Creative Scholarship Acceptance: Is it the Same in the United States and Europe?

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ABSTRACT

The purpose of this research is to determine whether institutions of higher education abroad have made changes in the acceptance of creative scholarship. This is continuation of research comparing institutions of higher education in the United States and Europe.

METHODOLOGY

- Reviewed documents from American University in Paris and REF 2014 from the United Kingdom
- Compared to original research (Adams & Meyer, 2014).
- Trend analysis when reviewing tenure and/or promotion documents.

American University in Paris	United Kingdom: RAE vs REF
No change in acceptance of creative scholarship	Number of panels & subpanels reduced, additional assessors
Includes professional or creative achievements	Standard weighting between elements
Creative scholarship and juried exhibits, not specifically listed	Standardized number of criteria assessment & data requirement
Research sent out for external comments	Esteem no longer distinct element of assessment as was for the RAE
	Assessment of non-academic impact of research added
	Measures to promote equality and diversity
	REF a definition of research
	REF Definition of impact

IMPLICATIONS

Provides insight that can be use within the United States

- REF emphasizes equality, equity and transparency in the assessment for all types of research
- American University in Paris and the REF established that all forms of research are important
- To understand the impact of research across disciplines, experts areas must be included process
- United States review process by others, lack of respect for non-traditional scholarship could be addressed

Design Principles & Practices

Design Teaching in Brazil:

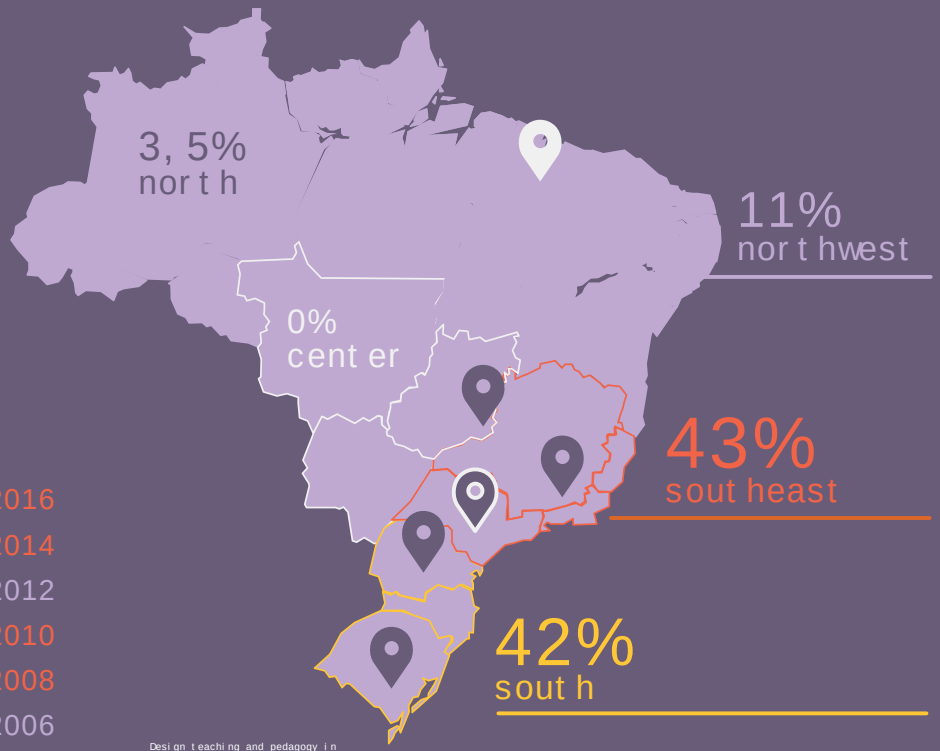
14 years of design pedagogy papers in P&D Brazilian Congress.

P&D Design Congress is one of the most relevant events in Brazilian scenario. In twenty-four years and twelve editions, this event have been associated with high quality papers and researches, witch are selected by many relevant scientific journals. This research is focused in design teaching and pedagogy related papers. Utilizing bibliometrics analysis method, two hundred and seventy papers were selected in eight editions, from 2002 to 2016. This fourteen years of published works were systematic reviewed using nine categories.

PAPERS PER REGION IN 14 YEARS:

The editions locations also point to these regions, and only two of eight events were held in central and northern regions.

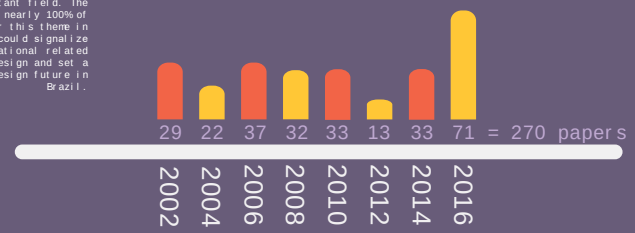
CONGRESS LOCATIONS



THEMES	
DESIGN AND EDUCATION	2016
DESIGN SOCIAL ASPECTS	2014
DESIGN PEDAGOGY	2012
DESIGN AND TEACHING	2010
TEACHING AND RESEARCH	2008
	2006
	2004
	2002

The themes and sub themes related to design teaching for submission of works shows continuous changing. The last two editions, however, were more specialized and meticulous organized.

Design teaching and pedagogy in Brazil is an important field. The increase of nearly 100% of published papers for this theme in P&D's 2016 edition could signalize an interest on educational related matters for design and set a renewal for design future in Brazil.



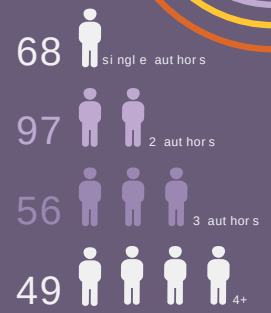
TOP 10 UNIVERSITIES:

UFRGS
UFSC
PUC RJ
UNIRITTER
UNESP
UEMG
UFPR
UNIVILLE
UFPE
UTFPR

Results show a south/southeast region supremacy with 85% of total published works and ranking nine of the top ten universities.

AUTHOR'S:

Two hundred and two articles were co-creations and nearly 50% of authors are doctors and PhDs.



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Design Principles & Practices

DESIGN + CONTEXT

PROBLEM BASED LEARNING IN A DESIGN STUDIO

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INTRODUCTION

The translation of academic skills to real-world scenarios remains a challenge for interior design students. To reconcile this fact, educators and instructors assist their students during the design process with first-hand experiences using pedagogical tools. Among others, problem-based learning (PBL) initiates students' autonomy in critical inquiry of the problem's nature, considerations of clients' requirements, and evaluations of potential answers (Galford, Hawkins & Hertweck, 2015; Huber, Waxman & Clemons, 2017).

ABSTRACT

The authors incorporated PBL in a seven-week project of a sophomore level studio in the Interior design program at a land-grant Midwest university. 32 sophomores were engaged in different stages of the design process while designing the education wing of Minnesota's official natural history museum in collaboration with Perkins+ Will, a global architecture and design firm. Students explored design problem-solving using theoretical approaches and had the unique opportunity to interact with stakeholders and practitioners who participated in the creation of the Museum. These conversations fully demonstrated the context of the design-challenge and, therefore, helped the undergraduates to gain insights about the pros and cons of their solutions. For seven weeks, in teams of three, students immersed themselves in a diverse real working environment. They learned to communicate, collaborate, and compromise to accomplish a common goal of finding the most relevant design solution for the challenge at hand. The authors collected students' reflections about their experiences and discusses their findings in this poster.

BACKGROUND

Four fundamental characteristics of PBL are (1) structuring the context-related knowledge, (2) developing effective reasoning, (3) acquiring self-regulated skills, and (4) elevating learning motivation (Barrows, 1986, p. 481, 482). Based on that framework, new insights about the process of PBL consists of (1) introduction to problems, (2) operation of critical thinking process, (3) identification of self-regulated learning needs, (4) application of gained understandings to solve problems, (5) reflection on what learned (Albanese & Dast, 2013, p. 63).

Figure 1. The compatibility between PBL and the Backward Design process (modified and developed from Huber, Waxman & Clemons, 2017).

These characteristics are compatible with the stages of the backward design process in design education. Unlike traditional instruction approach, backward design first involves specifying situational factors and learning goals. Then it addressed correspondent assessment and activities (Huber, Waxman & Clemons, 2017, p. 83). Stage (1) and (2) of PBL present the problems, which offer situational factors (e.g., contexts and constraints) that students need to process through critical reasoning. Whereas, in stage (3), students question themselves about what skills they need to learn in this problem-solving task. In stage (4) and (5), students apply and review the efficacy of their works in unfolding the problems. These phrases resemble the assessment and activities components of the backward design process from the students' perspective (Fig. 1). Hence, this pedagogical tool allows students to adapt their learning experiences to the project goals.

RESEARCH QUESTION & METHODOLOGY

" Does PBL promote positive learning experiences for interior design students in a typical studio classroom? "

As the PBL framework has its origination and prominent applications in business and medical educations (Albanese & Dast, 2013), the authors questioned its efficiency in design education. At the end of the PBL project, the authors looked into the design statements and outcome reflections of students. Using Qualitative (summative) content analysis, they examined their pre-defined keywords in students' textual materials (Hsieh and Shannon, 2005). The keywords included five design issues addressed and scopes of understanding. The textual materials of students included design statements in project binders and responses in an open-ended questionnaire of learning experience.

SAMPLE & CONTEXT

This PBL included 32 sophomores engaged in the seven-week design process of the Minnesota official natural history museum in collaboration with Perkins+ Will, a global architecture and design firm. The museum features a digital planetarium, high-tech exhibits, wildlife dioramas, and outdoor learning gardens for K-12 students (Bell Museum, 2018) (Fig. 2). In teams of three, students designed the South education wing in the first level with regard to the shell, structure, and vertical circulation.

Figure 2. Aerial landscape, experience plan, and East façade of Bell Museum building (Retrieved from Perkins + Will's presentation, 2018).

RESULTS

Five key themes defined (by authors) and verified (by textual materials): sense of place, connection to nature, interactive technology, sustainability & universal design.

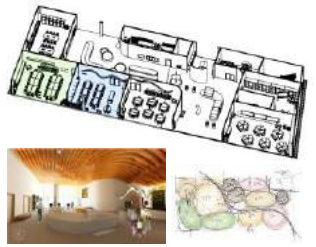

Figure 3. Schematic diagram, axonometric and 3D renderings of a proposed design (Source: Watanabe K., Geevie W., Olson C., 2018).

Sense of place

All teams showed an awareness of how users perceive the designed spaces, especially the K-12 students. Having spatial fluidity helped this audience engage with the educational wing based on their age groups. One team derived their concept from the flow of a river, focused on arranging display cases in an open-ended order (Fig. 3). They noted: "The free flowing space of the touch and see lab coupled with the structure of the collections area will provide a safe/ enjoyable atmosphere for discovery."

Connection to nature

Several teams proposed design solution with strong connection to nature. One of them integrated "Fibonacci's Sequence" in the centralized cylindrical aquarium in Touch and See area while arranged classrooms and other facilities around it (Fig. 4). The team stated: "These patterns in nature inspired the centralized form and bringing together students of various ages and educational levels to the educational wing of the Bell Museum." Another team derived their concept from Perkins + Will 10-degree geological diagonal edge design parti (Fig. 4).

Interactive technology

Besides design elements, the teams also incorporated technology into their solutions on different levels. A student recalled: "I learned that the community cares a lot about educating children and collaborative learning." From touchscreens to interactive surfaces monitored by projectors, the applications varied on a team basis.

Figure 4. The Fibonacci spiral-inspired and the 10-degree-leaf-vein-inspired educational wings (Source: Maholik C., Ritter L., Rastall A., 2018; Li P., Newland K., Courington S., 2018).

Sustainability

All teams addressed sustainability in their choices of materials and FF&E. One team used both LEED and NGBS guidelines in choosing materials. Another team used C2C certification, a guideline focused on eliminating of waste (Fig.5). These decisions showed the commitment of all the teams in proposing the design solutions that were visually pleasing and environmentally friendly.

Universal design

Parts of universal design, the teams took into account the diversity of the K-12 students with their ages and sizes. The teams then focused on using furniture with anthropometric proportions to support the wide range of sizes of the children (Fig. 5). One of the groups explained their strategy: "A variety of moveable and flexible height furniture in the classrooms will allow ample exploration of creative ideas."

Figure 5. Sustainable materials and universal furniture (Source: Blaney B., Burroughs M., Rueger E., 2018).

CONCLUSION

The Bell Museum personnel, Perkins + Will representatives, and the instructors were pleased with the in-depth research and design solutions of the student teams. Through the teams' reflections of their design solutions and process, they expressed ample understanding of the site, the existing building, constructional structures, the community, and K-12 students. Through this PBL experience, the teams were able to bridge the gap between their educational and practical experiences. Above all, they learned how to appreciate the contexts and community as the core of a successful design while working with stakeholders.

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Design Principles & Practices

Mobilizing the Design Process within Compensated Work Therapy for Military Veterans at a Department of Veteran Affairs Ambulatory Care Center

THE OHIO STATE UNIVERSITY

Keywords: Design Process, Compensated Work Therapy, Military Veterans, Emerging Technology, Capabilities, Empowerment

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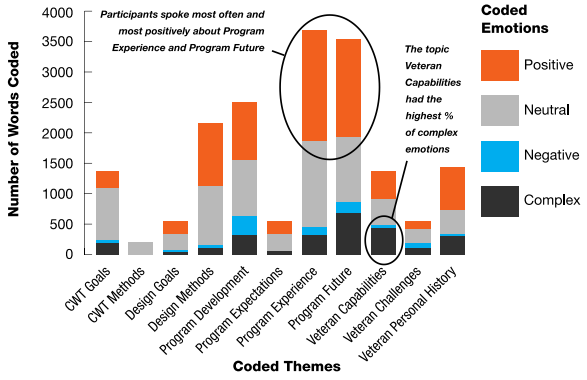
> ***"I think we can ask our veterans to do a lot more, even with the stuff, the baggage we come with… we're still capable."***
> — VA Innovation Specialist, Workshop Series Admin; Coded Emotionally "Complex" During Analysis

> ***"You are unlocking doors. You're taking out barriers. You're giving them self-worth. You're giving them a sense of integrity. You're giving them... self-confidence."***
> — CWT Admin, Workshop Series Admin; Coded Emotionally "Positive" During Analysis

Figure 1: Military Veteran Participant Interview Responses, Coded



Introduction

This poster presents work the author[1] explored during the course of his graduate study. Initially undertaken as a community service project within a local nonprofit, this pilot study focused on a workshop series which mobilized design process within Compensated Work Therapy (CWT) for military veterans. By examining veteran designed objects and prototypes along with participant interviews, this poster illuminates effects of design process mobilization within CWT.

Background

In 2018, the Chalmers P. Wylie Veterans Affairs Ambulatory Care Center (VAACC) located in Columbus, Ohio worked with local nonprofit Local Tech Heroes to develop a CWT program to familiarize veterans with emerging technologies. This was based on a belief held by local CWT leadership that veterans' capabilities outstripped expectations placed on them by current CWT programs, which often focus on menial labor.

While looking into the idea of empowering military veterans through new CWT programming, Local Tech Heroes cooperated with VAACC CWT organizers to pilot a 4-session workshop series which mobilized the design process **(Table 1.1)**. Entitled "Improve Our VA", the series challenged veteran participants to learn and utilize design process topics, then propose solutions to problems they identified around the VAACC while using emerging technologies targeted by CWT administration **(Table 1.2)**.

Research Question

- What do the objects participants make and the views participants express during interviews reveal about mobilizing design process within a CWT workshop series for military veterans?

Methods

Program activities were recorded each week in photos and video, as were participant journals. These were evaluated against weekly learning objectives, design processes and technologies for embodiment within veteran designed objects.

One week after the completion of the workshop series, the author[1] conducted open-ended interviews with program participants, which were recorded and transcribed. The author[1] passed the interviews through three cycles of coding, blending qualitative research methods, both inductive and deductive, as described by (Corbin & Strauss, 2008) and (Saldaña, 2009).

Participants

- Four military veterans participated as students
- Three military veterans participated as administrators
- Interviews were conducted on three students and two administrators
- One student interview could not be included due to poor audio recording quality

Results

Examination of veteran designed objects and prototypes revealed (Table 1.3):

- A strong embodiment of the majority of design process topics mobilized within the CWT workshop series
- A strong embodiment of the majority of emerging technologies targeted by the workshop series

Analysis of interviews with participants revealed (Figure 1):

- Mostly positive or neutral emotion regarding the CWT program
- Mixed emotions regarding future employment stemming from the short-term workshop series
- Complex emotions regarding veteran capabilities

Discussion

Veteran designed objects embodied the full range of design process topics and technologies targeted within the CWT workshop series. This suggests the design process was an effective catalyst for familiarizing participants with targeted technologies.

In the view of the author[1], two highlighted quotes (top-left of poster) summarize key takeaways from interviews:

- Veterans, even though generally viewed as disadvantaged, see themselves as highly capable individuals
- Future CWT programming can be improved by "asking more" of its participants as this workshop series did, which may in turn increase veterans' capabilities, empowering them.
- This pilot workshop series positively affected the participants beyond familiarizing them with targeted technologies; veterans also perceived psychological benefits.

These takeaways, however, raise further questions:

- How do design and CWT view "capability" and "empowerment"?
- How might the above be further promoted within CWT?
- How can we evaluate and validate the perceived psychological benefits described by participants in interviews?

Limitations to this research include:

- A small participant sample size
- Interviews coded by a single researcher[1]
- Methods limited to examining post-program interviews, artifacts

Challenges and roadblocks encountered:

- Limited funding from local and national VAACC sources
- Limited space for holding workshop sessions
- Limited military veteran recruitment
- Ambiguity of some CWT program requirements

Conclusion

Within the workshop series, VAACC military veterans were able to become familiar with design processes and targeted technologies while modifying their environment for the benefit of their community. Veteran interviews, along with the objects they created, suggest positive effects of mobilizing design process within CWT programs, perhaps most importantly by bridging the perceived gap between veteran capabilities and the low expectations placed upon them by current CWT programs.

Future research might focus on:

- Long-term impact of design process within CWT programs
- Increased program scale (participants, program length)
- Additional design processes and/or technologies
- Specific evaluation metrics for CWT
- Multidisciplinary assessment of possible mental health benefits

References

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Table 1.1: Workshop Schedule

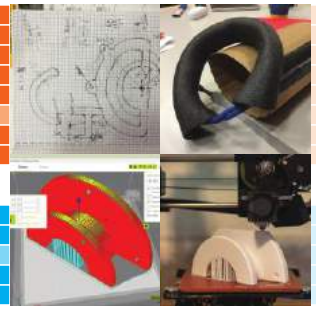
Week 1	Week 2	Week 3	Week 4
Design Process			
Strong			
Strong	Some		
	Strong	Some	
Some	Some		Strong
Strong	Strong	Some	Strong
	Strong	Some	Some
	Some	Strong	
Some	Some	Some	Strong
Technologies			
Strong	Strong		Strong
	Some	Strong	
		Some	
Some			Strong
Some		Strong	Some

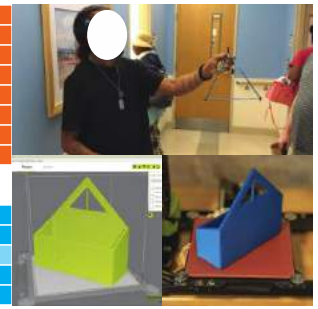
Table 1.2: Workshop Topics

Design Process	
• Problem Seeking / Problem Structuring	Strong
• Concept Sketching / 2D Visualization	Strong
• Low-Fidelity Prototyping	Strong
• Concept Communication / Presentation	Strong
• Concept Critique / Discussion	Strong
• User Testing	Some
• 3D Visualization	Strong
• Documentation	Strong
Technologies	
• Video Recording (iPad)	Strong
• 3D Modeling Software (TinkerCAD)	Strong
• 3D Modeling Software (Solidworks)	Some
• 3D Slicing Software (Cura)	Strong
• 3D Printer (Lulzbot Mini)	Strong

Table 1.3: Workshop Topics Embodied in Veteran Designed Objects

Concept A: Cord Management System	Concept B: Custom Tool Cover	Concept C: Portable Bathroom Caddy
Strong	Strong	Strong
Strong	Strong	Strong
Strong	Strong	Strong
Strong	Strong	Strong
Strong	Strong	Strong
Some	Strong	Strong
Strong	Strong	Strong
Strong	Strong	Strong
Strong	Strong	Strong
Strong	Strong	Strong
Strong	Some	Strong
Strong	Strong	Strong
Strong	Strong	Strong





Strong Emphasis	Some Emphasis	No Emphasis
Strong	Some	

Workshop Topics are emphasized in the Workshop Schedule

Workshop Topics are embodied in the Veteran Designed Objects

Strong Embodiment	Some Embodiment	No Embodiment
Strong	Some	

Design Principles & Practices

Smart home service blueprinting; How can we interact with space?

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Introduction

A smart environment is a space rich in devices and software that enable people to interact with their physical environment and network services. The smart environment makes the interactions between humans and systems variable and minimizes human interference to the system. In the context of the Internet of Things, smart home designs will require that each object communicate with each other, learn how to interact between devices, and constantly understand the interactions between space-user-object. So how does smart home affect the daily life and behavior of residents? This study proposes a visualization tool that can collectively analyze the interactions between space, users and objects in a smart residential environment.

Research keywords: Smart home, Service blueprint, Space-user-object interaction

Smart home & Space-user-object interaction

Smart Home in IoT environment is an intelligence space where various interactions take place. Intelligent space is a space where devices and software that enable people to interact with their physical environment and network services are plentiful, and where the physical and computing environments are integrated to actively support people's activities.

Advances in HCI technology make the interface more realistic and users interact with the computer in a more direct and routine manner. Jacob et al. (2008) said that with computing environments penetrating into reality, all new interactions would be more common than ever and would be enhanced based on the user's existing knowledge. They named these aspects of human-computer interaction as Reality-Based Interactions and divided them into 4 categories.

Naïve Physics
- Interactions based on basic principles or common sense knowledge about the physical world which include concepts like gravity, friction, velocity, th e persistence of objects, and relative scale.

Body awareness & Skills
- Interaction with body awareness(the understanding about their own bodi es relative position, moving range, and so on)independent of the environ ment such as two-handed interaction and whole-body interaction.

Environment awareness & Skills
- Interaction based on user's object manipulation skills with sense of orienta tion and spatial understanding in virtual areas, such as picking up, positon ing, and arranging object.

Social awareness & Skills
- Social interaction based on awareness of the presence of others, such as co mmunication, trade, and collaboration with others.

Figure 1. 4 types of Reality-Based Interaction (Jacob et al. 2008)

Service blueprint

Service blueprinting, pioneer by Shostack (1982) means detailed schematisation of all service delivery processes from the perspective of users and service providers and stakeholders. Bitner et al. (2008) divided the components of the service blueprint into Customer Actions, Onstage/Visible Contact Employee Actions, Backstage/Invisible Contact Employee Actions, Support Processes, and Physical Evidence.

In this study, the components of the Smart Home Service Blueprint, which allow visualisation of various interactions in the residential environment, were classified as follows:

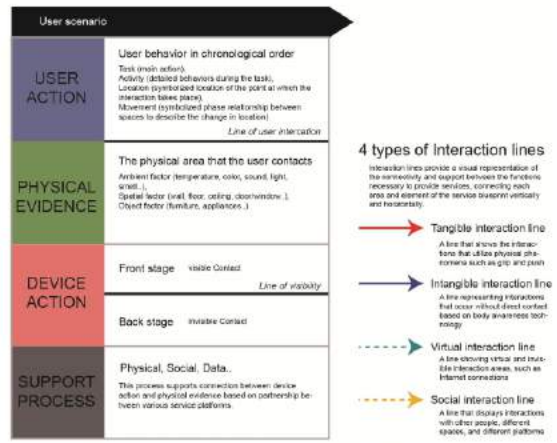

Figure 2. Smart home's Service blueprint model

Sample Case study

In order to understand the changing patterns of interactions in smart environments, two situations were assumed: (1) non-smart home environment, (2) smart home environment, especially with an AI speaker. The main role of the AI speaker is to focus on device control through connection with other devices and the provision of services through connection with other services. AI speakers provide hands-free controlled smart home environment by utilizing a more easily controlled voice recognition interface than a touch-type interface centered on a smart phone. The assumed situation for case study is the one that wakes up in the morning and turns on the lights. In non-smart home environment and smart home environment, various interactions during the lighting process were visualized as service blueprint.

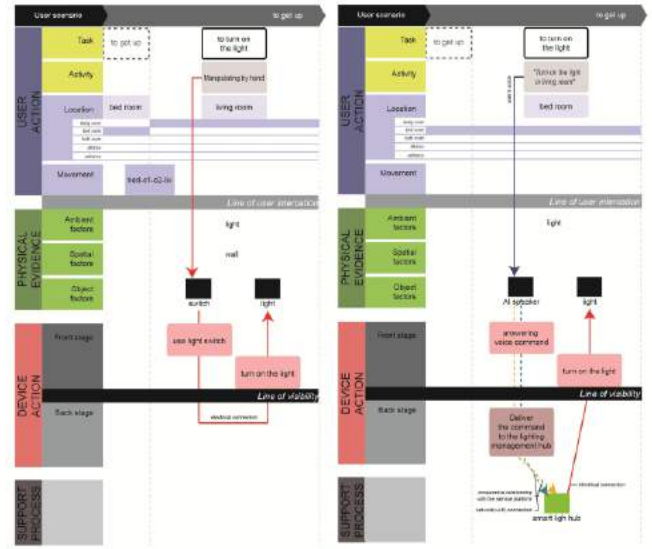

Figure 3. Sample Case Study (1)non-smart home (2)smart home

Discussion

The variety of smart devices reduces the user's direct interaction and strengthens the interaction of device action and support processes. In particular, considering the transparent action of the intelligent environment that automatically responds and supports regardless of time location and user awareness, support processes in smart home are expected to show various interactions in proportion to the increasing number of devices as they support the connection between device action and physical evidences based on the partnership between various service platforms.

This research is meaningful in that it visualizes the space-user-object interaction of smart home environment that shows various interaction aspects in IoT environment. These visualizations can be used to identify the overall process of a smart environment. In addition, if actual measurement data such as time required, distance, etc. are combined, this could also be used as an analysis tool for usability.

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The Pet Match Project

Design Thinking, Rapid Prototyping & User Testing for Audience Understanding

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Introduction

Many individuals are not adequately prepared for the responsibilities of having pets, which can result in animals being relinquished to shelters, re-homed or abandoned. The difficult part of the process is finding a pet that fits a prospective owner's lifestyle.

The Pet Match project, attempts to maximize successful pet adoption by engaging design thinking, rich storytelling, and user experience design to create a website that educates audiences on the responsibilities of pet ownership and reduces the number of pets relinquished to shelters after initial adoption.

Research Aims

- Explore how user-centered design methodologies can help designers develop products that better meet the needs of diverse users within a particular audience.
- Implement user-centered design, rich storytelling, and user experience design to create a pet adoption experience that helps individuals choose a pet that fits their lifestyles to reduce dog relinquishment rates.

Methodology

Expert interviews, location-based observations, and design thinking were engaged to create an initial low-fidelity prototype. Low-fidelity prototypes were used to solicit feedback about the proposed Pet Match concept, content, and design. Five participants were selected to test the low-fidelity, paper prototype, and based on their feedback, a mid-fidelity prototype was developed and tested with a new set of users.

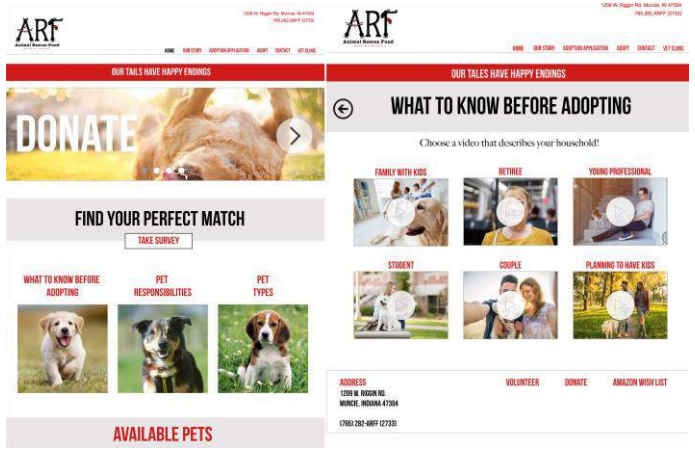

Figure 1. *The homepage of the website (left) features a pet match survey and links to informational videos and information about available pets at local shelters. Also featured prominently a video gallery (right) with first-person storytelling.*

The System Usability Scale (SUS) and User Experience Questionnaire (UEQ) were administered after each user test, and results were analyzed to improve the site.

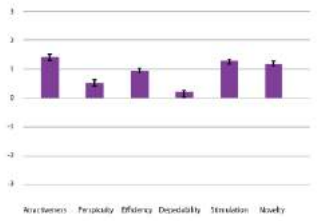

Figure 3. *UEQ results, low-fi proto. Neutral evals in three categories.*

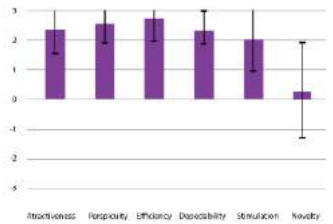

Figure 4. *UEQ results, mid-fi proto. Positive evals in all categories.*

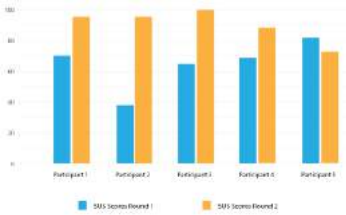

Figure 5 (left). *SUS comparison low-fidelity (score, 64.5–below average) and medium-fidelity (score 87.5–above average)*

Results & Summary

Observational research at competing organizations was useful. The information gleaned from comparing animal rescues and pet stores helped better understand the problem space from different perspectives. Observations at pet stores were valuable because the goals for for-profit organizations were very specific: sell animals. Analyzing these marketing and sales strategies and observing customer interactions with employees and animals in these settings, allowed us to address specific audience needs.

Design thinking sessions were integral in the development of the first prototype because they explored the different ideas and opinions stakeholders have on this topic. Many individuals had different ideas about what types of animals fit with different lifestyles, and by employing user-centered design strategies, developers were able to find data patterns most relevant to providing a thorough and engaging user experience. Design thinking also provided an opportunity to engage with a diverse set of potential users, including people who adopted pets from shelters in the past, had previously relinquished pets, and/or purchased animals from from stores or breeders. Empathizing with a diverse audience in the early phases of the project, allowed developers to better understand how to reach people. This also demonstrates the value of including users on the fringes of the product scope to better incorporate their thoughts and needs.

Expert interviews were valuable because they solicited input and ideas from individuals who have worked in this problem space. Their perspectives illuminated concepts and ideas that were previously unknown or underappreciated, like the stress workers in this industry experience. By empathizing with them, developers considered their concerns to meet their needs.

Usability questionnaires and the post-test interviews were valuable in documenting the progress of the design. Early results found participants considered the overall design cumbersome to use. This data allowed the team to focus resources on fixing the deficiencies before the next round of tests.

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Architectural Design for Local Sustainability

An Olive Oil Production Plant in Mudanya, Bursa Province

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Olive Cultivation Counties in Bursa (adapted from google earth)

In order to achieve sustainability, encouragement of local agricultural production by processing local farm products with traditional or modern methods by boutique enterprises is as important and effective as adaptive reuse of industrial heritage buildings. The olive processing plant introduced within the scope of this paper is an example of how this approach will support local production by providing quality products and support sustainability in its near environment. Architectural design criteria of this building have been stemmed from the requirements of environmental, socio-cultural, and economic sustainability. This study presents and discusses the power and importance of architectural design for achieving sustainable urban development via explaining design process of an olive oil production building in Mudanya, Bursa, Turkey, where olive is one of the main agricultural crops.

The olive oil production plant consists of a total area of 2880 square meters. It is constructed in Göynüklü, one of the villages of Mudanya county, in Bursa/Turkey. As most of the other villages in Mudanya, Göynüklü is famous for its olive groves. The plant site is a land with an area of ten acres of olive groves. This location is very advantageous because it allows the owner to squeeze all the crops collected from the surrounding olive groves around in a short time. One of the important requirements for obtaining quality olive oil is to keep the time at minimum amount between olive gathering and tightening. The architects' location preference for the plant building let the entrepreneur to meet this requirement.


Göynüklü Village in Mudanya (adapted from google earth)

By taking into consideration the sustainable architectural design criteria in the design of the building, it is a basic architectural concern to integrate with the natural environment starting from light, textures and color. The decisions about the location of the building, the building materials preferred to be used and proportions of the building parts served to this aim. Another important reason for preferring concrete, baked earth materials and natural stones as building materials is that the building envelope, which is constantly exposed to the hard climatic conditions in the present environment, can be protected without great maintenance. In this way, the building complex will contribute to ensuring environmental sustainability (Figure 9-10). The gray water treatment section, which is designed in the plant complex, allows reuse of abundant amounts of water used in the olive processing process in irrigation and reservoirs after treatment. Reuse of gray water in this way represents not only the architects, but also the entrepreneurs' sensitivity to ecological sustainability.

The priority of the architects of this plant complex who are the authors of this study was to give minimum harm to the topography and flora of the natural environment. Another important factor in shaping the building was the idea of connecting the production space and the social spaces with a semi-enclosed backbone, which will allow to assess the natural slope of the site in the best possible way.

The building is terraced in different levels to take up the slopes. These main decisions constitute a harmonious whole with the natural area in which the plant complex is designed. The design approach has been clarified by interpreting the general architectural features of traditional oil production plants, which are important examples of industrial heritage, with a modern way.

The plant complex contains the complete olive oil producing cycle from pressing to storage, from administrative and marketing to a tasting and selling unit. It includes two main buildings both of which contains two stories. The main production spaces of the complex are located in the lower level. These parts are raw material storage, finished product storage, washing and squeezing sections as well as mechanical support places and water treatment section. In the upper floor of the complex, the main backbone of the social spaces which is considered also as an inner garden is proposed. This main axis provides protection from climatic conditions when necessary and connects the social units. The quality control unit of the olive oil produced, tasting units and product presentation spaces take place in the ground floor where the main entrance is found. The administrative units and personnel accommodation units are also located along the other side of the main axis in this floor.

Both of the architects are conscious about the importance of sustainability concept. They believe that all design professions should take their own responsibility about the requirements of sustainability in order to meet the needs of future generations. As architects they consider the requirements of sustainability in not only the design but also the implementation process of the olive oil production plant. These are ecological, social and economical requirements of sustainability.

Local initiatives for local food production are of great importance for achieving sustainability at local scale. The main aim of this project was to support local sustainability via allowing local labor force an opportunity, providing suitable physical spaces in order to produce olive oil from local olive production.

Design Principles & Practices

Neurología veterinaria

Re diseño taladro quirúrgico

Augusto A Vargas Schüler.(1)
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UNIVERSIDAD TECNICA FEDERICO SANTA MARIA

1 Introducción

Consta sobre el gran déficit que sufren los neurólogos veterinarios en su instrumental, mas bien el taladro quirúrgico.
En Chile estos profesionales cuentan con dos opciones de instrumental, una de ellas son instrumentos de alta calidad, pero de un precio elevado y difícil de localizar, por otra parte, cuentan la opción de taladros no diseñados para uso quirúrgico, con un costo reducido y de fácil localización. Para los neurólogos veterinarios chilenos la opción más factible es un taladro con un precio reducido, pero no diseñado para cirugías, sino más bien con usos podólogos.
A partir de estas problemáticas nace la necesidad de diseñar una solución de calidad y adaptable a lo que actualmente los neurólogos veterinarios chilenos en su mayoría utilizan, con una capacidad de esterilización, hermeticidad y desmontaje adecuados para cirugías realizadas por estos profesionales.

Resumen

Un aumento de la tenencia de mascotas en Chile ha llevado a un alza de las profesiones derivadas de la medicina veterinaria, entre ellas la neurología veterinaria. Al realizar un estudio a los neurólogos veterinarios, se detectaron falencias en su principal herramienta de trabajo, la que no cuenta con estándares de materialidad para ser esterilizados de la manera adecuada, con un difícil desmontaje y nula hermeticidad en el sistema.
Por ello se plantea un re diseño del cabezal ya que, es la parte que se encuentra en contacto con el paciente y obviamente con el profesional. Es por ello que la primera parte se dispone un re diseño de la herramienta, con nuevos materiales y nuevo diseño que deben cumplir con una buena capacidad esterilización, desarme y hermeticidad.

2 Antecedentes

En un estudio realizado a los neurólogos veterinarios en Chile se detectó que estos realizan uso de una herramienta utilizada por la mayoría de estos profesionales para realizar una parte fundamental de las cirugías. Este instrumento llamado taladro quirúrgico, rotor o torno dependiendo en donde se pueda emplear, cuenta con un claro déficit de diseño, estilización y hermeticidad en sus sistemas, debido a que no está diseñado para cirugías, sino más bien, está fabricado para la podología. Como consecuencia, la mayoría de lo neurólogos en Chile está operando con un instrumento que no está diseñado para fines quirúrgicos ni mucho menos para cirugías en animales. Dentro del análisis realizado, se detectó que esta situación se da debido a la calidad de esta herramienta, a su costo y a su facilidad de localización dentro del territorio chileno.

3 Materiales y Métodos

Para el re diseño y la fabricación del cabezal del taladro quirúrgico de neurológico veterinario se han estudiado los materiales que permitan cumplir con 3 restricciones importantes, el precio, la calidad y la capacidad de esterilización. Es por ello que en relación a lo anterior el acero quirúrgico fue el que cumplió con ambas variables restrictivas al momento de fabricar.
En cuanto al diseño, las restricciones importantes a considerar fueron la hermeticidad y la capacidad de esterilización del nuevo diseño, lo cual fue el fundamento para realizar el nuevo diseño.

Proceso de re diseño

Inicialmente el proceso de diseño se realizó en el software Autodesk Inventor, en el cual se realizaron los modelados pertinentes de cada nueva pieza, considerando un sistema de hermeticidad que no permita entrar ni salir ningún residuo liquido o solido del sistema.

Para realizar el re diseño del cabezal, fueron estudiados anteriormente sistemas que están constantemente sometidos a fluidos, tales como licuadoras, lavadoras o pistones de autos, que permiten referenciar de alguna manera el nuevo re diseño de este sistema.
Posterior a ello, se realizó un sistema con sellos de silicona e hilos que son ensamblados en el antiguo sistema del taladro que asegura hermeticidad al sistema y una fácil esterilización posterior a su uso.

Fabricación de piezas

La fabricación de las piezas fue concebida por un profesional en mecanizado de piezas con torno, el cual realizo uso de herramientas especializadas para trabajar con acero quirúrgico 420, al mismo tiempo, hizo uso de herramientas de mecanizado especiales debido a las pequeñas dimensiones de las piezas.

Análisis de piezas y herramienta

Las pruebas de análisis fueron concebidas en 2 partes, una de ellas el nuevo modelo en el software Autodesk Simulation Mechanical y luego con una prueba en hueso realizada por el profesional neurólogo veterinario, para verificar adecuadamente que la nueva herramienta no sufriría daños debido a su nueva materialidad y diseño.
Se estimaron estándares de fuerza utilizados por el profesional neurólogo veterinario al utilizar la herramienta y estos valores fueron añadidos al software para obtener resultados de cuanta fuerza utiliza al realizar las cirugías.

Preguntas/Hipótesis

Por la gran necesidad que sufren los neurólogos veterinarios con su principal herramienta de trabajo (taladro quirúrgico), es necesario realizar unas previas preguntas que permitan contextualizar mejor el problema:

¿En que ayudaría realizar un rediseño?

El re diseño permite obtener una adaptación al sistema anterior con una nueva calidad y mejorando los principales problemas que sufren estos profesionales con su actual herramienta que son la esterilización, hermeticidad y desmontaje.
La hipótesis de realizar un rediseño al taladro quirúrgico de uso neurológico veterinario. Pese a que la herramienta cuenta con déficit quirúrgicos importantes, cuenta con una variable importante a considerar y mantener, el precio y la calidad de este. Es por ello que el diseño y la fabricación se enfocara al cabezal de este taladro.

4

5 Resultados

El profesional neurólogo veterinario es aquel que se encuentra calificado para realizar la aprobación de la nueva herramienta, por ello las opiniones basadas en sus impresiones al realizar uso de la nueva herramienta cuentan con un comentario positivo, añadiendo que la calidad de esta herramienta es notoriamente mejor debido a las propiedades del acero quirúrgico utilizado para el nuevo sistema de cabezal.

Resultados del análisis de la herramienta en software

La cantidad de fuerza del profesional neurólogo veterinario no cumple con el criterio para poder realizar la deformación de alguna parte del nuevo sistema.

Capacidad de esterilización, hermeticidad y desmontaje

El nuevo sistema cuenta con la capacidad de desmontar cada una de las partes de este, lo que se traduce en un potencial de estilización elevada, esto debido a su capacidad de desmontaje. Las piezas actualmente pueden ser sometidas tanto a estilización química, como a esterilización por calor, debido a que están fabricadas en acero quirúrgico.
En cuanto a la hermeticidad de la herramienta, se logró aislar el rodamiento expuesto que actualmente contiene el taladro con un sistema de sello de silicona que no emite ningún residuo al momento de su utilización.

Figura 1.Antes

Figura 2. Después

6 Conclusiones/ Discusión

En conclusión, el nuevo sistema es capaz cumplir con las condiciones principalmente propuestas (esterilización, hermeticidad y desmontaje), reduciendo el tiempo en que este instrumento puede ser utilizado, mejorando tanto la calidad como la capacidad de las cirugías que pueden realizar los profesionales neurólogos veterinarios.
Es claro que el re diseño, facilita para el profesional neurólogo veterinario una tarea importante en su profesión, dado que esta herramienta es de uso significativo para cada cirugía. Por ello el nuevo diseño queda concretado entre las principales restricciones propuestas confeccionado y cumpliendo la totalidad de sus funciones.
A partir del nuevo re diseño realizado al taladro quirúrgico de uso neurológico veterinario, los estudios a un nuevo diseño se siguen realizando, al igual que nuevos materiales que sean aptos para realizar cirugías, con una gran capacidad de esterilización, óptimo para manufactura y amigable al medio ambiente.

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Principios y Prácticas del Diseño

IMAGEN DIGITAL HÍBRIDA, FORMAS GEOMÉTRICAS Y HUMANOIDES

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en las producciones de Hollywood no ha incorporado la tecnología *motion capture*, ya que no es posible dictar a los diferentes animales con un recorrido, una velocidad y un movimiento tal y como la voluntad cinematográfica de su creador quiere. Es por ello que la edición de los movimientos de estos animales digitales se sigue realizando a día de hoy por medio de un estudio y la interpretación del animador sobre un Editor de Curvas. Un hecho que delata la artificialidad de estos personajes, ya que el animador no es capaz de determinar el peso y las variables exactas reales de aceleración y frenada. De hecho, las interpreta y las exagera para dotar de una mayor velocidad a ese personaje. Y es que tiene que hacer del movimiento algo comunicativo y expresivo, más dinámico que en la realidad y, por lo tanto, menos fiel a la misma.

Así, teniendo en cuenta que el movimiento y la animación delatan el origen digital de los personajes creados para ser integrados en imagen real -para formar parte de un conjunto final conocido como Imagen Digital Híbrida- nos encontramos frente a una realidad diferente con las producciones que abordan seres robóticos humanoides.

A la hora de cuestionar el diseño de estos seres en las últimas producciones, como *Robots* (Chris Wedge, Carlos Saldanha, 2005), *Wall-e* (Andrew Stanton, 2008), *Moon* (Duncan Jones 2009), Big Hero 6 (Don Hall, Chris Williams 2014) *Interstellar* / *Interestelar* (Cristopher Nolan, 2015), *Chappie* (Neill Blomkamp, 2015), *Star Wars: The Force Awakens* / *El despertar de la fuerza* (J.J. Abrams,2015), *The Last Jedi* / *El último jedi* (Rian Johnson, 2017), *Rogue One* (Gareth Edwards, 2016) y *Next Generation* (Kevin R. Adams, Joe Ksander, 2018), nos encontramos con un patrón, en cuanto a su diseño y resultado, que exponemos en las conclusiones.

Fig. 1
Diseño del movimiento de TARS para *Interestelar* (Cristopher Nolan, 2015)

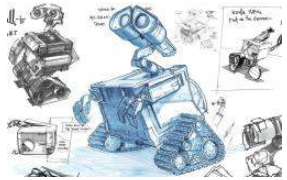

Fig. 2
Diseño de robot para *Wall-e* (Andrew Stanton, 2008)

CONCLUSIONES

En el cine de Imagen Digital Híbrida la composición y estructura de los robots se simplifica y se les intenta despojar, en muchos casos, de sus símiles con los humanos. Los movimientos y las formas de desplazamiento han ido abandonando las extremidades (brazos y piernas), y sus referencias corporales y expresivas son más próximas a las de una pantalla. En muchos casos se intenta abandonar la similitud con el cuerpo humano para hacer más veraz el comportamiento corporal de su estructura.

Los movimientos más próximos a las máquinas con las que interactuamos en nuestra realidad cotidiana (fig. 1) hacen que se note menos su creación digital mediante un software 3D, ya que no existe la aceleración y la frenada, y, por lo tanto, no se necesita la interpolación de movimientos mediante un Editor de Curvas. Como consecuencia, los movimientos de los robots digitales son exactos a los mecánicos de nuestra vida cotidiana y esto hace que el espectador no se dé cuenta tan fácilmente (como con lo orgánico) del efecto digital.

La interpretación es diferente en la animación *cartoon* o películas enteramente de animación -y no de Imagen Híbrida- porque en esta industria la competencia se basa únicamente en el diseño y línea de las formas caricaturizadas, que siempre son más sencillas. No obstante, ya sean más curvas o rectas, esféricas o rectangulares, los movimientos, al igual que los animales digitales en el cine híbrido, son más exagerados. Sin embargo, se mantienen las formas geométricas básicas, se les humaniza con expresiones corporales más humanas y se les dota de rostro y expresión facial para que el espectador pueda empatizar.

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DISEÑO INDUSTRIAL EN CALI

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INTRODUCCIÓN

La búsqueda de una identidad ha sido tema permanente de discusión del diseño industrial en la periferia. Con el crecimiento de la profesión a través de su institucionalización demandada en la consolidación del programa en las universidades de Cali (Colombia) y la aparición de este mismo en nuevas universidades surge el interés por identificar los patrones de identidad que pueden verse manifestados en lo objetual de la cultura material, específicamente en los trabajos de grado de desarrollo de producto realizados por estudiantes de las universidades de la ciudad.

Por eso toda operación proyectual tiene su punto central en la transformación de conceptos de identidad cultural por parte del diseñador, a rasgos o patrones de identificación objetual.

Formulación problema:

¿Cuáles son los patrones identitarios de los desarrollos de producto identificados en los trabajos de grado de estudiantes de diseño industrial en las universidades de Cali?

Con este trabajo se logran reconocer patrones que identifican al diseño industrial caleño a través de la investigación de los temas de identidad y diseño industrial, y su relación con los proyectos académicos locales de desarrollo de producto, es un aporte a la construcción próxima de una identidad que permita el crecimiento de la profesión en la ciudad.

Su objetivo

es describir los patrones identitarios del diseño industrial caleño, a través del análisis de trabajos de grado de desarrollo de productos realizados por estudiantes de diseño industrial de las universidades de Cali, tomando como base las características generales de identidad propuestas por Gui Bonsiepe.

Uno de los trabajos de Bonsiepe y base de este proyecto es el modelo de desarrollo para la periferia, de este modelo es pertinente ubicarse en la categoría 2, PROFESIONALIZACIÓN, en la fase 3, INSTITUCIONALIZACIÓN INCIPIENTE, y en el cruce de estas variables se encuentra la "búsqueda de identidad y definición de los servicios característicos del diseño industrial" se puede afirma que para el objetivo de esta matriz, la búsqueda de la identidad, en el caso de este proyecto, de los patrones identitarios permiten cumplir con los factores que se establecen para el desarrollo del diseño en la región.

TABLA MATRIZ DE DESARROLLO POR GUI BONSIEPE EN "DEL OBJETO A LA INTERFASE"

MÉTODO

Para este proyecto solo se llevaron a cabo las investigaciones en los trabajos de grado de la Universidad del Valle (pública) y la Universidad Icesi (privada).

Se delimitó a 25 proyectos de grado por universidad para un total de 50 proyectos de grado que serían la muestra de la investigación.

Los trabajos corresponden a los ubicados en el repositorio de las universidades.

Se seleccionó una muestra homogénea que posee los atributos o características planteados para la selección de la cantidad total de proyectos.

FICHA DE SELECCIÓN DE PROYECTOS			
Nombre del proyecto			
Autor			
Universidad	Universidad del Valle	Universidad Icesi	
CRITERIOS DE SELECCIÓN			
Tipo de proyecto	Producto	Servicios	Experiencias
Producto: el proyecto tiene énfasis en el desarrollo de productos.			
Si		**No**	
Forma: El proyecto contiene imágenes, fotografías o renders que permitan visualizar la configuración formal del producto. Además de vistas en isometría que permitan desarrollar un análisis formal.			
Si		**No**	
Metodología: El proyecto describe una metodología utilizada para su desarrollo			
Si		**No**	
Materiales: El proyecto describe los materiales específicos de los cuales está compuesto el producto			
Si		**No**	
Color: El proyecto determina los colores que se utilizan en los acabados finales del producto.			
Si		**No**	
Incluir	**Excluir**	**Dudoso**	

Herramienta de selección de proyectos creación propia

Se analizó los proyectos seleccionados a traves de la herramienta de análisis de construcción propia del autor.

Herramienta de análisis de proyectos de grado

En esta herramienta de análisis se conciben las características de los productos y responde a los aspectos generales de la identidad del diseño industrial en Latinoamérica propuestos por Bonsiepe desde: la descripción del producto, los criterios constructivos de la forma, la generación de la armonía de color, materiales utilizados y los procedimientos de desarrollo de producto en el proyecto.

RESULTADOS

Los patrones identificados en el proyecto son el resultado de la herramienta de descripción creada para esta investigación. Son el cruce de variables recolectadas del análisis de los aspectos generales de identidad y que a través de un sistema cuantitavo se presumen como patrón, son la caracteristica que más se repite en los proyectos análizados.

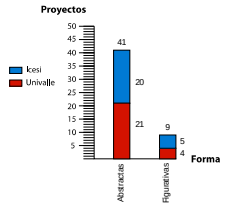
Patrones identitarios:

Modelo que sirve de muestra para sacar otra cosa igual.

Deriva de la palabra patronus, que hace de modelo para reproducir ejemplares semejantes.

Deriva de identitas, que hace referencia al conjunto de rasgos y características que diferencian a un individuo, objeto, grupo de individuos o grupo de objetos de los demás.

Por ejemplo en la siguiente gráfica se representa la relación entre el total de proyectos analizados de las universidades Icesi y Univalle VS el tipo de formas, la clasificación de las formas se toma de lo propuesto por Wicius Wong en Fundamentos del diseño.
Uno de los resultados que pueden observarse es que predominan las formas abstractas, las cuales se caracterizan por ser contornos irregulares, sin un tema definido.

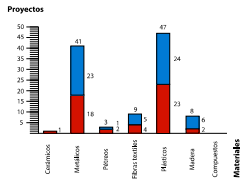


Formas abstractas

- En los proyectos de las dos universidades las formas se caracterizan por no tener un referente figurativo.

- Destaca la interpretación del autor con respecto al concepto de diseño que se plantea.

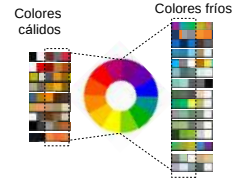
- Además de seguir unos requerimientos formal-estéticos propuestos para el proyecto.



Materiales

-Los materiales más utilizados en los productos de los estudiantes de diseño industrial son los plásticos y metálicos, dando un claro ejemplo de contradicción a la teoría de Bonsiepe, la cual dice que los materiales utilizados en Latinoamérica son materiales locales, exóticos de la región.

Se evidencia que en los productos se utilizan materiales que estén al alcance del diseñador y que respondan a los requerimientos de sus proyectos.



Colores

Predominan los colores fríos, las armonías de color con gamas de color verdes y azules.
Respondiendo a un contraste de frescura en un entorno cálido como Cali.

Conclusiones

- Los resultados de esta investigación permiten la identificación de patrones propios de la construcción social, son una pieza en el rompecabezas de la identidad en el diseño industrial de la región.

- Desde el diseño industrial es importante reconocer unos elementos característicos de la región a nivel de producto desarrollados por los diseñadores, esto permite utilizar patrones que logren ser reconocidos por los usuarios de determinados productos y que sumen como valor agregado a la creación de objetos, sistemas y/o elementos del diseño industrial caleño.

- Está investigación permite que próximos proyectos continúen profundizando sobre el tema de identidad en el diseño industrial, y relacionen componentes culturales, sociales, económicos no tenidos en cuenta en este proyecto.

- Está investigación aporta a que el diseño industrial no solo se centra en el interés por el desarrollo de productos sino también en el analizar a que responde estos, sus configuraciones y sus componentes.

- No se encuentran registros o antecedentes de un estudio de este tipo.

- A partir de esta investigación se pueden establecer criterios para la conceptualización de diseños relacionados con la cultura material de Cali.

- Características como la proporción no evidencian patrones o resultados analizados por la complejidad al sistematizar este criterio. Las diferentes variaciones y tamaños en cada uno de los proyectos no permitieron generar un análisis claro.

- La construcción de la herramienta de análisis se llevo a cabo con una serie de entrevistas a expertos, pero su validación no se pudo realizar por cuestiones del proceso académico. Dicha validación sera objeto de estudio en la continua investigación de este proyecto.