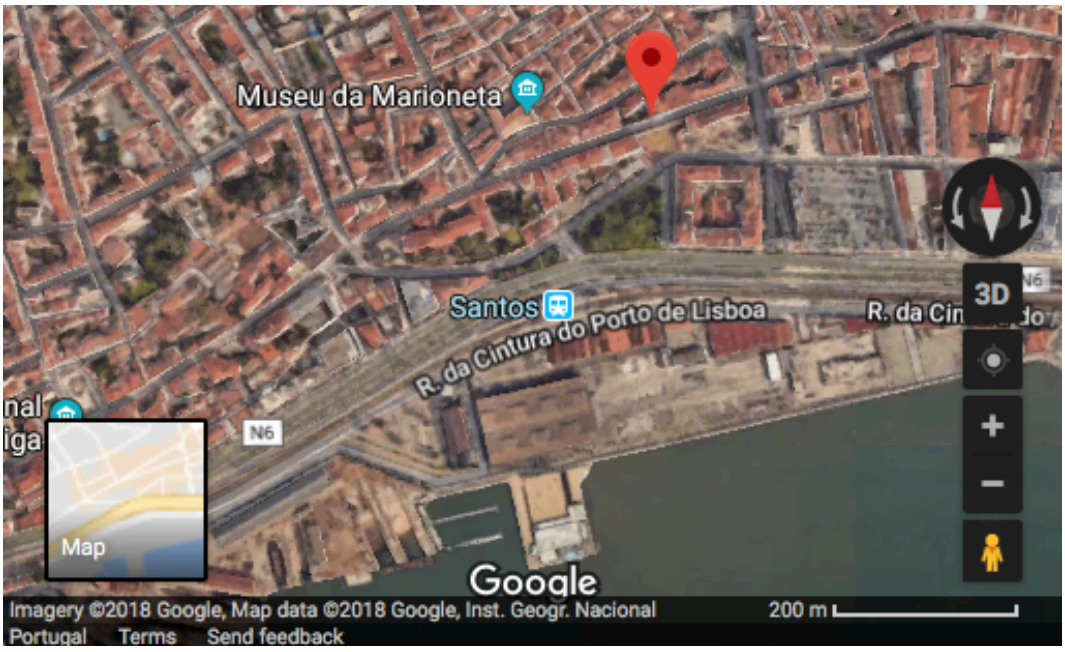

Figure 84 – Printscreen on 2018-07-20 identifying reference street of Calçada Marques Abrantes on GoogleMaps

The bus and tram is running right in front of building. Santos train station is within 300m/4 min walk; 1km/12min walk away is *Cais do Sodré* train station and Metro Green line.

[72] Map located in Arquivo Municipal de Lisboa with reference code PT/AMLSB/CMLSB/UROB-PU/05/01/51, accessed online at http://arquivomunicipal.cm-lisboa.pt/pt/

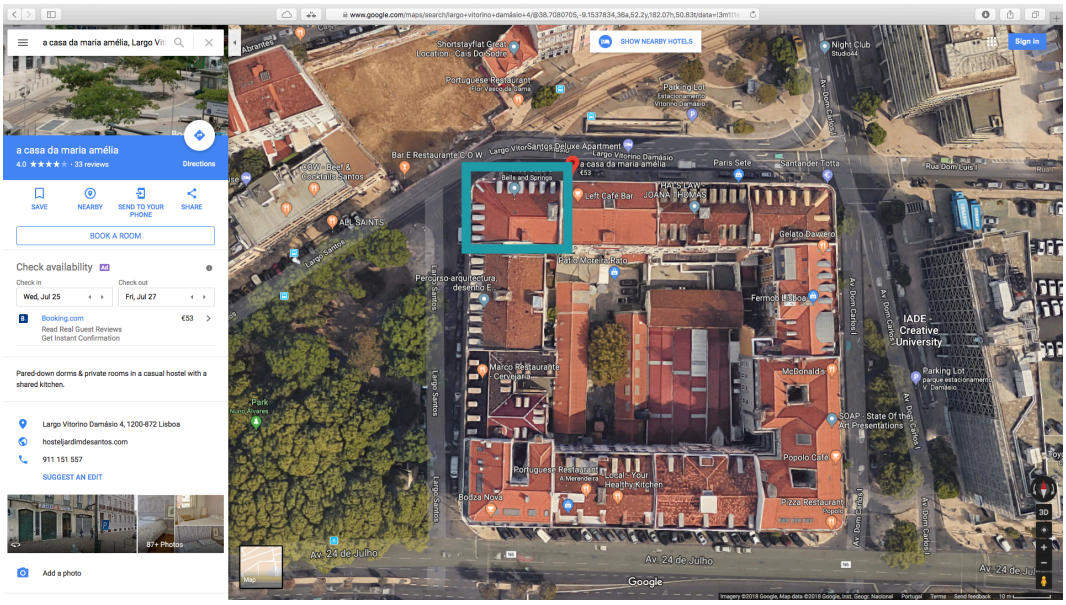

Figure 85 – Printscreen on 2018-07-20 of Hostel K location in building on GoogleMaps

4.2.11.1.2 Building



Figure 86 – "Largo Vitorino Damásio" Serôdio (1965)[73]

According to area development references it is fair to indicate that building age is about a century, given the fact that it was built between late 19th century and middle of 20th century, see corner building on left side of square in Figure 86 and far end of building block in Figure 87, both photographed in 1965.

[73] Photo located in Arquivo Municipal de Lisboa with reference code PT/AMLSB/CMLSBAH/PCSP/004/SER/S03415, accessed online at http://arquivomunicipal.cm-lisboa.pt/pt/



Figure 87 – "Largo Vitorino Damásio, lado sul" Serôdio (1965)[74]

Building has 4 regular floors and an attic. In Portugal the entrance from street level floor is called 0 floor (*Piso 0* or *Rés-do-chão*). The Hostel K occupies 1 apartment of the building consisting of the whole 2nd floor (*Piso 2*), which identified in Figure 88.



Figure 88 – Printscreen on 2018-07-20 of Hostel K location in building on GoogleMaps StreetView (Image capture: Jan, 2015)

[74] Photo located in Arquivo Municipal de Lisboa with reference code PT/AMLSB/CMLSBAH/PCSP/004/SER/S03360, accessed online at http://arquivomunicipal.cm-lisboa.pt/pt/

4.2.11.2 Hostel evaluation & eWOM

As it is possible to observe in Chart 14 Hostel K had above average evaluation of Lisbon hostels on Hostelworld up till June of 2017, when annual data about hostel ratings were collected.

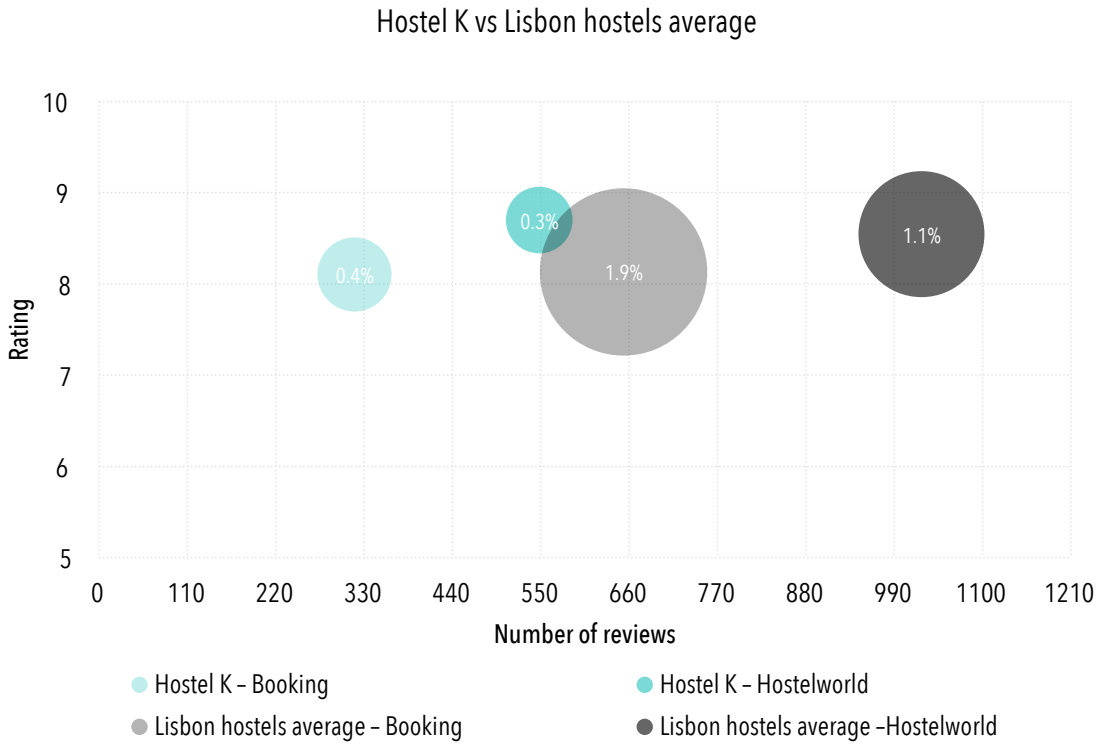

Chart 14 – Evaluation of Hostel K – Nr of Reviews, Review rate & % of Nr reviews/daily capacity (elaborated by Author)

In June 2018 the hostel was not to be found on Hostelworld, probably due to rebranding and repositioning the establishment in market. Currently it can be found under different name and category as Lodging Establishment, which does not rent beds for individual travellers anymore. In Booking, however, the establishment maintains active previous register so it is possible to observe the moment of decline and recovery in rating after repositioning of establishment. It had a severe drop in average monthly rating from June 2016 to July 2016. In one month it dropped whole two points in average rating from 8,8, which is above average Lisbon hostels, to 6,7, which is below Lisbon hostel average. Currently establishment has recovered monthly rating above average Lisbon hostels, even though total average rating on Booking still is below average of Lisbon hostels. In July of 2017, the total average rating of hostel was around 8, though monthly average ratings were hanging around 7 points the second half of 2016, and most

of 2017. There is a visible jump about points in November of 2017, which means that the rating of the hostel has been in decline for about a year and a half, and now has stabilized at around average or slightly below Lisbon hostels average (Chart 15).

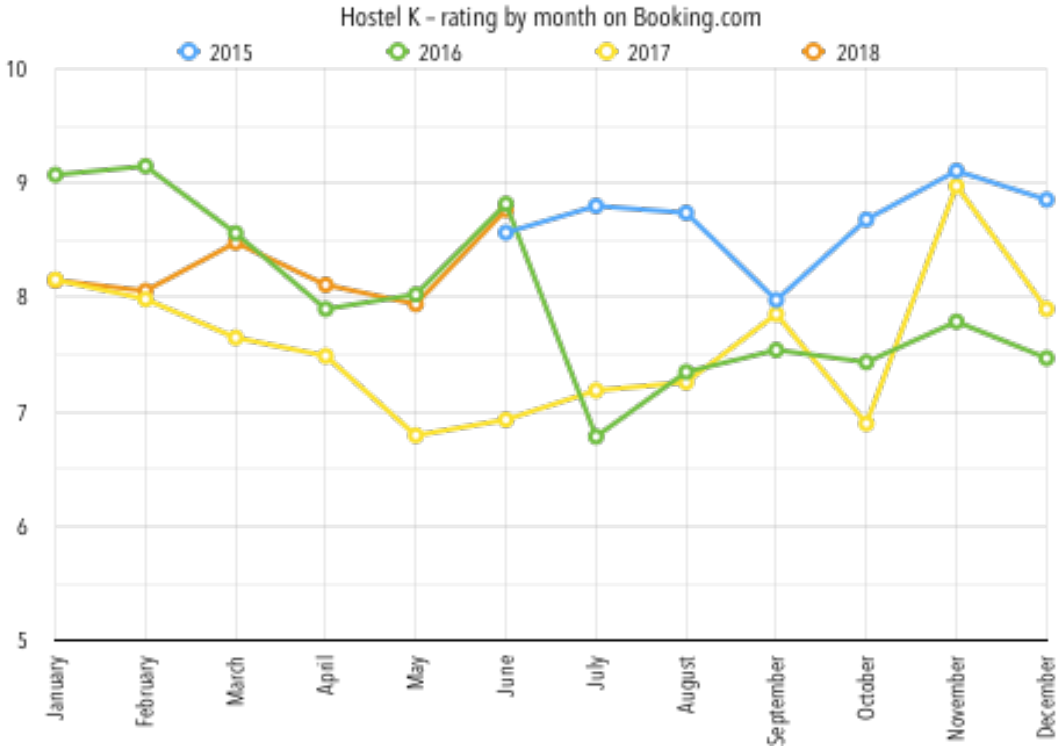

Chart 15 – Hostel K Rating by month on Booking.com

Chart 16 shows that most of reviews for Hostel K on Booking are left on May, while most reviews left on Hostelworld are on August. The least activity in online feedback is July on both booking engines. This might be indicating that this is the busiest month of travel and activities for guests and they are not too eager to leave feedback. Note that overall feedback in July is lower even than supposed out of travel season months such as December and January.

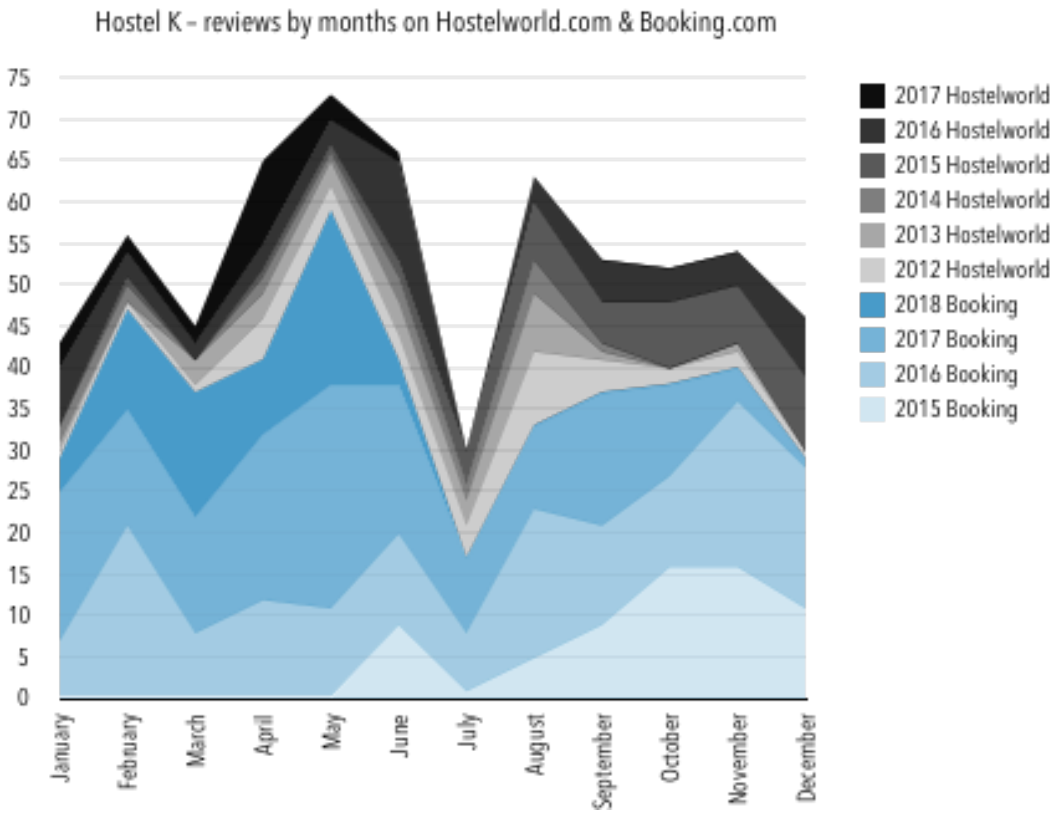

Chart 16 – distribution of online feedback by months (elaborated by Author)

4.2.11.2.1 Demographics of online feedback

Chart 17 demonstrates that 42% of reviewers on Booking.com and more than 53% on Hostelworld.com are female opinions. While on Booking.com 35% of reviewers have not revealed they gender on Hostelworld.com unspecified gender is only 1%. On both booking websites there is a possibility that there are more female opinions than male, especially on Hostelworld.com, where there definitely was female involved in 5% of mixed group and 9% of couple reviewers. Based on this information, we can speculate that overall female guests will give rating more often than male guests, thus it might be advantageous for hostels to reach satisfaction of female guests, namely address privacy, cleanliness, and overall atmosphere of hostel.

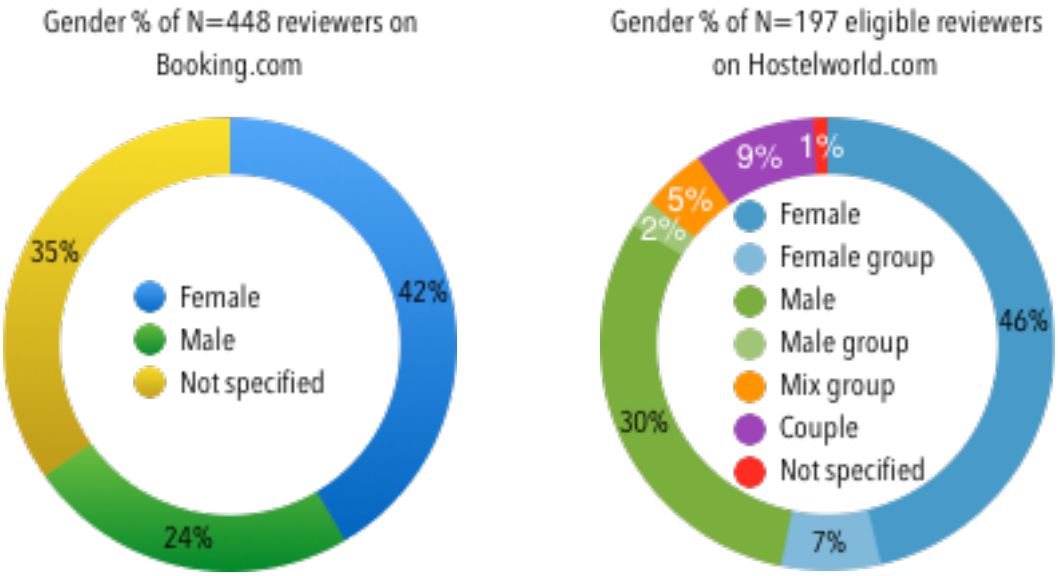

Chart 17 – Gender of reviewers on online booking engines

It is interesting to see also that 61% of Booking.com reviewers wrote a written review besides giving a simple rate for each of characteristics available for rating, while 100% reviewers on Hostelworld.com wrote a review (Chart 18).

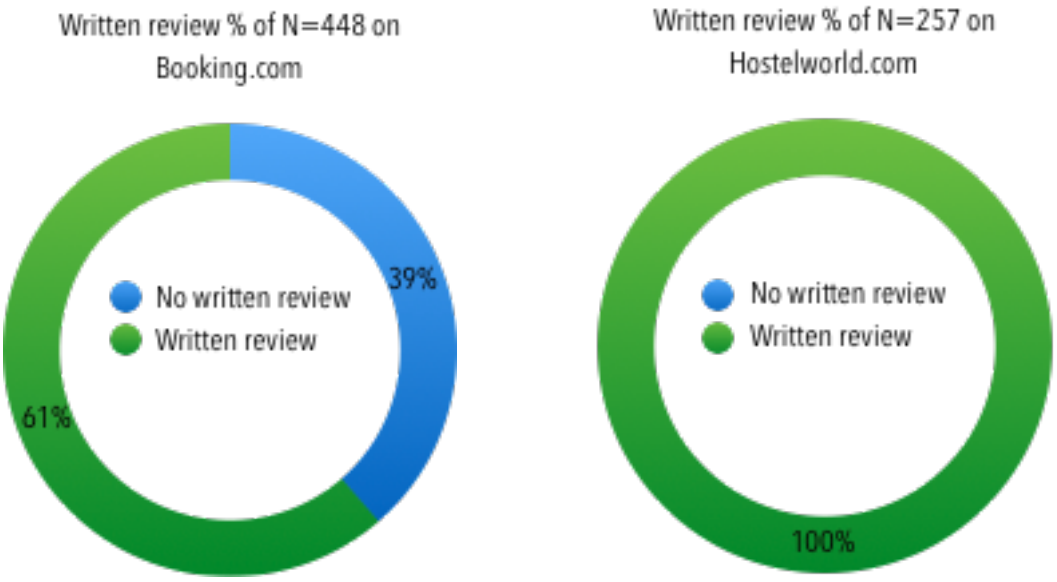

Chart 18 – Written reviews on online booking engines

4.2.11.3 System characteristics

Ceiling height & colour – the storey height where Hostel K is installed is above average and exceeds at least by 1m the 2,70m minimum height required for living spaces[75]. Most of rooms had decorative ceiling mouldings and all ceilings were painted white.

Floor material & colour – Natural warm medium light brown tone hardwood planks (Figure 89) of original construction in rooms and common spaces with exception of bathrooms and kitchen. Kitchen & bathroom had black tile as flooring.



Figure 89 – Hostel K: Hallway & 10 bedroom (photo credit: author)

This hostel had a welcoming atmosphere overall, however there was a feeling of abandonment.

[75] http://smi.ine.pt/Conceito/Detalhes/3663

4.2.12 Lisbon hostels – system characteristics

Overall we were able to identify many of the model characteristics during direct observation (Figure 90); likewise many of them had reflections in guest feedback (Figure 91).



Figure 90 – Representation of some of identified system characteristics by direct observation (author)



Figure 91 – Example some of system characteristics correlating with guest feedback (author)

Chapter 5 Discussion & conclusions

Introductory note. This chapter serves to discuss the findings of research in relation to research objectives, research questions, data collection and analysis procedures, and hypothesis. Furthermore, we describe significance and limitations of findings. This chapter also serves to summarize the research procedures and findings in order to draw conclusions and recommendations for future studies.

The present study investigates characteristics of sustainability, interior design and experienced well-being in hostels of Lisbon. The aim of this dissertation was to explore the relationships between these characteristics and to explore how these relationships could be evaluated in hostels of Lisbon in order to assess the sustainability whole system.

This is the first study, to our knowledge, to examine holistically sustainability, interior design, and well-being in hostels.

These results describe for the first time the complexity of this system and complexity of it's evaluations, as there are numerous social agents involved, which necessarily means heterogeneity of demographics, mediators, and outcome. Researching social systems always involve some degree of exploration, as it is not an objective study with simple cause effect relationship, rather it is showing interactions and possible correlations, with many other causes outside system being able to influence the outcome.

5.1 Discussion

5.1.1 On purpose of study

Aligned with developments related to sustainability, interior design, and well-being. We believe our study contributes to needs pinpointed as main issues.

Purpose of this exploratory study was to explore the hostels of Lisbon as a whole system through perspective of sustainability, new paradigm of interior design, and subjective well-being. The main objective was to identify the characteristics of new design paradigm, sustainability, and subjective well-being, explore how these characteristics are related, and how they could be evaluated choosing as a embedded single-case study – hostels of Lisbon.

The proposal of study was approved in 2012, the very beginning of hostel growth surge with increasing number of hostels in Portugal, particularly in Lisbon, gaining worldwide recognition. We would consider the very peak of hostel growth between years 2014 and 2016, with slight stability in 2017 and 2018 even though it could not be reflected in the number of hostels that has been open during this period. However, we observed that while maintaining many hostels in top 10 lists,

HOSCAR awards in 2017 and 2018 have several hostels from other countries in spotlights besides Lisbon hostels.

Needless to say that evolution of hostel industry in Portugal and particularly in Lisbon has been somewhat chaotic to the level that since 2014, when legal framework was approved, the legislation has been improved in 2015, and is having current discussion about new change in legislation in order to fit hostels better into tourism industry. We believe that there was and still is great need to explore, describe, categorize, and evaluate these establishments, thus our study could be very useful in steps towards better understanding of this system.

5.1.2 On procedures of study

This study is by nature very exploratory, thus the procedures and tools of it were constantly adapted during the spiral process or research development. Every new piece of information encouraged new updates in process of collecting, analysing and synthetizing the data.

The 1st phase of study involving exploration of theoretical data was made in a quite systematic way, even if some information was obtained in somewhat intuitive way. If such intuitive information was found it was later essentially systemized to build up the theoretical framework.

Theoretical data were collected throughout the duration of whole research process.

The 2nd phase of study involved construction of conceptual model of research, identifying system elements and building up proposed evaluation model along with corresponding instruments. This was the most extensive phase, as the system is somewhat chaotic and ever-changing, so required constant regrouping and re-evaluating of data.

The 3rd phase of research involved field work in order to explore some of embedded entities. This phase involved Workshop for hostels, visits to hostels, and analysis of collected data.

5.1.3 On demographic data and patterns

Due to very heterogenic nature of hostel and individual traveller characteristics, some misfits in definition and legal framework, and lack of systematized data collection by official and public instances, all the data related to demographic data of hostels and hostel guests is still in exploratory mode. We did find that even though to latest legal framework changes in Portugal that require prior communication to open hostel to public and be able to operate, data obtained in public consult of RNT does have some human errors likely. Likewise, due to confusing definition of hostel, many lodging establishments that do not rent bed to single traveller, but rent for example a room with 4 bunks, also call themselves a hostel. Note also that there are several duplicate registers of essentially the same establishment, just divided by existing in different storeys of the same building. We suspect that this could be caused by misunderstanding of the legislation, that fits hostel under local lodging establishments who are allowed (except hostels) to have no more than 9 rooms and 30 guests [Decree-Law 128/2014, Article 11º, point 1º]. We suspect that in many cases hostel owners have missed this exception of hostels. Thus, there are establishments appearing, e.g. as 'Hostel ZZ', in Hostelworld or Booking platforms offering in total 90 beds in the same building distributed through different storeys, but in RNT the same establishment will have different 4 registers each of them containing registered capacity of less than 30 beds. This is confusing to say the least, if there is any wish to understand the true dimension of hostel industry in Portugal. What we did in this case was – manually checking each register by name and location, and compare various booking engines and the website of the establishment, if that existed, to see the total capacity of establishment. This kind of manual qualitative verification can induce human errors.

Nevertheless there is no real statistical evidence related to hostel guests, neither occupation rate, nor other demographical data, as for now these establishments are not obliged to facilitate these data to any monitoring system.

5.1.4 On research questions & hypothesis

Our main research question of this study was *how emerging paradigm of interior design quality relates to perceived indoor environment, experienced well-being, and sustainability, and how these relationships can be evaluated in hostels of Lisbon?*

We believe our research demonstrates clear answer to first part of question: *how emerging paradigm of interior design quality relates to perceived indoor environment, experienced well-being, and sustainability.*

The answer to this part is demonstrated in conceptual model, see Figure 16.

We also were able to answer our exploratory operational questions:

- *What are the characteristics that describe emerging paradigm interior design quality in a hostel?*

The best conclusive illustration of these characteristics can be visible in cut-out of our system evaluation model (Figure 92), to see visual representation in more detail, we have discussed it in Chapter 2 section of Development of data collection instruments on page 72.

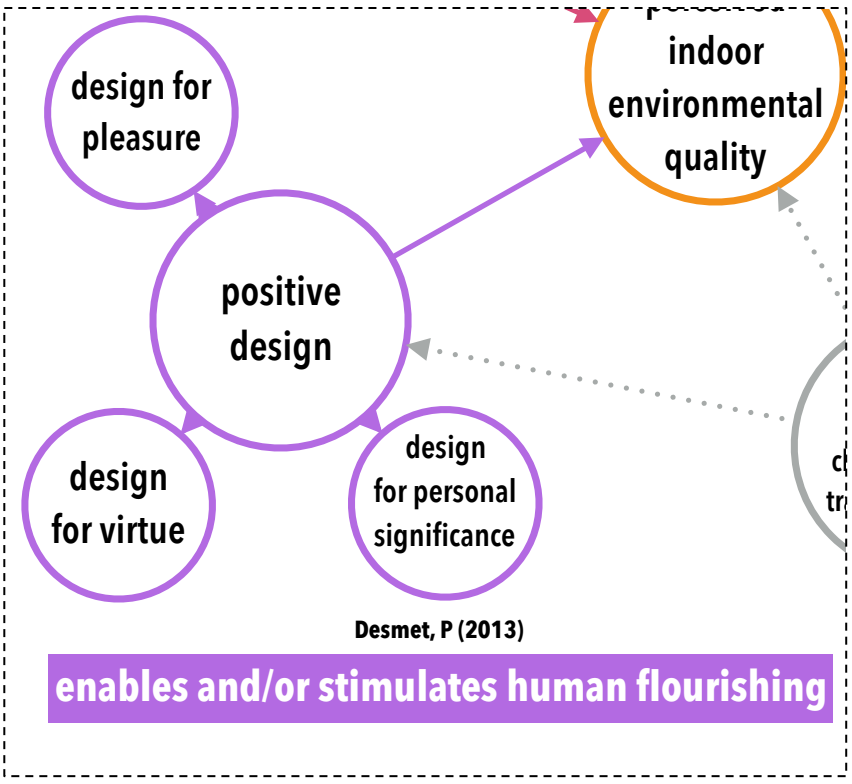

Figure 92 – Positive Design Quality characteristics and relationships, Detail from systematic evaluation model of hostels in Lisbon (author)

This illustration clearly demonstrates new paradigm of design – Positive Design or Design for Flourishing. Moreover it demonstrates the three layers of evaluation, as well as respective characteristics and items of measurement. We embodied in 1st layer of evaluation – Design for Pleasure, which seeks to promote emotional responses of users. These include promotion of more immediate emotional responses in visceral level, promoting responses to functionality in behavioural level, and promoting personal satisfaction and identity evaluative responses in reflective level.

As for the 2nd operational question:

- *What are the characteristics that describe perceived indoor environment in hostel?*

The answers can be found in Figure 93, which shows three layers of Perceived Indoor Environmental Quality in Hostels in fragment of our model synthesis, specific characteristics of these qualities and respective measurement items are identified in Chapter 2 section of Development of data collection instruments on page 73.

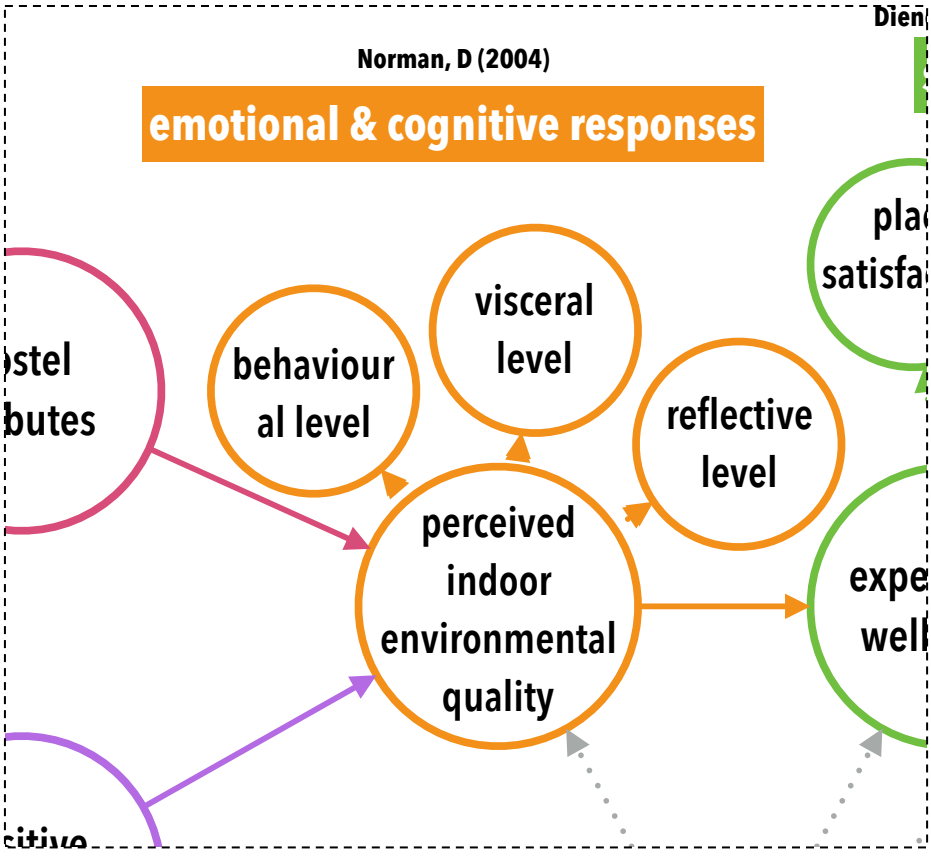

Figure 93 – Perceived Indoor Environmental Quality in Hostels, Detail from systematic evaluation model (author)

The 3rd operational question:

- *What are the essential characteristics that describe experienced well-being in hostel?*

Answer to this question is found in Figure 94, which shows fragment of system model, specific items are identified Chapter 2 section of Development of data collection instruments on page 74:

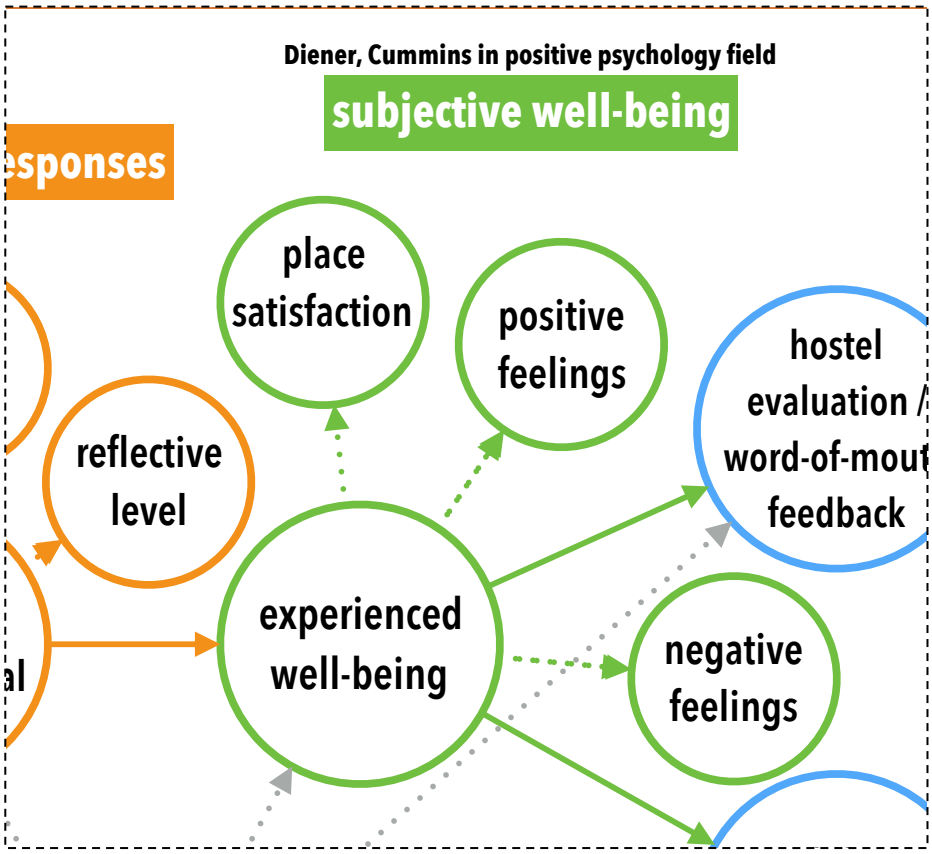

Figure 94 – Experienced Well-being in Hostel, detail from systematic evaluation model (author)

Regarding 4th & 5th operational questions:

- *What are the essential characteristics of sustainability of hostel?*
- *How interior design quality is related with perceived indoor environment, experienced well-being, and sustainability of the hostel?*

These questions are essentially answered in our systematic evaluation model, see Appendices section of System evaluation model for more detail.

Regarding 6th operational question:

- *Is there a holistic approach that would take in account all these constructs to evaluate the whole system?*

As referred in Chapter 1 we did not find evaluation system that would take in account all of these constructs. We did, however find partial evaluations applied in other contexts, which we adapted then for our context of study – hostels in Lisbon. So the potential answer would be that Positive Environmental Design Approach (this model) accounts for all of these constructs and could be used in future as holistic evaluation methodology.

Regarding 7th operational question:

- *Which existing methodologies can be adapted/upgraded to fulfil all these requirements?*

In general we adapted to LiderA – voluntary sustainability evaluation system, as it was the only somewhat local holistic sustainability evaluation system. The evaluation grid of this system is more global, embracing areas that were not evaluated in context of this study, however, it could be fully integrated in further studies.

In this study we analysed mostly indoor environment (Comfort, some Socio-Economic characteristics, and Sustainable Use), even though some criteria, like 'Materials', 'Ability of Control', and 'Accessibilities' were taken in account in this study. LiderA works with 6 factors: (1) Local Integration, (2) Resources, (3) Environmental Burdens, (4) Environmental Comfort, (5) Socioeconomic experience, and (6) Sustainable Use. In Figure 95 it is possible to visualize the current combination of LiderA and our Positive Design Quality Evaluation system in hostels.

There is, however possibilities to deeper integration of LiderA within Positive Design Quality evaluation system or Positive Design Quality evaluation system can be integrated within LiderA depending on weighting of importance to each of the factors. In some cases, it could be more valuable to contemplate some factors more related with one or other system, and don't consider others.

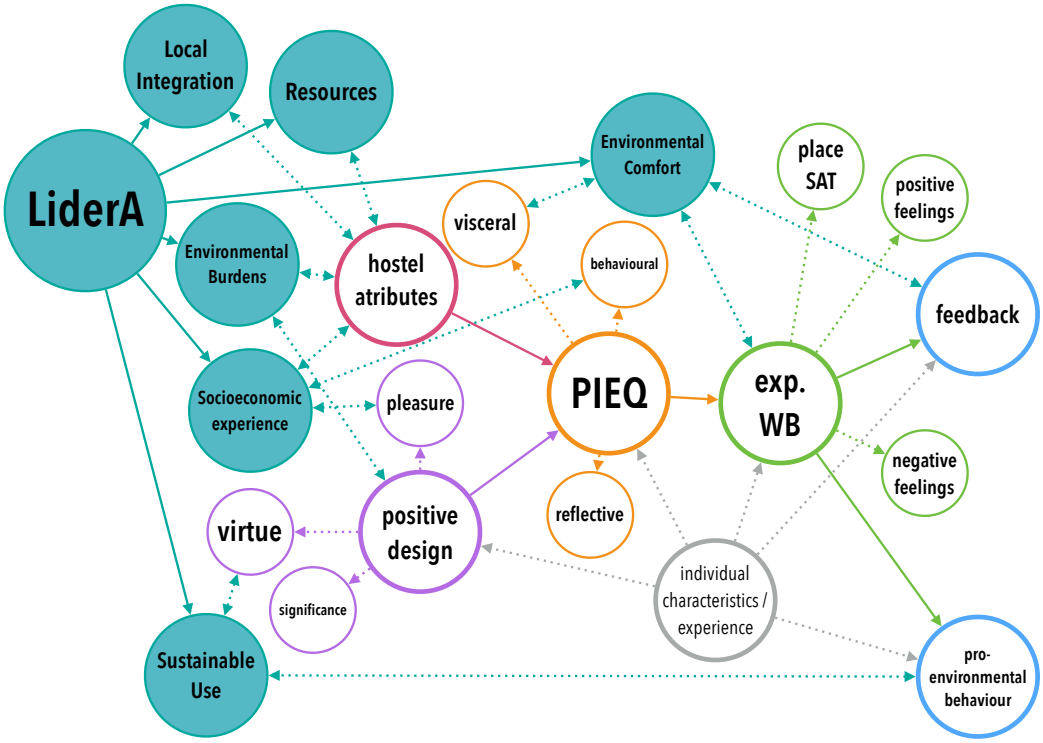

Figure 95 – Our system evaluation integrated with LiderA (elaborated by Author)

Due to the fact that this was essentially exploratory study, the study started with research question, then after findings of first phase the emerging theoretical hypothesis aided to build a system model with operational hypothesis.

We assumed that *positive environmental design approach encourages thriving of hostel through perceived indoor environmental quality, which reflects on experienced well-being and subsequently hostel evaluation and pro-environmental behaviours*. Additionally, study conceptual model allows us to see several operational hypotheses showing the predicted flow of influences of the main hypothesis in detail:

H1"Positive environmental quality has an effect on perceived indoor environmental quality of the hostel"

H2"Perceived indoor environmental quality of the hostel has an effect on experienced well-being"

H3a"Experienced well-being has an effect on pro-environmental behaviour"

H3b"Experienced well-being has an effect on hostel evaluation/user feedback"

H4a"Pro-environmental behaviour has an effect on flourishing of hostel"

H4a"Hostel evaluation/user feedback has an effect on flourishing of hostel"

We did not manage to test operational hypothesis though in this study in valid timeline due to external factors, however, all the instruments were prepared and organized, so that these hypothesis could be tested in future studies.

5.1.5 Reliability and validity of a research

According to Yin (2003) there are several case study tactics that can be used to guarantee validity and reliability (Figure 96).

Yin (2003) suggests that in qualitative study such as case study in order to meet *construct validity* it is essential to:

- Select specific type of changes to be studied (relate with original objectives)
- Demonstrate that selected measures of these changes reflect selected types of change.

Tests	Case study tactic	Research phase	This study
Construct validity	• Use multiple sources of evidence • Establish chain of evidence • Have key informants review draft case study report	• Data collection • Data collection • Composition	• Yes • Yes • No
Internal validity	• Do pattern-matching • Do explanation-building • Address rival explanations • Use logic models	• Data analysis • Data analysis • Data analysis • Data analysis	• Yes • Yes • No • Yes
External validity	• Use theory in single-case studies • Use replication logic in multiple-case studies	• Research design • Research design	• Yes • N/A
Reliability	• Use case study protocol • Develop case study database	• Data collection • Data collection	• Yes • Yes

Figure 96 – Case Study Tactics for four research design tests (adapted from Yin (2003: 34))

5.1.6 Limitations of the Study

This study has several limitations. The first limitation – the initial access to theoretical data limited the perception of true size of the problematic. This led to constant discovery of new data regarding the study.

Second limitation – the accesses to entities of case study. As referred before, hostels up till end of 2014 operated on margin of legality, because they had no legal framework in Portugal. So initial attempts to survey these entities were many time declined. This changed slightly later on study, however, then hostels entered their peak of growth, and were more worried of valuable information slipping out of their establishment that could aid the concurrent and harm them. So right there again slight protectionism.

Third limitation of study – a gap between data collection phase and data analysis phase. This issue led to aging of some information, while some aspects actually gained with insight on issue from time distance to it.

Even with these limitations a critical assessment allows to understand the utility of the proposals and the validity of the conclusions. The findings suggest that this approach would also be beneficial in other sectors beside hostels. The same approach could be applied to youth hostels, student residences and other travel accommodations.

5.2 Conclusions

In this exploratory study we analysed the concepts and evaluation approaches of sustainability, interior design, indoor environmental quality, experienced well-being in hostels. Besides individual characteristics of these concepts we also searched for relationships between these concepts.

Furthermore we explored and identified characteristics of new design paradigm and studied possibilities of evaluation of positive design quality in hostels of Lisbon. We also studied context of hostel worldwide and in context of Lisbon in order to characterise the growing socioeconomic and environmental impacts of this system. We found that hostels in Lisbon are still very new concept; in fact,

there are still much confusion in defining both, concept and criteria for what should be considered a hostel.

This study reinforces the recommendation for the introduction of flourishing seeking indicators in interior design practices, which by default implies perceived indoor environmental evaluation with emphasis on emotional bond.

5.2.1 Future Developments

Future larger studies with statistical analyses of data on hostels would be of great interest. Several questions have remained to be resolved; in particular the effect of website design in hostel choice and it's relation to word-of-mouth and feedback on hostel; cross-cultural cross sectional studies comparing hostels in different cities and countries; longitudinal studies observing evolution of identified characteristics over time, maybe comparing if there's differences on *Perceived Indoor Environmental Quality* and *Experienced Well-Being* based on season and weather conditions or other external indicator.

5.2.2 Recommendations

These findings can contribute considerably to the development and evaluation of detection techniques of subjective well-being in hostels, perceived indoor environmental quality and guest emotional bond relation to feedback on hostel.

It would be of great value to transform this exploratory study conceptual model in real-life assessment and design guide tool for practitioners. There was an effort in development of instruments along with development of conceptual model due to fact that development process involved thorough analysis of existing tools. Some of them were not applied in this exploratory study, and some may need improvements, however, the major preparative work was done. We believe that results from user questionnaires would enrich findings from gathered qualitative data.

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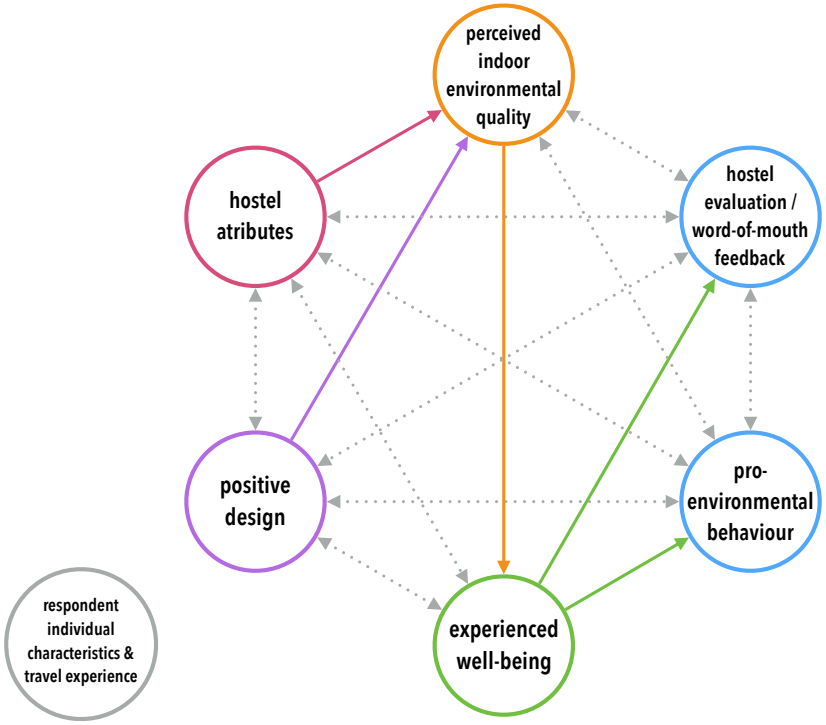
Appendices

System evaluation model



Synthesis of system evaluation model elaborated by Author, see whole model in next page.



Synthesis of system evaluation model organized in hexagonal shape indicating other possible relationships between factors.

provider

predictors | objective & subjective variables

user

mediators | subjective variables

outcome

Hostel Attributes

external
location
TYPE hostel
vs average size
room orientation
amenities
accessibility
transportation
lift
info on web
info on B
info HW
economical
electricity/guest/night
gas/guest/night
price/guest/night
vs average rate
vs average review/day/capacity
internal
TYPE bathroom
TYPE of room
COLOURS of room
TYPE of WC
TYPE of floor
TYPE bed
SIZE of hostel
TYPE of windows
TYPE of wall
social
nr guests / toilet
nr guests / room
nr guests / hostel
nr staff / guests
volunteers
internship
Erasmus/exchange

Perceived Indoor Environmental Quality

visceral level

perceived thermal quality
C° var / time
C° var / diff areas
C° var / same space
time / too cool
cool / warm
time / too warm
perceived acoustic quality
noise / street
noise / other hostel areas
noise other rooms
echo
unwanted sound
perceived air quality
humid / dry
stuffy / fresh
odour
time / mood smell
smells bad / smells good
time / cigaret smell
particle / dust presence
time / unpleasant smell
perceived visual quality
pleasant window view
natural light
artificial lighting
pleasant colour
dark / bright
time / too bright
time / too dark
pleasant furniture
pleasant surface materials

behavioural level

perceived spatial quality
narrow/spacious room
narrow/spacious com areas
way finding
layout
perceived functional quality
socialisation area
space between beds
time / missing storage
storage place
bed size
perceived sense of privacy
time / others see your private issues
privacy sleep
privacy showers
personal space
bad / good vis priv
time / others hear your private issues
perceived upkeep/service quality
upkeep room
clean toilet
clean kitchen
clean bathroom
clean room
clean common areas room
upkeep building
upkeep hostel
time / you see others' private issues
time / you hear others' private issues

reflective level

place attachment
place dependence
place dep1
place dep2
place dep3
place affect
place aff1
place aff2
place aff3
place identity
place id1
place id2
place id3
place social bonding
place soc-bond1
place soc-bond2
place soc-bond3

hostel evaluation / word-of-mouth feedback

HW review/day/capacity	Intent to recommend	Atmosphere rate
B review/day/capacity	Intent to move	Staff rate
HW overall rate	Location rate	Facilities rate
B overall rate	Security rate	Comfort rate

experienced well-being

Negative Feelings
angry
afraid
sad
negative
bad
unpleasant
Positive Feelings
happy
joyful
contented
positive
good
pleasant
SAT / visceral level
SAT / thermal quality
SAT / acoustic quality
SAT / air quality
SAT / visual quality
SAT / behavioural level
SAT / privacy
SAT / spatial quality
SAT / size of room
SAT / upkeep quality
SAT / size of room
Place SAT
SAT / in general
place sat1
place sat2
place sat3

designer

Positive Design Quality

Design for Pleasure / promote emotional response of user

formal / casual
playful / serious
attractive / unattractive
new / worn
space
access
understandable / confusing
physical feel
functionality
Visceral / Appearance
Behavioural / Pleasure of Effectiveness & Use / Functionality
Reflective / Self-image, personal SAT, memories
welcoming atmosphere
perceived unique character
interesting to look at
home-like /institutional
clear idea behind design

Design for Personal Significance / promote aspirations of users

provide control of thermal comfort
natural light
influence future designs of hostels
expresses values of hostel
social interaction between users
provide air quality
provide sound insulation
well maintained
appropriate levels of dignity
artificial lighting
appropriate levels of privacy
promote comfort
promote meaningful experience
meaningful layout of space
promote sense of belonging
connection with exterior (window)
good view
indoor plants
has socialisation area

Design for for Virtue / promote moral values

eco-friendly materials
local materials
reuse clothes
reuse books
positive contribution to local community
durable long-lasting / weak short-life materials
good quality / bad quality materials
natural / synthetic materials
promote environmental awareness
reused materials / equipments
promote sharing behaviour
promote resource saving
flexible design
minimise resources
timeless design
minimise water waste
minimise waste production
electronic resource monitoring

respondent individual characteristics & travel experience

respondent individual characteristics
nationality
residence
income level
occupation
education
age
gender
travel experience
nr days in this hostel
nr stays in this hostel
nr stays in hostel
nr visits to Lisbon

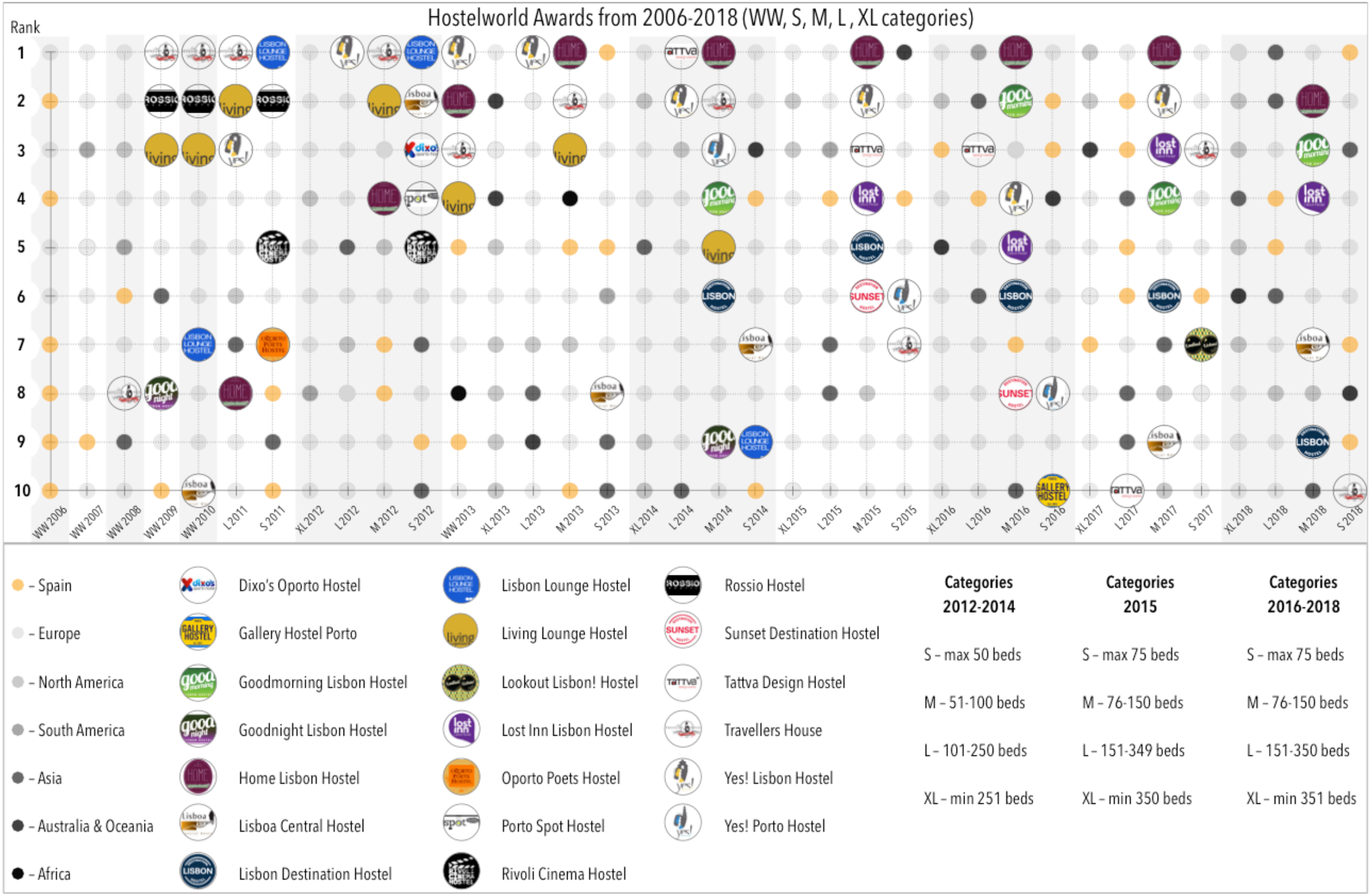
use of the hostel pro-environmental behaviours

energy use
water use
waste management
eco-friendly management of hostel
eco-friendly attitudes of guests
eco-friendly attitudes of hostel

Hostelworld awards from 2006-2018 (WW, S, M, L, XL categories)

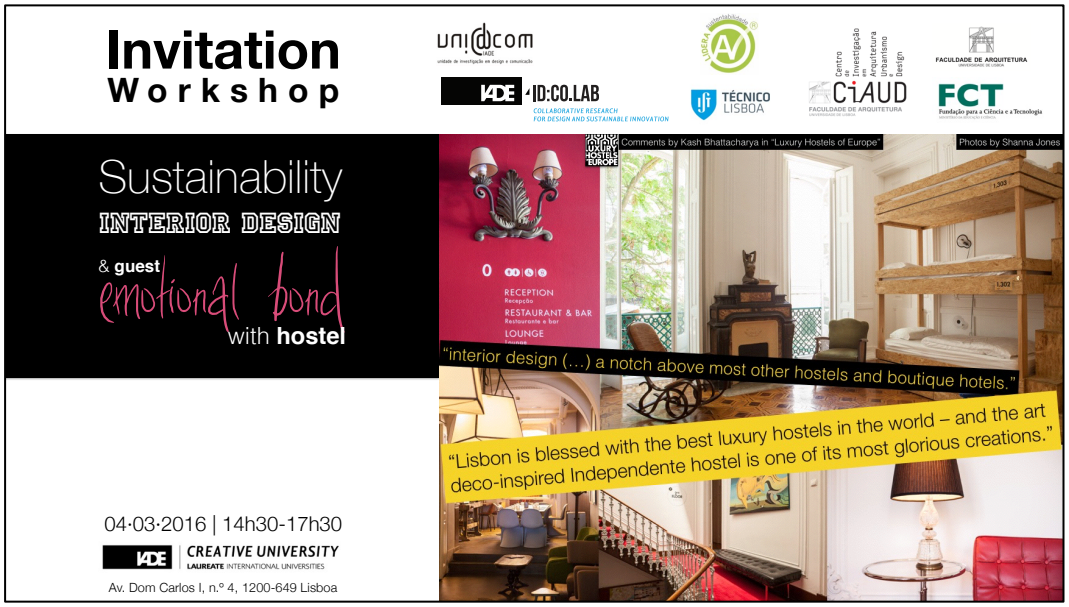
Elaborated by author based on data retrieved from Hostelworld.com[76]

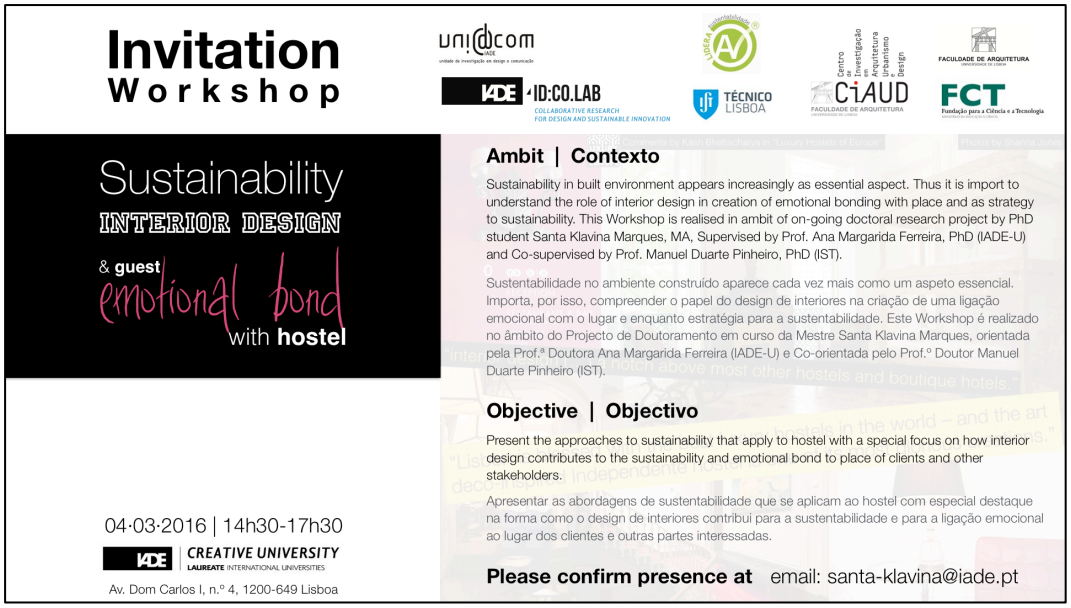
[76] data collected on https://www.hostelworld.com/hoscars between 2012-03-01 - 2018-07-25



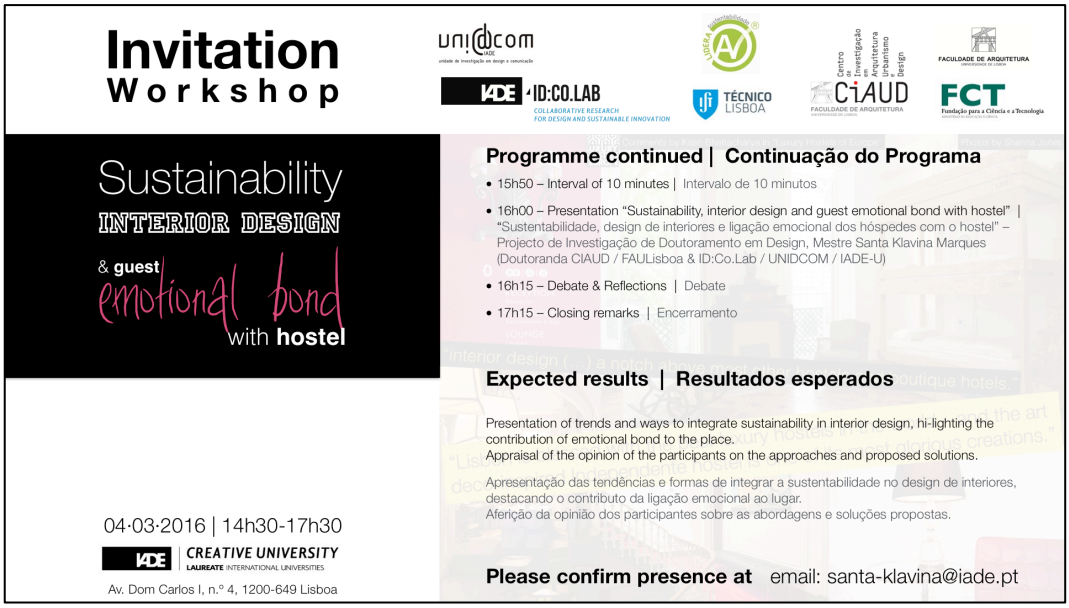
Elaborated by Author based on data collected from Hostelworld.com

Invitation to Workshop






Invitation
Workshop
Sustainability
INTERIOR DESIGN
& guest
emotional bond
with hostel
04·03·2016 | 14h30-17h30
IADE | CREATIVE UNIVERSITY
LAUREATE INTERNATIONAL UNIVERSITIES
Av. Dom Carlos I, n.º 4, 1200-649 Lisboa
Programme | Programa
• 14h30 – Reception of invitees | Receção dos convidados
• 14h45 – Opening | Abertura, objectivos e programa de trabalhos
• 15h00 – Presentation "The Role of Interior Design in sustainability and emotional bond with Hostels" (framework) | "O papel do design de interiores na sustentabilidade e na ligação emocional dos clientes nos Hostels (enquadramento)" Profª Ana Margarida Ferreira (ID:Co.Lab / UNIDCOM / IADE-U)
• 15h05 – Presentation "Emotional Design in Human Robot Interaction" | Design Emocional na Interação de Humano Robô" Profª Hande Ayanoglu e Profª Emília Duarte (UX.Lab / UNIDCOM / IADE-U)
• 15h20 – Presentation "Evaluation of Sustainability in Hostels and Contribution for Creating LiderA Sustainable Destinations" | "A avaliação da sustentabilidade nos hostels e seu contributo para a criação de destinos sustentáveis LiderA" – Prof. Manuel Duarte Pinheiro (IST / LiderA)
• 15h35 – Presentation "Sustainable hostels and Backpackers Behaviours Case studies: Catalonia selected hostels and Lisbon selected hostels" | "Hostels sustentáveis e comportamento dos Backpackers Casos de estudo: hostels selecionados da Catalonia e hostels seleccionados da Lisboa" Tese de Mestrado, Rita Carapinha, Unversitat Politécnica de Catalunya e IST da Universidade de Lisboa
Program continued in next page—> | Continuação do Programa na página seguinte—>
Please confirm presence at email: santa-klavina@iade.pt


Invitation
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Av. Dom Carlos I, n.º 4, 1200-649 Lisboa
Programme continued | Continuação do Programa
• 15h50 – Interval of 10 minutes | Intervalo de 10 minutos
• 16h00 – Presentation "Sustainability, interior design and guest emotional bond with hostel" | "Sustentabilidade, design de interiores e ligação emocional dos hóspedes com o hostel" – Projecto de Investigação de Doutoramento em Design, Mestre Santa Klavina Marques (Doutoranda CIAUD / FAULisboa & ID:Co.Lab / UNIDCOM / IADE-U)
• 16h15 – Debate & Reflections | Debate
• 17h15 – Closing remarks | Encerramento
Expected results | Resultados esperados
Presentation of trends and ways to integrate sustainability in interior design, hi-lighting the contribution of emotional bond to the place.
Appraisal of the opinion of the participants on the approaches and proposed solutions.
Apresentação das tendências e formas de integrar a sustentabilidade no design de interiores, destacando o contributo da ligação emocional ao lugar.
Aferição da opinião dos participantes sobre as abordagens e soluções propostas.
Please confirm presence at email: santa-klavina@iade.pt

List of Independent Hostels in Portugal

Estabelecimento de hospedagem – hostel (source: RNT, 2018)

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
		My Hostel Lisbon	yes	72285/AL
5 Sins Lisbon Hostel	hostel	5 Sins Lisbon Hostel	yes	
		7 Rivers Hostel	yes	79410/AL
		7 Seas 3 Hostel	no	72006/AL
		7 Seas Hostel	yes	60851/AL
		7 Mares Hostel	no	72013/AL
		Hostel Absolute Morning	yes	70650/AL
				56812/AL
Host'Bell Rooms & Suites	hostel	Host'Bell Rooms & Suites	yes	57002/AL
In Belém Hostel	hostel	In Belém Hostel	yes	25259/AL
		ACM Lisbon	yes	
Amelia's House	B&B	A Casa da Maria Amélia	no	
		Alface Hostel	yes	
		Ambiente Hostel	yes	18785/AL
		Aristheu Hostel	yes	75446/AL
		Arty Hostel Lisbon	no	21909/AL
		Asian Everest House	yes	38812/AL
		At Ease Inn - Residence	yes	
Avenue Rooms & Suites	B&B	Avenue Rooms & Suites	yes	6664/AL
Avenue Rooms & Suites	B&B	Avenue Rooms & Suites	yes	7309/AL
				26418/AL

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
				26091/AL
Aykibom Hostel	hostel	Aykibom Hostel	yes	52237/AL
Aykibom Hostel	hostel	Aykibom Hostel	yes	46326/AL
B.A. Hostel (Bairro Alto Hostel)	hostel	B.A. Hostel	no	2738/AL
Back to Lisbon Hostel	hostel	Back to Lisbon Hostel	yes	48019/AL
Baixa Guest House	B&B		no	730/AL
Be Lisbon Hostel	hostel	Be Lisbon Hostel Estefânia	yes	19266/AL
Be My Guest Lisboa	hostel	Be My Guest Lisboa	yes	46253/AL
		Beatriz Hostel	yes	66346/AL
		BreatheLisbon	no	45316/AL
Stay Inn Lisbon Hostel	hostel	Stay Inn Lisbon Hostel	no	46164/AL
				33211/AL
		Brickoven Palace Hostel	yes	26117/AL
		Brothers Hostel	yes	40269/AL
				61174/AL
				41064/AL
				72004/AL
				59941/AL
				62828/AL
				73043/AL
		Capital Hostel	yes	59367/AL
		Casa dos Navegadores	no	
		Cenário Catita Hostel	no	57095/AL
		Charme da Graca	no	

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
City Center Hostel Lisbon	hostel	City Center Guest House	no	
City Hostel Lisbon	hostel	City Hostel Lisbon	yes	21633/AL
		Come Inn Lisbon Estefânia	no	66859/AL
		Hostel CoolPople		67127/AL
		Come Inn Lisbon Penha de França		
		Corujinha Hostel	yes	76400/AL
				1314/AL
		Crescent Rooms	no	
				77236/AL
				21319/AL
		Da Vinci Flat	no	
		Dias e Dominguez	no	
Diamond Dormitories Lisboa	hostel	Diamond Dormitories Lisboa	yes	
Downtown Hostel Lisbon	hostel		no	
Easy Lisbon Hostel	hostel	Easy Lisbon Hostel	yes	45342/AL
				174/AL
				70458/AL
				79995/AL
		Flag Hostel	no	22751/AL
				28432/AL
		Football Hostel	yes	65166/AL
				9802/AL
				75091/AL
				16034/AL
				16035/AL

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
Golden Tram 242 Lisbon Hostel	hostel	Golden Tram 242 Lisbonne Hostel	yes	56644/AL
GoodMorning Lisbon Hostel	hostel	GoodMorning Lisbon Hostel	yes	12826/AL
Goodnign Lisbon Hostel	hostel	Goodnign Lisbon Hostel	yes	
Grapes&Bites - Hostel and Wines	hostel	Grapes&Bites - Hostel and Wines	yes	16071/AL
GSpot Party Hostel - Lisbon	hostel	The Gspot Hostel	yes	10858/AL
		The Gspot Hostel		7317/AL
		The Gspot Hostel		7245/AL
GSpot Party Hostel - Lisbon	hostel	The Gspot Hostel	yes	24326/AL
		Guests House Lisbon	yes	61108/AL
Happy Mike Hostel	hostel	Happy Mike Hostel	yes	46887/AL
Holla Hostel	hostel		yes	30394/AL
Home Lisbon Hostel	hostel	Home Lisbon Hostel	yes	
				11720/AL
		Home 2 Tourists	no	
Hostel 4U Lisbon	hostel	Hostel 4U	yes	
				73386/AL
		Hostel 15	yes	
				68605/AL
Hostel Avenida	hostel	Hostel Avenida	yes	5223/AL
B. Mar Hostel & Suites	B&B	B. Mar Hostel & Suites	no	46169/AL
		Hostel Benformoso	yes	21620/AL
		Hostel Crespo	no	75767/AL

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
		Hostel do Castelo Lisboa	yes	53016/AL
Hostel Graça 28	hostel	Hostel Graça 28	yes	58801/AL
		Lisboa Garden Hostel	yes	49933/AL
Hostel Seven Hills	hostel		yes	71753/AL
		Hostel Seven Hills	yes	23521/AL
				43515/AL
Hub Lisbon Patio Hostel	hostel	Hub Lisbon Patio Hostel	yes	38086/AL
Hub New Lisbon Hostel	hostel	Hub New Lisbon Hostel	yes	19928/AL
		HUUX Hostel	yes	
Impact House	hostel	Impact House	yes	65444/AL
		Inn Chiado-Carmo	no	
Inn Possible Lisbon Hostel	hostel		yes	4442/AL
				19163/AL
Johnie's Place Lisbon Hostel & Suites	hostel	Johnie's Place Lisbon Hostel & Suites	yes	
				64915/AL
		Just Lisbon	yes	64916/AL
		Kab+1 Hostel	yes	25880/AL
Keep Inn Touch	hostel	Keep Inn Touch	yes	42798/AL
		Legend Loft	no	
Lisboa Arte Hostel	hostel	Lisboa Arte Hostel	yes	29084/AL
		Lisboa Central Hostel		25262/AL
		Lisboa Central Hostel		11282/AL
		Lisboa Tu & Eu Hostel	yes	34357/AL

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
		Lisbon Angel's Hostel	yes	66295/AL
Lookout Lisbon! Hostel		Lookout Lisbon! Hostel	yes	46959/AL
		Lisbon Airport Hostel	no	
Lisbon Calling Hostel	hostel	Lisbon Calling Hostel	yes	26501/AL
		LIS Europa Guesthouse Alcantara	no	
Hype Lisbon Hostel	hostel	Hype Lisbon Hostel	yes	18801/AL
Lisbon Chillout Hostel	hostel	Lisbon Chillout Hostel	yes	55912/AL
		Lisbon Chillout Hostel Privates	no	
Lisbon Cosy Hostel	hostel	Lisbon Cosy Hostel	yes	36337/AL
Lisbon Destination Hostel	hostel	Lisbon Destination Hostel	yes	21337/AL
		Lisbon Family Hostel	yes	
Lisbon Forever Hostel	hostel	Hostel Lisbon Forever	yes	15016/AL
		Lisbon Gambori Hostel	no	
		Lisbon Guest House	yes	61313/AL
		Lisbon Happy Hostel by Sweethome Hospedagem	no	
		Lisb'on Hostel	yes	
				20735/AL
		Lisbon Hostel Terminal 3	yes	62171/AL
Lisbon Landscape Hostel	hostel	Lisbon Landscape Hostel	yes	16614/AL
Lisbon Lounge Hostel	hostel		yes	59283/AL
Lisbon Knock	hostel	Lisbon Knock	yes	

Hostelworld Name	HW id	Booking Name	Rents bed	N° register
Lisbon Old Town Hostel	hostel	Lisbon Old Town Hostel	yes	15453/AL
		Lisbon Paradise	no	
Lisbon Poets Hostel	hostel	Lisbon Poets Hostel	yes	50077/AL
		Lisbon Prime Hostel & Rooms	yes	
Lisbon Riverview Hostel	B&B	Lisbon Riverview Hostel	no	
		Lisbon Sé Dreams	yes	71324/AL
		Santa Luzia B&B - HOrigem	no	31716/AL
		Lisbon Bangla	no	
				70901/AL
Lisbon Top Hostel	hostel	Lisbon Top Hostel	yes	20835/AL
		Lisbon View Hostel	yes	61246/AL
		Lisbon World Hostel	yes	21851/AL
Liv'in Lisbon Hostel	hostel	Liv'in Lisbon Hostel	yes	6693/AL
Liv'in Lisbon Hostel	hostel	Liv'in Lisbon Hostel	yes	6682/AL
Live Lisboa Hostel	hostel	Live Lisboa Hostel	yes	
Living Lounge Hostel	hostel		yes	59290/AL
Locals Hostel & Suites	hostel	Locals Hostel & Suites	yes	8854/AL
Lost Inn Lisbon	hostel	Lost Inn Lisbon	yes	3617/AL
				24976/AL
		Braamcamp Sublime Hostel	yes	47506/AL
				13649/AL
		Metro Hostel Lisbon	yes	
		Mini Hostel in Lisbon	yes	57649/AL
		Music Hall Lisbon Hostel	yes	28942/AL

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
Nations Hostel	hotel	Nations Hostel	no	4202/AL
Nest House Lisbon Hostel	hostel	Nest House Lisbon Hostel	yes	11978/AL
				25007/AL
				17302/AL
				7594/AL
				7602/AL
		Nicely Hostel	yes	28331/AL
NLC Hostel	hostel	NLC Hostel	yes	
		No Limit Bairro Alto	yes	34227/AL
No Limit Bairro Alto (Passport Boutique Hostel Lisbon in description)	hostel		yes	34228/AL
				34230/AL
				34229/AL
No Limit Alfama Guesthouse	B&B		no	49656/AL
No Limit Hostel Lisbon	hostel	No Limit Hostel Lisbon	yes	62202/AL
Nomad 64.	hostel	Nomad 64.	yes	58719/AL
				49810/AL
Oasis Backpackers Mansion	hostel	Oasis Backpackers Mansion	yes	3799/AL
				35099/AL
				44947/AL
		Oriente DNA Rooms	no	
		Ourique Hostel	yes	76238/AL
Pátio da Mouraria	hostel	Pátio da Mouraria	yes	40588/AL

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
Hostel Petit Lusa	hostel		no	19911/AL
				66990/AL
				39846/AL
		Pens Sao Joao da Praça	no	
				4422/AL
		PLBH Bicycle Hostel 28	yes	53976/AL
				27744/AL
		Private Accommodation	no	
Reiki Lovers Lisbon Guest House	hostel		yes	
				34270/AL
				34127/AL
				46261/AL
				46273/AL
				56860/AL
				24654/AL
		Riverside Hostel & Lounge Bar	no	
Rossio Hostel	hostel		yes	12817/AL
				24022/AL
Royal Prince Hostel	hostel	Royal Prince Hostel	yes	22312/AL
Safestay Lisboa	hostel	SafeStay Lisbon	yes	
				78007/AL
				75536/AL
		S&S Hostel	yes	56576/AL
		Santos Hostel	yes	28115/AL
				73802/AL
				73805/AL

Hostelworld Name	HW id	Booking Name	Rents bed	Nº register
		Shangri-la Hostel	yes	40560/AL
Shiado Hostel	hostel	Shiado Hostel	yes	
Sky Beds Lisbon	hostel	Sky Beds Lisbon	yes	
		Spin Hostel	yes	4198/AL
Star Hostel	hostel	Star Hostel	yes	45269/AL
Star Hostel	hostel		yes	52803/AL
		Stars Rooms Beatu's	no	
Suave Lisboa Hostel	hostel	Suave Lisboa Hostel	yes	48092/AL
				43089/AL
		Sunset Destination Hostel	yes	21212/AL
Surf in Chiado Hostel	hostel	Surf in Chiado	yes	30944/AL
		Sweet Dreams Hostel		68512/AL
				10836/AL
		Tagus Palace	no	
		Tagus Royal Residence	no	
		Terrace Lisbon Hostel	yes	34361/AL
		The Bridge	yes	66526/AL
The Delight Hostel Lisbon	hostel	The Delight Hostel Lisbon	yes	76572/AL
The Dorm	hostel	The Dorm	yes	36369/AL
				46350/AL
				14255/AL
				14258/AL
				46703/AL
		The Independente Hostel & Suites	yes	
The Loft - Luxury Boutique Hostel	hostel		yes	11192/AL

Hostelworld Name	HW id	Booking Name	Rents bed	N° register
The Swallow Hostel	hostel	The Swallow Hostel	yes	13626/AL
The Swallow Hostel	hostel		yes	23098/AL
This is Lisbon Hostel	hostel	This is Lisbon Hostel	yes	24019/AL
		Train Lisbon Hostel	yes	58644/AL
Travellers House	hostel	Travellers House	yes	
Tuk Tuk Hostel	hostel	Tuk Tuk Hostel	yes	58632/AL
				19160/AL
				4415/AL
Hans Brinker Hostel Lisbon	hostel	Hans Brinker Hostel Lisbon	yes	15792/AL
				8761/AL
Urban Garden Hostel	hostel	Urban Garden Hostel	yes	3365/AL
		Vistas de Lisboa Hostel	yes	
We Love Hostel	hostel		yes	
		Welcome Guest House	no	12877/AL
				58202/AL
		Will be friends	yes	74123/AL
We Love F. Tourists	hostel	We Love F. Tourists	yes	35982/AL
Yes! Lisbon Hostel	hostel	Yes! Lisbon Hostel	yes	2189/AL

Participation in advanced formation

- Course of Aplication of Sustainability Norm of LiderA system for Tourism – Acreditation of Accessors (Optional) *[Curso de Aplicação da Norma de Sustentabilidade do Sistema LiderA no Turismo - Acreditação de Assessores (Opcional)]* – 2013.05.22.-23. at FUNDEC/IST-UTL, lectured by Manuel Duarte Pinheiro, Ph.D;
- Workshop of Sustainable Destinations – Less Carbon, Better Environment, More Clients *[Destinos Sustentáveis – Menor Carbono, Melhor Ambiente, Mais Clientes]* – 2014.04.08. at Sintra Monserrate Palace, initiative by LiderA;
- Intensive course for Pos-Graduation entitled 'Post-Ocupational Avaliation of Built Environment' *[Avaliação Pós-Ocupação do Ambiente Construído]* – 2014.09.30-10.03. at FA, ULisboa, lectured by Simone Barbosa Villa, PhD (FAUeD/UFU) and Tânia Liani Beisl Ramos, PhD (FA-ULisboa).
- Worhshop 'Questionnaire as a correlation tool in research' *[Questionário como ferramenta de correlação na investigação]* – 2018.04.09. at IADE– Universidade Europeia, lectured by Susana Gonzaga (ID+).
- Worhshop 'Introduction to exploratory analysis of data in process or reseach with SPSS' *[Introdução à análise exploratória de dados no processo de investigação com a ferramenta SPSS]* – 2018.04.09. at IADE–Universidade Europeia, lectured by Joaquim Casaca (UNIDCOM/IADE).

Attendance in national & international conferences

- International Seminar "Design Innovation: Regional Creative Industries" – 2013.05.13. at Auditorium Casa das Histórias Paula Rego, Cascais, promoted by Cascais City Hall in partnership with SUSdesign;
- Congress of LiderA "Sustainable Urban Acupuncture" *[Congresso LiderA 2013 "Acupunctura Urbana Sustentável"* – 2013.05.28. at IST-UTL, Lisbon, Portugal;
- International Conference Cumulus Dublin 2013 "More for Less – Design in and Age of Austerity" – 2013.11.07.-09. at NCAD, Dublin, Ireland;

- Conference "The Role of Tourism in Regeneration of Traditional Neighbourhoods of Lisbon" *[Conferência "O Papel do Turismo na Regeneração dos Bairros Tradicionais de Lisboa"]* – 2014.03.25. at MUDE, Lisbon, event in ambit of *"Semana da Reabilitação Urbana de Lisboa 2014"* organized by AHP *(Associação da Hotelaria de Portugal e Vida Imobiliária)*;
- International Conference on Applied Human Factors and Ergonomics 2014 (AHFE 2014) – 2014.07.19.-23. at Jagiellonian University, Kraków, Poland.

Publications

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2013, Nov 7-9). *Interior Design contributions for built environment renewal that considers sustainability and well-being: case study of hostels in Lisbon.* [Abstract.] Cumulus Dublin 2013 Conference Programme Book. Ed. Alex Milton. pp. 142-143. Available at: http://www.cumulusdublin.com/resources/pdfs/cumulus_dubin.pdf

Full paper was solicited on 2014.02.07. by Conference comity but we didn't see it published nor received any feedback even after later requests of any information. Full paper is available on Author's ResearchGate platform profile.

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2013, Nov 7-9). Interior Design contributions for well-being and sustainability: case study of hostels in Lisbon. *Senses & Sensibility in Florianpólis: Advertising, Design, Fashion, Marketing, Photography and Visual Culture in the Right Place. Proceedings Book of the 7th UNIDCOM/IADE International Conference. Florianpólis, Brazil. pp. 270-278. ISBN: 978-989- 8473-11-0 Available at: http://www.sensesandsensibility.org/docs/SensesandSensibility2013_Proceedings_Book.pdf*

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2014, Jul 19-23). Sustainability, Interior Design, and Comfort in Travel Accommodations. In T. Ahram, W. Karwowski, and T. Marek (eds.) *Proceedings of the 5th International Conference on Applied Human Factors and Ergonomics AHFE 2014, Kraków, Poland. (pp.2488-2498)*

Oral communications

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2012, Oct). *Research Proposal. FA, Universidade de Lisboa,* Lisbon, Portugal.

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2013, Feb). *1st Research report for discipline "Laboratório II". FA, Universidade de Lisboa,* Lisbon, Portugal.

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2013, Nov 9). *Interior Design contributions for built environment renewal that considers sustainability and well-being: case study of hostels in Lisbon.* More for Less – Design in Age of Austerity. Cumulus Dublin 2013 Conference. NCAD, Dublin, Ireland.

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2014, Jul 22). *Sustainability, Interior Design, and Comfort in Travel Accommodations.* The 5th International Conference on Applied Human Factors and Ergonomics AHFE 2014, Jagiellonian University, Kraków, Poland.

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2015, Jan). *2nd Research report for discipline "Laboratório II". FA, Universidade de Lisboa,* Lisbon, Portugal.

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2016, Mar 4). *Sustainability, Interior Design, and Guest Emotional Bond with hostel.* Workshop. IADE, Lisbon, Portugal.

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2018, Apr). *3rd Research report for discipline "Laboratório III". FA, Universidade de Lisboa,* Lisbon, Portugal.

Klavina, S., Ferreira, A. M. & Pinheiro, M. D. (2019, Jan). *Dissertation Public Discussion. FA, Universidade de Lisboa,* Lisbon, Portugal.