

Art, Design, Communication and Fashion

AN
INTERDISCIPLINARY
APPROACH

Edited by

Assoc. Prof. Ítalo José de Medeiros Dantas



**GLOBAL
ACADEMY**

Art, Design, Communication and Fashion: An Interdisciplinary Approach

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Preface

Art, Design, Communication and Fashion: An Interdisciplinary Approach; is a thought-provoking book for academics, researchers, doctoral students and policymakers interested in fine arts, design, fashion and the field, providing valuable information on contemporary issues in art, design, fashion.

In this book; the first chapter aims to prepare pre-service teachers while serving the community by addressing the previously identified needs with an emphasis on the pedagogical methodology of service learning (S-L). S-L is different from volunteering and internships. In this context, the process of implementing S-L at the Royal Conservatory of Music of Granada is described.

Popular culture is defined as a way of life that the majority of people in society live or will live. In the second chapter, visual art teachers' views on popular culture and approaches in classrooms are investigated.

The third chapter highlights the potential for strategically designed systems, known as circadian lighting, to have a beneficial impact on people's health, alertness, productivity, and more.

Since the fourth chapter is about holistic knowledge of the design process in fashion design, which is one of the fundamental skills for any graduate in the field, it is aimed to diagnose the curricular knowledge of the graduates of fashion design at the Federal Institute of Rio Grande do Norte (IFRN) - Caicó campus in the context of the idea that the student of Fashion Design should have a theoretical and practical mastery of the contents. Also this chapter aims to diagnose the level of mastery of curricular content by undergraduates in Fashion Design at IFRN – Caicó.

The fifth chapter explains whether the materials of cardboard boxes and umbrellas can be recycled in fashion, as well as whether a garment can be created from the materials, in the context of economic, environmental and social sustainability concepts.

The sixth chapter provides examples of how the artist uses symbols to convey a message of protection and attract attention. In general, considerations in the context of mythology studies include a close analysis of works of art that use mythological themes and symbols to

represent ecosystems, and an assessment of the cultural and historical contexts in which these works of art were created. It is thought that this chapter will contribute to the ongoing study of how art fits into a broader tradition of mythical representations of natural environments and environmentalism in art.

The seventh chapter discusses some sustainable design products, taking into account the importance given to the product life cycle in Portugal in the context of developing products with national and environmentally friendly materials that have the agreed-upon value for material culture.

The authors of this book present a wealth of literature and research that will contribute to an understanding of the role of decision-makers and international organizations in the field of fine art in promoting growth and development. The book is an excellent resource for anyone interested in learning about the most recent trends and emerging issues in the fine art field.

Foreword

Art, Design, Communication, and Fashion: An Interdisciplinary Approach is becoming an increasingly important field of study where highly qualified specialists with different profiles must collaborate to obtain multifaceted and complex results. Therefore, there are many current issues in this ever-extending field that require research, discussion, and reflection.

The overarching element of the present book is three-folded. On one hand, we address the impact of technology on the creative process, and the role of art and design in environmental sustainability. On the other hand, we focus on the relationship between fashion and sustainability. Also, we draw out the ways communication strategies keep up with emerging technology, and changes in the art and design industries.

This book is a valuable resource for anyone interested in exploring the dynamic and ever-evolving landscape of art, design, communication, and fashion.

Prof. Dr. Anna MELNIKOVA

EDITOR



Assoc. Prof. Italo José de Medeiros Dantas

Substitute professor in the area of management processes and quality control in the clothing industry at the Federal Institute of Education, Science and Technology of Rio Grande do Norte - Campus Caicó. Master in Design from the Federal University of Campina Grande (2021), Specialist in Communication, Semiotics and Visual

Languages from the Braz Cubas University (2021) and graduated in Fashion Design from the Federal Institute of Education, Science and Technology of Rio Grande do Norte (2019). Graduating in Product Design at Centro Universitário FAM. He currently works as a collaborating researcher at the Information, Languages and Usability Research Center, in the research group Morphology of Artifacts and Communication Systems and in the Color Study Group linked to the Federal University of Campina Grande, and at the Research Center in Textiles and Clothing, linked to the Federal Institute of Education, Science and Technology of Rio Grande do Norte - Campus Caicó. He is a member of Associação Pró-Cor do Brasil and of the Language of Color and Environmental Color Design study groups linked to the International Color Association (AIC). He presented works, in the remote mode, at congresses in countries such as Argentina, Canada, France, India, England, Italy, Portugal, Russia and Turkey. Multidisciplinary researcher with academic and professional interests in different areas of Design, with an emphasis on Fashion and Communication, working mainly on the following topics: product creation and development, morphology and visual language of artifacts; visual communication; applied semiotics, focusing on the interpretive dimension of products, investigating the correlation between the intention of visual messages by designers and the interpretation of potential consumers; color theory, perception, symbology and semantics, chromatic preferences, color-information

and chromatic messages; user-centered design focusing on people with Parkinson's disease; Neurosciences applied to Design (NeuroDesign); consumption and value perception research; and, slow fashion. Parallel to his training in Fashion and Design, he is also a Bachelor's student in Statistics at Centro Universitário IBMR. slow fashion. Parallel to his training in Fashion and Design, he is also a Bachelor's student in Statistics at Centro Universitário IBMR. slow fashion. Parallel to his training in Fashion and Design, he is also a Bachelor's student in Statistics at Centro Universitário IBMR.

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CHAPTER 1

SERVICE-LEARNING AS A PRACTICAL INTRODUCTION OF UNDERGRADUATE PEDAGOGUES TO THE COMMUNITY¹

Prof. Dr. Anna MELNIKOVA²

¹ This article is an expanded and edited version of the paper titled "Service-Learning as a Practical Introduction of Undergraduate Pedagogues to the Community" presented at the 1. International Congress and Exhibition on Sustainability in Music, Art, Textile and Fashion (ICESMATF 2023) organized online by ICSSIET Congress on January, 26-27 Madrid/Spain

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Introduction

The service-learning (S-L) pedagogical methodology aims to prepare pre-service teachers while they serve the community addressing the needs identified previously. S-L differs from volunteerism and internship. Here, we describe the process of implementation of S-L at the Royal Conservatory of Music of Granada. The project consisted of seven phases: 1) Identification and definition of one of the needs of the neighborhood/community; 2) Setting of goals; 3) Planning; 4) implementation of the plan; 5) Intermediate evaluation and re-planning; 6) Introduction of modifications; 7) Final evaluation. Finally, the students were asked to discuss the experience. The main goal of the project was to present forms of participation in the musical community of the neighborhood as healthy and sustainable leisure activities for vulnerable and at-risk children (users) and their families (beneficiaries). Changes in pre-service teachers' attitudes towards at-risk children, as well as changes in participants' willingness to study music, were examined. A switch towards more kind and caring attitudes was detected. Its implication for strengthening community ties is discussed below.

In the University, we have incredible music instruction, encompassing different aspects of theory and practice. Very qualified and specialized instructors are responsible for courses such as Acoustics and Organology, Ergonomics, Music Theory, Music Analysis, General pedagogy, Music didactics, Instrumental Performance, Camera, Improvisation, Orchestra, Band, etc. Also, different elective courses enrich the curriculum, which provides an opportunity to bridge the gap between the university culture and the sociocultural features of its community. For instance, in Spain, in the Andalusian Region, we teach Flamenco, Urban Music, Mindfulness, Recording techniques, etc.

Disconnection between organizations offering formal education and their broader community is an oft-referenced issue in the musical education sphere (Abramo et al., 2022; Allsup, 2008; Allsup & Benedict, 2008; Allsup & Shieh, 2012). Nevertheless, it is a fact that the number of papers describing university programs of involvement in

their community has increased drastically. For instance, we retrieved 496 publications from the Web of Science using the terms ‘university’, ‘community’, and ‘social justice’, connected by AND. As seen in Figure 1.1, two articles are dated from 2000, but there are 50 papers published in 2022. This comparison reveals an increasing scientific interest in bridging the gap between the University and the Community.

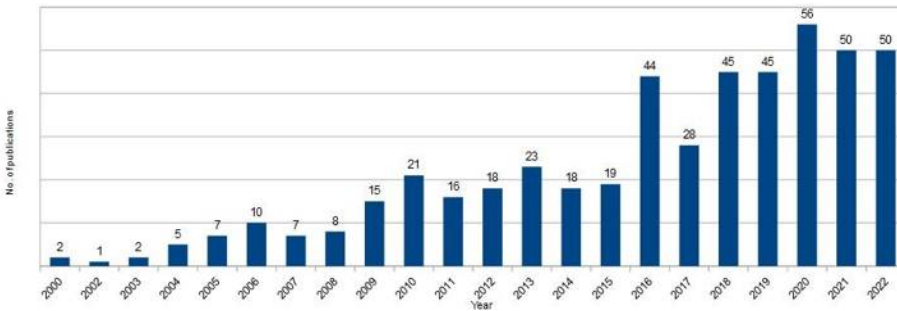


Figure 1.1. Changes in the number of published articles on University involvement in the Community

Growth in the number of public and private grants provides interesting opportunities for artistic research, social research, and art-based social research. But some obstacles remain. There is usually a complex bureaucratic process to access a grant or a fund, which could discourage applying. On the other hand, some community agents could be reluctant to collaborate with universities for different reasons (for example, mistrust, lack of face validity of projects, cultural differences, or, even, collisions, etc.).

One of the means of breaking resistances such as the abovementioned is the implementation of Service-Learning. This relatively new methodology opens universities to their communities, as all implied agents must identify local issues and work together to build collective well-being. In this framework, university students, guided by their

instructor, get in touch with neighboring organizations to come up with ways to solve or, at least, diminish local problems.

We developed our project under the auspices of the Royal Conservatory of Music of Granada, Town Hall of Granada, and with the collaboration of the NGO ALDAIMA, responsible for managing foster care processes in the Andalusian region of Spain. In the study, undergraduates enrolled in the course “Didactic Concerts” participated. This course was developed for Pedagogue undergraduate students learning how to organize different types of didactic concerts, however, it is open to other interested students. Here, we examine the process of the experience and its main outcomes.

Literature Review

According to Fertman (1994:9), learning service provides “a deliberate connection between service and learning opportunities [...] accompanied by thoughtfully designed occasions to reflect on the service experience”. It must be distinguished from volunteerism and internship. In the former, the beneficiaries are the users of the service, while in the latter, they are the providers (Salam et al., 2018). Service learning implies collaboration and the same power among all intervening parties. Also, the taken actions must align with the Sustainable Development Goals.

Reynolds was one of the first researchers who developed music-based service learning projects with pre-service music teachers. She and her colleagues (Reynolds, 2003; Reynolds & Conway, 2003; Reynolds et al., 2005) found that pre-service teachers gained self-efficacy in a real classroom setting. On the other hand, the researchers observed that children were more enthusiastic about the music classes and the school in general and, besides, their general academic performance improved.

Cloete and Erasmus (2012) conducted a beautiful study where undergraduate students performed service learning by providing music

education to vulnerable and at-risk children. The researchers observed that pre-service teachers presented higher commitment to the community and more caring behaviors, which, for Cloete and Erasmus (2012), had the potential to promote social changes.

Knapp (2013) developed a project called Shelter Concert Series. Undergraduate music students performed weekly in a shelter. Gradually, the clients gained the confidence to ask the performers to play their favorite genres of music. The performers changed their attitude toward shelter users, as the relationships became closer: all the stakeholders had an opportunity to learn a “human story” behind each other, which switched the mutual attitudes toward positive valence.

From 2016 on, the research has acquired a two-fold aim: to increase musical knowledge and competencies among all the stakeholders and to train social and teaching competencies of music pre-service teachers (see among others, (Abramo et al., 2022; Harrop-Allin, 2016; Meyer & Wood, 2016; Nichols & Sullivan, 2016; Rutti et al., 2016; Tang & Schwantes, 2021).

Methods

Background

The Royal Conservatory of Music “Victoria Eugenia” of Granada, Andalusian region of Spain, offers the Didactic Concert as an elective three-credit course. The ordinary class takes place once a week and lasts one hour. The main goal of these sessions is three-fold: 1) acquire and develop concert management skills; 2) train musical skills; 3) plan and organize performances.

The NGO ALDAIMA is responsible for the management of foster care programs in the Andalusian region in Spain. Their mission is to facilitate foster care for vulnerable and at-risk “children who need a family environment to grow up”, provide them with therapeutical service, and “prevent the emergence of violent behaviors” (Asociación Aldaima,

2023). The project I (Melnikova) offered to the NGO ALDAIMA focused indirectly on the prevention of antisocial and disruptive behaviors. The aim of the project was two-fold: to promote positive experiences of contact with conservatory culture and music studies, and to provide healthy options for leisure time. This project aligns with the following Sustainable Development Goals (United Nations, n.d.):

4. Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

10. Reduced Inequalities: Reduce inequality within and among countries.

11. Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient, and sustainable.

17. Partnerships for the Goals: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

The initial idea of the project was mine, nevertheless, while working on it with my students and with NGO ALDAIMA, the project became more collaborative and flexible, which fit better with the rationale of service learning. *It est*, the original idea of just presenting different musical instruments (the mere knowledge of their existence can open self-development opportunities) transformed into a series of informative talks about bands and band instruments. Several students prepared a short narrative of their background and experience with their native town band. During the development of these sessions, various fostered children asked for information about “string instruments” because the term was mentioned several times by music students. That led to the planning and organizing of string instruments presentations and informative talks about different ways of accessing music education and participation in the musical life of the town.

Besides conceptualizing and aligning this project with service learning methodology, it was developed in the framework of action research

because our actions raised research questions as the community needs became more concrete, which led to a cyclic process. Also, reducing inequalities was foundational to our research, and all parties had to “listen” to each other to a common vision for issues resolution. Finally, the implementation of this project aimed to elicit strong reflexive processes, revisiting attitudes and world function schemas (Zeller-Berkman, 2014), which is the starting point for social changes.

Participants

The undergraduates of the Didactic Concert course included Pedagogy, Composition, and Instrumental Performance students. Among them, there were flutists, oboists, clarinetists, bassoonists, trumpetists, trombonists, tuba players, guitarists, pianists, and violinists. For the extraordinary sessions of different instruments presentations, we recruited a horn player, viola player, and cello player to whom we are very grateful for their time and generosity. Students had weekly assignments to be reviewed in ordinary sessions. That comprehended musical training, preparation of presentations and informative talks, elaboration of infographics, role rehearsal, choreography rehearsal, costumes, and scenography elaboration.

Data Collection

We have drawn our data from observations, questionnaires, group dynamics, and journals. A pre- and post-questionnaire was administered to the fostering families. Also, those of them who agreed were interviewed. Afterward, these interviews were transcribed. I kept my personal journal where I recorded my weekly observations of students’ discussions, and interactions between students, children, and foster families. The participant students were asked to report weekly a brief description of their experiences, with special attention to their previous expectations and what they saw, felt, and thought during

sessions. The responsible for NGO ALDAIMA was interviewed. All the participants gave their consent to include their data in the analysis of the present study.

Analysis

The analysis consisted of the iterative reading of transcriptions, journal entries, and students' reports. All sifted through this process data elicited reflexive processes that precipitated into emerging categories, chunks of concepts, and research questions. Taking into account the novelty of the experience for all participants, I chose concepts of "expectations versus what I saw, felt, and thought", and "repertoire of thoughts and behaviors".

Participants: Dreams about volunteering

All students reported being enthusiastic about the project at the beginning. They viewed themselves as purveyors of "means of salvation" for the "poor kids". The following entry is representative of the students' mindset at the beginning:

"I think we can contribute to improving the future of these poor kids. Devoting their leisure time to music learning, they won't have time for dealing with drugs or alcohol. Also, this will keep them away from bad companies".

Another student, in the same vein, wrote in her first report:

"Studying in a conservatory opens doors to other realities and cultures. If they [the children] get to know the conservatory culture, they will have more opportunities to get out and have a better life. I am from a small town and I traveled a lot with the orchestra of the conservatory. Now, when I visit my native town, I notice a lot of differences

concerning former acquaintances and my parents. I feel that I have grown a lot. I wish these kids could have a similar experience”.

Analyzing my own journal and recalling my own feelings, I have noticed that my initial mindset was similar to that of my students, though I did not want to put it explicitly or even identify this idea to me. Nevertheless, viewing the enthusiasm of my own reports, now I can see that I was really pleased with the idea to *help somebody out* of her/his *awful context*.

Participants: mental schemas changes

After the initial *honeymoon* phase, where all the participants, including myself, expressed somehow to be pleased with her/his openheartedness, came the first session. The same day, before the first session, the participants were asked to answer the following questions: 1) What expectations do you have about the children? 2) What expectations do you have about fostering families? 3) How do you visualize yourself during the first session? Once the session was finished, the participants were asked to write down their impressions emphasizing three aspects: 1) What have you observed; 2) What have you felt?; 3) What have you thought?

All the participants reported that they felt enthusiastic about the session. The most interesting data were collected after the first session.

One of the participants wrote:

“I was really surprised when I saw the children. Suddenly, I realized that I was expecting to see prototypical juvenile offenders. So, when I saw the children, I was shocked by their normal appearance. If I saw these kids on the street, I would never guess that they were in foster care”.

Another participant wrote:

“The behavior of the kids surprised me. They stayed so focused during the session and participated in all activities with authentic enthusiasm. I haven’t caught anybody yawning or looking around them. They were literally staring at us, like, trying to grasp the tiniest detail. The blond kid sitting in the front row opened his mouth when Claudia began playing the flute. He was so adorable! I felt like hugging him.”

The two quotes given above were the most outstanding ones. Nevertheless, all the participants were surprised at the first contact with the families. That indicates the existence of underlying prejudices. On the other hand, their reports on previous expectations were rather neutral, which could be due to their long-term training in a culture of tolerance and peace, promoted in conservatories.

After that first session, I noted in my journal that I was very surprised because fostering families seemed to belong to the middle class, and some of them even to the low-middle class. That identified my bias regarding the representation of foster families: I thought that only wealthy, upper-class families could afford to foster a kid. Another significant entry in my personal journal referred to one of the girls who did not want to enter into the auditory. I asked her father to talk to her and after obtaining verbal consent, sat with her to talk. Finally, she told me that she did not want to enter because she was afraid of not fitting and that everybody would notice that she does not belong in that place. As I did not have to perform, I offered her to take my hand, enter together, and sit in one of the back rows. She accepted, and when we entered together, she stopped and told me that she was not afraid anymore and that she wanted to sit with her father. Nevertheless, she did not release my hand until we reached the seats occupied by her father and her brother.

After the first session, I asked the parents two questions: 1) What did you like about the session; and 2) Is there anything that has surprised you? Some parents did not want to answer the questions and left. Those

who answered were asked for their consent to include the collected data in the present study.

The mother of one of the youngest boys repeated several times in a row that she was very grateful for participating in this project and that she has never seen her son behaving so well. The mother of another boy said that she liked a lot to “find such a warm and family-friendly environment”. The parents who answered the questions were very interested in how their children could access a conservatory or whether there were other options to learn to play some other instruments. This interest motivated us to prepare informative talks and infographics about the process of accessing a conservatory or a musical school.

Increasing the repertoire of intentions and behaviors

The data drawn from the pre-questionnaire revealed that the children named four instruments at most, being the most frequently referenced piano, guitar, and violin. It must be remarked that while filling in the questionnaire, they were viewing a grand piano in the scenario. One boy reported that he would like to play some instrument, but he did not where or what instrument. One girl wrote down that she would like to learn to play piano because her best friend at school plays piano. The remaining children did not express interest in learning to play an instrument or dance. All but one wrote that their favorite leisure activity was watching TV.

The same questionnaire was administered after the project. The number of named instruments increased, and two of them used categories to chunk them (woodwind, brass, strings). All of them reported they would like to play some instrument and play with a band or an orchestra. One of the children wrote down that he liked all the instruments, so he would like to play all of them. The girl who initially reported that she wanted to play piano switched to the cello because she would like to play with an orchestra.

Conclusions

Reflection is a mandatory phase in action research and service learning methodologies. Reflecting allows us to give meaning to our experience, give room to process more slowly the experimented changes, and examine carefully the impact.

The findings narrated above are consistent with the contact theory, originally postulated by Allport. Intergroup contact facilitates the reduction of prejudices and increases the sense of trust (Pettigrew et al., 2011). We have observed that, besides these positive outcomes, the participants showed a greater willingness to present caring and loving behavior. Care and caregiving are foundational to reducing inequality within a community (Barnes, 2008:4-5). We understand that fostering these kinds of attitudes and behaviors contributes to the achievement of the Sustainable Development Goal. No. 10 (Reduce inequalities). Nevertheless, more long-term research is needed to confirm this.

When we are talking about reducing prejudices, we must bear in mind that it is a two-way process: not only privileged groups rehumanize less privileged groups. From the conversations with fostering families, I could understand that they thought of musical education as something elitist. Music and music practice undoubtedly improves our life quality, contributing to our physical and emotional well-being. Popularizing musical education, and reducing prejudices about who can access it, is an important step forward in achieving Sustainable Development Goals No. 4 (Quality Education) and No. 11 (Sustainable Cities).

Finally, throughout our study, we learned that it is important to establish partnerships to improve the quality of any project. Sustainable Goal No. 17 seems to refer to big partnerships, among countries, organizations, etc. Nevertheless, we think that it is a *sine qua* condition to promote a culture of partnership at the micro-level to make it pervasive at meso- and macro-level.

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CHAPTER 2

THE OPINIONS OF VISUAL ARTS TEACHERS ON POPULAR CULTURE AND THEIR APPROACH IN THEIR CLASSES¹

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¹ The present study involves a part of data from the Master's thesis, 'Secondary school art teachers' manner in using popular culture elements in achieving of seventh grade lesson objectives', which was completed by Derya Aydin in 2019, under the supervision of Gonca Erim at Uludag University, Faculty of Education.

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Introduction

Although popular culture has a history spanning centuries and dates back to at least as early as human history, it is also recognized as new by many researchers (Aydogan, 2004:33; Löwenthal, 2017:16; Roberts, 2011). The reason for this is that it is a poorly defined phenomenon. The recognition of popular culture as a field of study, approaching its modern meaning, became evident in 18th century England with the rise of the Industrial Revolution and the concept of class. Despite the awareness of popular culture in the 18th and 19th centuries, the reason why it became important as a field of study in the 21st century is attributed to its relationship with technology usage (Ozkan, 2006:30). In this regard, Norris (2012) describes popular culture as a poem written for the 21st century.

According to John Fiske (1999:37), who approaches popular culture through the Cultural Studies School, popular culture is a concept that has been created by the free will of the people in the common ground of daily life and cultural industries, and is related to the current situation of society. Therefore, according to him, popular culture is not formed by imposition on the people but is a phenomenon that is formed by the likes and desires of individuals in accordance with their own consent. Arik (2009:128) suggests that popular culture is a necessity of human metabolism. The concept of popular culture, in its current meaning, was first used in America. It was initially considered mass culture, and later developed to refer to the culture of the people as opposed to the culture of the upper class (Cosgun, 2012:841). Over time, it has come to be used for everything that people love and consider popular. According to Brummett (2011), Falter (2013) and Sellnow (2010), popular culture is a system of signs that works in its broadest sense. In short, popular culture is defined as a way of life that the majority of people in society live or will live.

Popular culture in education

It is well-known that the curriculum is a crucial element for the success of education. According to Dewey (1934), whose main goal of

education is to prepare children for their future responsibilities and achievements, education has traditionally been squeezed between textbooks and what adults offer, without considering the desires of students. However, the student is at the core of education, and their enthusiastic participation in the educational process is crucial (Demirel, 2010). To achieve this enthusiasm, attention must be paid to individuals' preferences. Because education takes place during real and fictional, overt and covert learning experiences, both inside and outside the classroom (Trend, 1992). Furthermore, in order to gain an understanding of the impact of educational policies and developments, we need to take into account the cultural experiences of children and young people both inside and outside of schools. This way, students can be allowed to benefit from everyday life experiences without being limited by the classroom.

According to Dewey (1934), an educator must be aware of how to benefit from the physical and social environment in the context of education. This situation reminds us of the importance of the concept of popular culture, which is accepted by a certain majority of people and exists in people's lives, especially with the influence of mass culture, to the social environment and culture that are an essential part of education (Bal, 2016:3). According to Alvermann (2012), the reason for this is that popular culture can be a bridge between students' lives and their education. Morrell (2004:73) also shares a similar perspective, stating that for a critical educator, popular culture should provide a meaningful connection between lived experiences and school culture. The diversity of cultural interactions that students bring to school and the impact of mass media on learning and teaching have aroused interest in popular culture studies in education. Therefore, the influence of popular culture on today's youth and teachers' perspectives on popular culture have been a topic of discussion for a long time and have led researchers to examine the integration of popular culture into the curriculum (Buckingham & Sefton Green, 1994). In this regard, Osier (2003:18) emphasized that including popular culture as part of the curriculum would allow teachers to understand student behavior and

bridge the gap between students and teachers. S. Green (2001) similarly stated that as long as the teaching plans are structured according to the student's interests, they will be willing to develop formal knowledge and apply it to their own cultures. In the same vein, Koh (2015:695) emphasizes the need for in-service courses on teaching popular culture in order to implement popular culture pedagogies into the curriculum.

The important first step for teachers to integrate popular culture into education is to try to learn about their own experiences and interests in popular culture. Being knowledgeable about their students' interests in popular culture can help teachers better understand the fun and enjoyable functions offered by various forms of popular culture. Such an understanding can have a positive impact on teachers' lesson planning processes (Alvermann, 2003:11). In a study conducted to introduce the concept of leadership in education, the positive and negative aspects of the popular culture element, the Harry Potter film, were examined and then taught in class. In this context, parallel results were obtained for education to acquire leadership skills (Yu, Elarco, Murro, McAnany & Anderson, 2022). According to Karadag (2004), people do not shy away from images they like. What is important here is how teachers can identify and reveal these visual elements. Aslanturk Altıntug and Debreli's (2018:174) thoughts in this direction suggest that children's interests can be revealed through observation. Teachers can observe and interact with their students while they are playing games, which can help them be aware of their interests. The role of teachers in this context has been expressed by Machado as follows: "Teachers should be partially detectives and researchers, reviewing clues left by children, collecting data, testing hypotheses, and keeping reliable records of children's growth and development" (Machado, 2014:168). After deciding which popular culture elements to use for a particular topic, the focus should be on the requirements of the current curriculum. In addition, detailed planning should be done to protect students against the harmful effects of popular culture. The increasingly popular idea of bringing popular culture into the educational environment and raising awareness to prepare individuals for social life has become an

educational philosophy in many foreign schools (Gingell & Brandon, 2000; Noddings, 2005). As a result, it has been used as a teaching tool in classrooms for a long time (Callahan & Rosser, 2007; Cummins, 2007; McMahon & Bramhall, 2007; Rajendran & Andrew, 2014; Sprinkle & Urick, 2016; Scott & Weeks, 2015). In the use of popular culture elements, it is accepted that it especially facilitates the explanation and learning of difficult concepts (Auvinen, Aaltio & Blomqvist, 2013; Bolton, 2016; Rosser, 2007; Forster et al., 1999; T. Heath & Heath, 2016; Rustin, 2016; Sanyal & Dasgupta, 2017).

Teachers' attitudes towards popular culture

In the relevant literature, research on this topic shows a general reluctance among many teachers to use popular culture material in schools (Makin et al., 1999; Moni & Joblin, 2008; Suss et al., 2001; Xu, 2004). Theorists working in this field indicate that educators know many elements of popular culture that are easily accessible to them but ignore them. Educators who refuse to apply popular culture in education see students as passive by not wanting to work with the knowledge they actually possess, thus eliminating the possibility of developing a pedagogy that connects school knowledge to different subjects (Deschamps, 2002:8). Marsh & Millard (2000:23) suggest that the most significant reason why teachers do not include texts from popular culture in their classrooms is their discomfort with the ideologies that many of these texts support. According to Lambirth's research (2003:11), teachers' negative and cautious attitude towards popular culture is due to the violent and sexist attitudes that underlie some popular culture elements. However, even teachers who completely reject popular culture may start to consider its use as a means to create a genuine atmosphere for their students after watching a movie or reading a certain book (Güven & Kelesoglu, 2014). So even if teachers are against popular culture, they often use elements of popular culture in their daily teaching routines because it facilitates real-life connections, and at the same time they acknowledge the unquestionable

superiority of popular culture on children. By using elements of popular culture, they can easily interact with their students and feel closer to their culture. Using popular culture is an effective tool for teachers to actively engage with their students (Güven & Keleşoğlu, 2014:346).

The literature review conducted domestically shows that there are many studies on popular culture in the field of communication. However, the number of studies on teachers' views on popular culture is very limited. On the other hand, in the literature review conducted abroad, it has been found that there are many studies on the use of popular culture elements by teachers throughout their education. Therefore, the literature review covers the entire relevant education system, although popular culture is addressed specifically in visual arts education. In Eristi's (2010) study titled "Primary School Students' Popular Culture Perception in Their Pictures (The Example of Multicultural Fjell Primary School in Norway)", the researcher worked with students aged between 10-13 who attended Fjell Multicultural Primary School in Drammen, Norway, to investigate the effects of popular culture on their pictures and artistic expressions. According to the findings obtained by the researcher, it was determined that a large number of students were under the influence of popular culture elements in their pictorial narratives, and these elements were their favorite images that they loved the most. One of the findings of Güven and Keleşoğlu's (2014) qualitative research on the adaptation of popular culture to classroom teaching practices is that many teachers are not aware of how students are influenced by popular culture. Another finding is that consciously and carefully using elements of popular culture in class has an instructive and motivating effect on students. Finally, even though teachers may be opposed to popular culture, they have acknowledged that it is a reality of modern education and have stated that it is an effective tool for capturing students' interest and building connections. According to the data obtained from Bal's (2016) doctoral thesis titled "The Use of Popular Culture Texts in Native Language Education," Turkish language teachers and parents have stated that the use of popular culture in instruction is necessary, citing the reason as students feeling a sense of

belonging in school. In Butler's (2018) master's thesis titled "Perceptions of Elementary School Teachers Regarding Popular Culture Texts," first-grade teachers' perceptions on the use of popular culture texts during independent reading are being investigated. According to the findings analyzed through thematic analysis, it was concluded that although teachers allow the use of popular culture texts, they limit it within their own set conditions and use it within a program flow. Vasil (2020), who advocates for the inclusion of popular culture in music education, has stated that by incorporating hip-hop culture into education, popular culture can be integrated into lessons through collaborative and interdisciplinary projects. Dickie and Shuker (2014), Weld (2011), and Marsh (2010) have stated in their research that there are strong links between popular culture and literacy, and that popular culture does not pose a barrier to education. Instead, they have pointed out that it can be easily incorporated into lessons by teachers in numerous ways and can be developed for students at all levels of development. According to Sudiran, Kurniawati, and Adityo (2020), who emphasize the importance of popular culture in English language teaching, the correct analysis and use of popular culture elements in the classroom have positive effects on students. Mušić (2021) has highlighted the developments that have resulted from the use of popular culture elements such as the characters Elsa and Anna from a popular animated movie, indicating that the advantages of popular culture have been utilized in education.

Problem situation

Many studies have been conducted and are still being conducted in the field of popular culture in Turkey. However, the majority of these studies are carried out in the field of communication and emphasize the impossibility of avoiding popular culture while also criticizing it (Ercins, 2009; Gulluoglu, 2012; Karakoc, 2014; Kaya & Tuna, 2010; Senturk, 2007; Varol & Tayanc, 2017). In studies conducted in the field of Visual Arts Education, while the impact of popular culture on students has been

determined (Eristi, 2010; Gunduz, 2015), there is no study that identifies the views of teachers on popular culture. However, it is necessary to determine the level of awareness of these elements, which almost surround all children today, from the perspective of teachers.

The purpose and significance of the research

The aim and importance of the research is to determine how and to what extent teachers are aware of elements of popular culture, which are constantly talked about in schools as a result of the knowledge gained in daily life, and what their attitudes towards popular culture are. The most important reason for this goal is that literature research shows that teachers' awareness in the field of popular culture is important for them to better understand students and plan class activities more efficiently. This study is expected to provide information specifically to middle school visual arts teachers and in general to all middle school teachers.

Method

Research design

This article includes a detailed analysis of the question, ‘What are the general views of visual arts teachers on popular culture?’ According to Creswell's definition (2016:97), a multiple case study is a qualitative approach in which one or multiple bounded cases are examined in detail within their real-life context through various data collection methods such as interviews, observation, document analysis, etc. The focus is on investigating a single topic by selecting multiple events or individuals related to the topic. (Baxter & Jack, 2008; Guler, Halıcıoglu & Tasgın, 2015:301). Based on these definitions, our research focuses on a single topic and involves in-depth investigation, therefore, a multiple case study design has been adopted.

Study group

Due to the nature of qualitative research, the study group was selected without aiming for generalization and consisting of 11 Visual Arts teachers who teach 7th grade Visual Arts courses in a total of three public and three private schools, with one public and one private school from each of the three central districts (Nilufer, Osmangazi, Yildirim) of Bursa during the 2018-2019 academic year. The visual arts teachers consist of nine females and two males. A purposeful sampling method was used to select the visual arts teachers, and two separate interview forms were created. Criterion sampling was used to select participants for the first interview form, while homogeneous sampling was used to select participants for the second interview form. The criteria used to select participants for the first interview form are as follows:

- Teachers teaching at the 7th grade level.
- Teachers having a minimum of 3 years of experience.

Participants who meet these criteria are listed in Table 2.1 along with their code names.

Table 2.1. 1. Participants in the semi-structured interview⁴

1. Participants in the interview form	Type of School	Mission Time
Birsen	Private School	7 years
Gamze	Private School	3 years
Ayse	State School	30 years
Betul	State School	25 years
Handan	Private School	4 years
Gaye	Private School	5 years
Arzu	State School	20 years
Cenk	State School	30 years
Hulya	State School	24 years
Sehnaz	State School	23 years
Emre	Private School	3 years

⁴ Table 2.1 was created by researchers.

The criterion for selecting participants for the 2. Interview form was the first interview form. During the first interview process, four participant teachers who commented on using popular culture elements in their classes were selected for the second interview form. The code names of these participants are Birsen, Gamze, Ayse, and Betul. In addition to the interview forms, the opportunistic sampling method was used to collect observation data. All participants volunteered to participate in the study and were informed that they could withdraw from the research at any time. In addition, all legal permissions related to the research were obtained due to ethical requirements, and all participants were given code names due to ethical considerations.

Data collection tools

After determining the purpose of the research in a multiple case study, the selection of data collection tools is important for sustaining an in-depth perspective (Merriam, 2015:42). According to Creswell (2017:111), who emphasizes the need for multiple data collection tools in good qualitative research, qualitative data variation is divided into four categories: observation, interview, document analysis, and visual-audio materials. As a result of the literature review conducted, this research utilized interviews, observations, and document analysis to ensure data diversity, but interviews were determined as the main data collection tool.

Semi-structured interviews. The purpose of interviews in a research study is to directly access the participants' thoughts and feelings (Patton, 2014:341). Based on this information, two separate interview forms were prepared and applied to visual arts teachers. First, discussions were held with two independent visual arts teachers about popular culture and achievements. Then, interview questions were prepared with the support of the literature. The questions were reviewed by Expert Dr. Berna Coskun Onan and visual arts teacher Cagla Erdem,

and after being revised, they were submitted to the Bursa Uludag University Ethics Committee for approval and received the necessary approvals. A pilot study was conducted to ensure that the ready-to-use interview form serves its purpose. Conducting a pilot study before the interview not only reveals the importance of whether the questions on the researched subject are sufficient but also provides feedback on the usability of the questions. (Creswell, 2017; Glesne, 2015; Yildirim & Simsek, 2013). After the pilot application, missing details in the form were added and some questions that were deemed excessive were removed, and some changes were made. Legal permissions were obtained to apply the interview forms to teachers. The first form includes two demographic questions and eight open-ended questions. The second interview form, which went through the same process, includes seven open-ended questions.

Observation. Observation is a frequently used method in qualitative research that allows researchers to gather detailed information about events and topics by observing participants in their natural environments (Creswell, 2017; Guler et al., 2015:104; Yildirim & Simsek, 2013). In this study, the researcher collected data through participant observation. Accordingly, the researchers observed the visual arts teachers' classes without adhering to a specific format, disclosing their identities. The participant observation method generally describes observations made without adhering to a specific observation form, in an environment where the purpose of the observer is known (Guler, Halıcıglu & Tasgin, 2015; Glesne, 2015; Meriam, 2015; Yildirim & Simsek, 2013). In this way, observations were made and necessary notes were taken simultaneously during the data collection process for a period of 6 weeks.

Document analysis. In addition to interviews and observations, document analysis involves including written, visual, and material materials related to the research problem in order to increase the validity of the study in qualitative research (Bryman, 2004; Merriam, 2015;

Yildirim & Simsek, 2013). Data triangulation was performed to increase the validity of the research. These documents include the Visual Arts Course Curriculum, annual and daily activity plans of participant teachers, researcher notes obtained from observations, and student work.

This research was conducted with the approval of the Bursa Uludag University Research and Publication Ethics Committees (Social and Humanities Research and Publication Ethics Committee) under decision number 8 dated 30.10.2018.

Data collection process

This section presents the data collection stages in which information about how researchers utilized their data collection tools is provided. The data collection process was carried out in three stages during the research period, and the information is presented in Table 2.2.

Table 2.2. Data collection process⁵

Stage	Sample	Data collection tools	Date range
1. Stage	Teacher + Student	Interview + Observation + Document review	11.02.2019 01.03.2019
2. Stage	Teacher + Student	Interview + Observation + Document review	11.02.2019 01.03.2019
3. Stage	Teacher	Interview + Document review	06.03.2019 22.03.2019

⁵ Table 2.2 was created by researchers.

1.Stage: The data collection process for Participant 11 consisted of the application phase of the first semi-structured interview form to determine their general views on popular culture as visual arts teachers. Information about this interview form, which includes two demographic and eight open-ended questions, was presented to the participant teachers prior to the application process. It was explained that the process is based on voluntary participation, and participants could withdraw from the research at any stage they wish, and that their voice would be recorded during the interview process. Then, all this information was provided in the Participant Teacher Consent Form, and it was emphasized that they should read it carefully and sign it if they approve. Nine out of eleven participant teachers signed the document, stating that there was no problem with the recording of their voice. However, two participants declined to have their conversations recorded and instead agreed to have the information discussed during the interview written down. They stated that they would allocate time for this during the interview. After all the processes were completed, the interview forms were administered in a quiet environment as deemed appropriate by the participating teachers. Detailed information on the first semi-structured interview is presented in Table 2.3.

Table 2.3. 1. Semi-structured interview form application information⁶

Interviewer code name	Interview date	Interview time	Interview location
Birsen	11.02.2019	25 minute	Visual Arts Group Room
Arzu	12.02.2019	25 minute	Teachers' room
Gaye	19.02.2019	10 minute	Visual Arts Workshop
Gamze	19.02.2019	25 minute	Visual Arts Workshop
Ayse	20.02.2019	18 minute	Officer room
Cenk	21.02.2019	24 minute	Visual Arts Workshop
Handan	21.02.2019	22 minute	Visual Arts Group Room
Sehnaz	25.02.2019	20 minute	Teachers' room
Betul	27.02.2019	25 minute	Library
Emre	01.03.2019	15 minute	Visual Arts Workshop

⁶ Table 2.3 was created by researchers.

2.Stage: This stage, which was carried out concurrently with the first stage, was realized through observations and collection of document review data. During the first stage, which was implemented concurrently with the first interview, observation data was collected by participating in the classes deemed appropriate by the participants who filled out the interview form. Additionally, during the observations, a researcher journal was kept and documents related to the students' work in that class were obtained. Moreover, data on activity plans were also obtained from the participating teachers. As a result, a dataset for document analysis was created. Detailed information regarding the observation data is presented in Table 2.4.

Table 2.4. Observation application data⁷

Observation date	Observation point	Observation time	Expression in the dataset
13.02.2019	Setbasi Secondary School	40 minute	1. Observation
18.02.2019	Bahcesehir Modern Secondary School	40 minute	2. Observation
19.02.2019	Yonder Secondary School	40 minute	3. Observation
21.02.2019	Vahide Aktug Secondary School	40 minute	4. Observation
21.02.2019	Bahcesehir Modern Secondary School	40 minute	5. Observation
22.02.2019	Vahide Aktug Secondary School	40 minute	6. Observation
25.02.2019	Sakarya Secondary School	40 minute	7. Observation
27.02.2019	Sakarya Secondary School	40 minute	8. Observation
01.03.2019	Akcaglayan Secondary School	40 minute	9. Observation

⁷ Table 2.4 was created by researchers.

3.Stage: The first stage was effective in the formation of the final stage of data collection. Participants who had positive attitudes towards popular culture and expressed using them in their lessons were identified using a homogeneous sampling strategy among the teachers who were given the first interview form. In this stage, a total of 4 participant teachers were identified, and the second semi-structured interview form prepared to determine how popular culture elements were used in class was applied. Detailed information on the semi-structured second interview can be found in Table 2.5.

Table 2.5. 2. Semi-structured interview practice information⁸

Interviewer codename	Interview date	Interview time	Interview location
Birsen	19.03.2019	28 minute	Visual Arts Group Room
Betul	20.03.2019	26 minute	Teachers' room
Gamze	21.03.2019	15 minute	Visual Arts Workshop
Ayşe	22.03.2019	16 minute	Visual Arts Workshop

Analysis of the Data

Thematic analysis, which is an inductive approach, was used in the analysis of the data obtained during the data collection process for the first research question "What are the general views of visual arts teachers about popular culture?" in the thesis study titled "Secondary School Art Teachers' Manners in Using Popular Culture Elements in Achieving of Seventh Grade Lesson Objectives". Thematic analysis involves the coding and subsequently recoding and sorting of data for further analysis and description (Glesne, 2015). The analysis was conducted in 8 stages throughout the process. The stages of the process are generally shown in Table 2.6.

⁸ Table 2.5 was created by researchers.

Table 2.6. Data analysis stages⁹

Stage	Application
1. Stage	Converting Audio Data to Text
2. Stage	Finding Units of Meaning
3. Stage	Getting Started with Coding
4. Stage	Finding Categories
5. Stage	Finding Themes
6. Stage	Inclusion of Other Data in the Analysis
7. Stage	Comparison of Code-Category and Themes and Reliability
8. Stage	Interpretation of Findings

In general, codes were created through inductive analysis to reveal relationships among the data in this study. The semi-structured interview forms, which were the main source of data for this study, were analyzed using the thematic analysis method. In addition, observations and document reviews were described to ensure data diversity. The aim was to contribute to the reliability of the study by providing a detailed explanation of these processes.

Validity and Reliability

In this study, ways suggested by Miles and Huberman (2015:277) to enhance the quality of qualitative research with regard to validity and reliability have been taken into account. In this regard, five methods mentioned in the literature have been presented in connection with the research. In order to ensure the objectivity of the research, the researchers have tried not to add their emotions and assumptions to the implementation process. According to Guba and Lincoln (1981), it is crucial for the researcher to adopt an impartial and objective writing style by not including their own feelings during the research period. In addition to these, in order to ensure objectivity as stated by Miles and Huberman (2015:278), all sections of the research have been presented in accordance with the conceptual framework, associated with the adopted model, and

⁹ Table 2.6 was created by researchers.

have attempted to be presented in this way. The analysis of the obtained data was first presented to the field expert, then to the consultant and to the academic staff who work in the field of qualitative research, and all necessary corrections were made. The implementation of this process is also considered one of the ways that increase reliability in terms of verifiability (Creswell, 2017:200). In addition, all the paths followed in the data collection process have been presented in detail, and the consistency between the findings and results has been discussed in the discussion section. In order to strengthen the reliability of the research, attention has been paid to ensuring parallelism between the tools used for data collection and the findings. Furthermore, in order to control data bias, a part of the coding process has also been carried out by an expert in the field, and the codes have been evaluated mutually.

The term internal validity is related to the accuracy and credibility of the obtained data (Yildirim & Simsek, 2013:291-299). It refers to how well the findings reflect the statements made by the participants. To achieve this, data variation was performed by focusing on the data collection process, and the significance of the data and the consistency of the findings within themselves were examined. Using multiple data collection tools is one of the ways to increase the quality of the research, according to Patton (2018) and Yin (2003), and it also increases validity and reliability. In this research, to enhance internal validity, variation was made by utilizing interviews, observations, document examination, and surveys, based on the data obtained from the literature review.

To ensure the transferability of the study, the researchers have reported every stage of the process in detail. During this reporting process, great care has been taken to ensure that all the information that another researcher might benefit from, if they were to carry out the same study, is clear and detailed. In other words, the entire process has been described in detail. Additionally, as stated by Yildirim and Simsek (2013:305), using purposive sampling is one way to ensure transferability. In this study, all the samples were purposefully selected to ensure validity in this area. Furthermore, in line with the aim of the qualitative research, all sections that needed to be explained have been presented comprehensively.

Additionally, to ensure confirmability, all data collected during the study has been stored by the researchers. To strengthen the validity of the study, the statements of the participating teachers have been directly used and before their usage, they were read to the participants and participant confirmation was obtained. Actionability, also known as pragmatic validity, is important in terms of being good and useful (Miles & Huberman, 2015:280). Throughout the entire research, all processes and sections that serve the purpose holistically are evaluated within this scope. In order to achieve this, practical recommendations are presented in the recommendations section for researchers who will conduct similar studies. The findings, results, and recommendations of the research have been taken into consideration for the benefit of readers and researchers who want to benefit from this section.

Findings

Within the context of the master's thesis, which is based on the first research question of visual arts teachers' general views on popular culture, the findings were collected and analyzed under three categories in the context of this theme. The findings section provides information on the categories of '*Defining Characteristics*,' which includes definitions of popular culture from the perspective of teachers and their explanations of these definitions; '*Formation of the Phenomenon*,' which covers the formation and development of popular culture over time and process; and '*Reflection on Individuals*,' which describes the impact of popular culture on individuals in our society in its broadest sense.

1. Defining characteristics

The *defining characteristics* category consists of seven codes: Repetition, Orientation towards perception, Timeliness, Interdisciplinary expansion, Temporariness, Production and consumption characteristics, and Kitschification. According to the views of visual arts teachers, what popular

culture is and what its characteristics are explained, and this category mainly includes qualitative descriptions of defining characteristics.

The first question asked in the 1st Interview form with Visual Arts teachers was, "What is popular culture in your opinion?" All 11 teachers who participated in the interview emphasized that they were familiar with the concept and provided various definitions. The findings from their definitions revealed that popular culture is always in the spotlight, contains heavily advertised elements, and includes objects that we constantly encounter and talk about in society. Sehnaz, who used similar expressions to Emre and Betül when defining popular culture, stated, "Popular culture is an often talked about phenomenon in the news on television. It is everything we encounter at all times and in all places. It is what children are familiar with and frequently come across" (Sehnaz, 1st Interview, p.2). By emphasizing that the concept of popular culture is known to societies and that we can constantly encounter it, Sehnaz highlighted the repetitive feature of popular culture.

The participating teachers, while defining popular culture, indicate that elements that we become familiar with over time due to their attention-grabbing nature and frequent appearance in many places can also be considered popular culture. Ayse and Handan teachers, in the most general sense, stated that popular culture is now present in the daily lives of not only children but also families, and made comments about its attractiveness, familiarity over time, and reaching all individuals through perception. In line with their expressions, Sehnaz teacher, who expressed similar opinions, stated that "they are the information and accumulation that attracts people's attention and are also talked about in families. Since they attract our interest and have an impact on our perceptions, we become familiar with and adoptive to these elements" (Sehnaz, 1st Interview, p.2), emphasizing perceptions and stating that as individuals, we internalize elements of popular culture.

According to the findings of the interview forms, Gamze defines popular culture as novelty rather than cyclical, while Bilge explains with an ideological approach that popular culture can determine current

events and generally consists of popular elements in current phenomena. Handan, on the other hand, emphasizes the interconnected structure of popular culture and currentness. Gaye teacher, expressing the general comments of the three teachers, stated with these words: "When I evaluate myself, I don't see myself as an advocate of popular culture, and I think there are many negative aspects of it. However, when I hear popular culture, I think of things that are more contemporary, modern, different, and outside of the classic. We can also say more originally, actually. Because it is consumption-based, constantly new concepts or elements emerge to ensure the continuity of consumption with an original and innovative approach" (Gaye, Interview 1, p.4) Like other teachers, she emphasized the contemporaneity of popular culture.

In the findings, expressions such as the wide range of popular culture, its coverage of every aspect of life, and its composition of elements that are ubiquitous have also been effective. The most general expression of Cenk, Sehnaz, Betül, and Arzu teachers can be summarized as: "It encompasses every aspect of our lives. It ranges from the music we listen to and the books we read in our daily lives, to the items we use; even the language we use in our daily lives can sometimes be the result of popular culture. Especially with children, including my own son, I have observed that popular culture is dominant and even affects their language" (Ayse, 1st Interview, p.5). Therefore, these findings have been named under the Cross-Field Expansion code and are included under the Describing Characteristics category.

Another finding obtained from the interviews is that elements of popular culture are not perceived as permanent. While Arzu teacher states that popular culture constantly changes without an absolute judgment, Sehnaz teacher points out its temporary nature by stating that it cannot be used together with the concept of permanence. Gamze teacher expressed her thoughts in the same direction with the statement: "I see popular culture as a temporary culture formed by various factors of people and society." Generally, participants can be said to see

popular culture as a temporary element, but they also think that with this temporality, there is always a new element present.

Another word that came up when teachers defined popular culture was speed. Ayse teacher, who had similar views with Handan and Cenk teachers, emphasized that one of the most exhausting aspects of popular culture for individuals is the cycle of speed in production and consumption. Most of the teachers have mentioned the element of speed in defining popular culture and have presented their ideas about its impact on individuals in terms of production and consumption.

According to the findings obtained from the discussions on what popular culture is, the concept of kitschification appears as a more negative criticism. Handan teacher, who presented the statements of Birsen, Ayse and Cenk teachers in their most general form, expressed similar opinions to other teachers by stating that some elements of popular culture degenerate and thus the kitsch concept enters into every aspect of our lives.

2. Formation of the phenomenon

The formation of popular culture consists of four codes: Cultural Inference, Development with Supply and Demand, Leadership of Characters, and Easy Dissemination. According to the opinions of visual arts teachers, the emergence of the phenomenon of popular culture, the factors contributing to its formation, and the progress in the dissemination process are explained in these codes. Based on the responses from visual arts teachers in the first interview form, which asked the question "What do you think popular culture is?", it is notable that there are many cultural explanations. According to the descriptions made in this regard, Arzu teacher associates popular culture with capitalism and likens it to mass culture, which is one of the most confused cultural types with each other. Emre teacher, who has an additional qualification to Ayse's explanations, also points out the significant role of social media and mass communication tools in the

development of popular culture elements. Cenk and Birsen, who like their colleagues base popular culture on capitalism, also emphasize the importance of the consumption system in this regard.

Findings suggesting that popular culture elements are shaped according to individuals' own desires and preferences fall under this category. Arzu, who is not an advocate of popular culture, stated that individuals choose these elements based on their own will, without any imposition. Similarly, Cenk made similar statements to Arzu and additionally stated that it arises from our everyday needs.

Sehnaz teacher, who exemplified the necessity of popular culture being led by a person, stated that for an object to become popular, being seen with a famous person increased its memorability and thus could be adopted as a popular culture element. Emre and Betul teachers also expressed their similar views, emphasizing that the leadership of famous characters is an effective factor for an element or object to be on the agenda.

The easy dissemination code, which falls under this category, refers to the idea that popular culture can reach millions of people in a short time, even within hours, and that everyone can easily obtain them. Betul teacher's brief statement that expresses the same idea as Sehnaz teacher's is as follows: "Today, people can easily and within seconds access elements of popular culture. In my opinion, popular culture can be described as 'fast food'. Societies can easily consume it and consume it in a very short time. One of the main reasons for this is the internet, which is also a mass communication tool. It is something that can be easily spread in this way" (Betul, 1st Interview, p.3). As can be understood from the statement, it refers to the ability of popular culture to spread instantly and shows the fast spreadability of the internet, which is one of the mass communication tools. This view of the participants can also be supported by students' opinions. During the observations, the dialogue between two students was as follows:

Teacher: "Did you watch the new episode of Game of Thrones? I think it was full of action."

Student: "Of course I did, I watched it online as soon as it was released, and I was really looking forward to it. I also think it was very impressive" (Observation 2, 11.02.2019). These words demonstrate how quickly popular culture elements spread.

3. Reflection on individuals

The category of *Reflection on Individuals* consists of four codes: Impact on Creativity, Guidance, Influence of Popular Figure's Behavior, and Prejudice. According to the data obtained from interviews with visual arts teachers, the effects of popular culture elements on individuals are explained under this category.

According to visual arts teachers, the impact of popular culture elements on students as a result of their usage varies in terms of creativity. While some participants believe that popular culture expands students' horizons and encourages them to think about new things, others argue that popular culture limits creativity, leading to a uniform way of thinking and preparing students for easy solutions. Handan teacher, who focuses on the positive aspects, mentions that popular mass media can be a source of inspiration for students to design new products, thus enhancing their creativity and motivating them to create new things. On the other hand, Ayse teacher discusses the impact of popular culture on creativity objectively and interprets the creativity issue with a constructive approach, rather than a destructive one. Participants who discuss the negative aspects of popular culture highlight that students become lazy due to easy access to information, and instead of creating something new, they directly use readily available information, thus negatively affecting their creativity. Ayse and Gamze, who used similar expressions, state that their students do not intervene in the ready-made knowledge they learn and use it directly. Betul teacher, who takes an objective approach to popular

culture, links the limitation of creativity by popular culture to the instinct of humans to take what is readily available. When describing this situation, she sees children's desire for what is readily available as normal but emphasizes that teachers should be aware of this and follow a path accordingly. Birsen, another participant who expressed similar views with others, said: "Although I try to incorporate elements of popular culture into the lesson, the truth is that popular culture can make some students accustomed to simplicity. It actually does not expand thinking but rather narrows it down. For example, when they draw something, they try to finish the task in a simpler way instead of drawing at more advanced levels. In other words, it limits creativity by making them accustomed to consuming only ready-made things" (Birsen, 1st Interview, p.14) Birsen, who has a moderate approach to the use of popular culture elements in general, expressed the negative aspect of popular culture as limiting creativity by making students accustomed to consuming only ready-made things. According to the findings obtained from the participants, although the majority of teachers address the concept of creativity and present their ideas in this direction, a clear judgment cannot be made regarding the effect of popular culture on creativity, and different opinions arise. Therefore, the findings are categorized under the code name Impact on Creativity which falls under the category of *Reflection on Individuals*.

Another finding obtained from the interviews with teachers is that popular culture can easily lead people and influence individuals. In this regard, Arzu teacher briefly explained, "popular culture can direct people towards certain directions and tendencies" (Arzu, Interview 1, p.1), emphasizing the directing aspect. Gamze teacher, who has similar statements to Birsen and Hulya teachers, states that "Popular culture encompasses everything in our lives. From art to clothing. Because something becomes trendy and everyone follows it willingly or unwillingly. I don't think there is a limit to this, frankly" (Gamze, 1. Interview, p.5) and emphasizes that everyone follows popular culture consciously or unconsciously.

The code on the impact of popular culture on behavior, which generally shows similarities with data related to social learning theory, includes findings that individuals repeat information they have learned from external stimuli. Handan, who expressed similar statements with Emre, in a descriptive and solution-oriented manner, mentions that students tend to imitate and behave similarly to the popular individuals they choose based on their own criteria. Birsen, who shares similar expressions with other participating teachers, additionally states that the influence of popular individuals on behavior can be turned into a positive one for students through controlled intervention.

The latest code in this category includes findings about students approaching an event with prejudice by accepting the information they learned from their life experiences as true. These findings were obtained from the critiques made by participating teachers. Arzu, who expresses similar statements to Sehnaz, mentions that students approach topics with prejudice. Based on the responses obtained from participating teachers, statements indicating positive or negative situations created by students bringing certain information to the class that they learned as true or false in their social lives are included under the category of *Reflections on Individuals*.

Results, Discussion, and Recommendations

In the *Teacher Perspectives* theme, which forms the basis of this study, the results of the findings are presented along with discussions and recommendations based on the opinions of participating visual arts teachers about the meaning, characteristics, formation, and effects of popular culture on individuals. The statements in this regard are presented in three categories.

- The main situation highlighted in the category of *defining characteristics* is that all 11 participating teachers have general views on popular culture. According to the participants' definition in the category of defining qualities, popular culture is seen as elements

that are frequently discussed by individuals due to their constant presence, but it cannot be clearly defined. In the same vein, researchers such as Mutlu (2005:331), Ozbek (2002:82), and Arik (2009:27) have also found in their literature reviews that defining popular culture is quite challenging and cannot be standardized into a single mold. According to the participants of the study, who also expressed similar views as Browne (2006), pop culture includes elements that can be encountered everywhere and direct individuals' perceptions, and therefore it can contain a wide range of elements. Browne stated that anything, whether it be technological or traditional, can be considered popular culture and that popular culture can incorporate every element and turn it into its own element while defining itself. Although they struggled with defining it, the participants who identified certain characteristics of popular culture mentioned the phenomenon of repetition. They explained this by referring to its constant presence in the public eye, extensive advertising, frequent discussion among individuals, and popularity of the elements that comprise it. Ozturk and Bikmaz (2007:104), aimed to determine the status of popular culture trends among children, defined the characteristics of popular culture as "elements that are preferred by society, widely liked, and encountered everywhere." In addition to these characteristics, participants often referred to the temporary nature of popular culture and complained about its negative aspects, stating that sometimes they could not catch students' interests and elements of popular culture changed. Green and Bigum (1993) emphasized that this situation is normal, and that teachers can still learn about students' interests by engaging in constant dialogue with them, even though they may fall behind the students. Additionally, the teachers associated the concept of kitsch with the devaluation of certain elements of popular culture, noting that many elements have become worthless as a result.

- The fundamental situation that arises in the *formation of the phenomenon* is the presence of supportive elements in the formation of popular culture. Teachers believe that the dominant influence of

capitalism and mass communication tools are among the supportive elements. In Kaya and Tuna's (2010:237) article supporting this view, they wrote that popular culture, as a result of industrialization and the arrival of technology, has influenced the majority through mass communication tools and has become the culture of the masses, which is preferred and appreciated by the majority. Hughes (1998), Freedman (2000), and Chapman (2003) emphasized that students are the most affected by mass communication tools, and they have become an interesting factor for children. According to the findings, this spread is happening quite rapidly and is easily accessible to individuals. The most important reason for the rapid spread, according to the research, is that popular culture elements are presented by famous and beloved characters. Wohlwend, Peppler (2015) and Scanlan (2010) also noted in their research that students enjoy talking about, dressing up as, and imitating their favorite celebrities and characters. However, according to many participants, popular culture is shaped according to the desires and needs of society without any imposition, despite being spread through the leadership of characters and capitalism. When looking at the literature, while many researchers claim that popular culture is an imposition, some have stated that it develops in line with the desires of society (Brooks, 2006; Fiske, 1989; Hermes, 2005; Hobbs, 1998, and Trend, 1992). Fiske (1999:37) stated that popular culture is created through the free will of the people and is related to the current state of society, emphasizing that it is not formed through imposition on the public and is created in accordance with individuals' own consent.

- The category of *reflection on individuals* consists of explanations from teachers regarding the effects of popular culture on individuals. Based on the findings in this regard, although there is no clear conclusion about the impact of popular culture on individuals in terms of creativity, two different opinions have emerged. Some participants argue that popular culture limits creativity and leads students to think in a uniform way, preparing them for the easy way

out, while others argue that popular culture broadens students' horizons and encourages them to think of new things, and enhances their creativity. In the literature review conducted, it was found that there was no focus on a single situation in terms of creativity, and there were two different opinions, such as research data. The first of these views was obtained from Yurdum's research results in 2015, which investigated the possible reflections of popular culture on visual arts classes. It has been pointed out that due to popular culture, students are exposed to the same objects, and as a result, their creativity processes are hindered, their creative is limited, and they become uniform. Han and Ling (2017), who argue against this view, planned their lesson teaching in Japanese language instruction using the anime element that interests students. After the implementation, they reported that an interactive environment was created in the class, a fun process was experienced, and students approached the lesson with a creative perspective. Scanlan (2010:33) emphasized that students are more willing to participate in activities that include elements from their own lives, and this willingness makes them more creative and productive. Webb and Rule (2012:380), who highlight that creativity requires knowledge, also state that this prior knowledge emerges when children are given the opportunity to use their out-of-school experiences in the classroom. Therefore, in order for students to think creatively, they should gain an understanding of their real identities, and opportunities should be provided by closely following their extracurricular experiences and interests. Considering the opinion of Ozsoy (2006:19), who emphasizes that the visual arts class is a lesson that encourages students to research and create, it becomes apparent how valuable the lesson is.

Another finding from the research is that the teachers' views on popular culture are that it can influence and affect everyone by being directed at it. Many teachers who expressed that popular culture could influence people also emphasized that the popular behaviors of famous individuals could also direct people, and individuals might start behaving like them after being affected. The reason for this influence is

the desire of individuals to be like the popular person they choose as their idol. This situation, while accepting the theory of operant conditioning developed by Skinner, is also a supporter of Albert Bandura's idea that people learn almost all behaviors by observing and modeling (Bandura, 1989:1178; Aker, Krohn & Lanza, 1979:636; Orucc, Tecim & Ozyuurek, 2011:310). Ozden and Bariseri's (2010) study also obtained results that support the same finding, stating that students even take examples from the lives of their favorite and most-listened-to artists. The findings of Ozgan, Arslan, and Kara's (2014) study titled "Perceived Effects of Popular Culture on Student Behaviors" also show similarities with the previous studies, indicating that images disseminated through mass media cause changes in students' values and habits, and that they also model themselves after TV and movie characters.

Another teacher view that emerged is that the results showed that students can be biased due to the correct or incorrect information they acquire through popular culture in their social lives, and that their perspectives on the course are shaped by the knowledge they acquire.

According to Masterman (1985), students do not come to school as empty brains ready to be filled. They also bring their ideas, prejudices, and misconceptions with them. It argues that an effective teacher should take this into account and start the lesson by considering the connection between the topic to be taught and the media. According to the research titled "The use of anime as a teaching tool among Japanese language learners" conducted by Yee-Han Chan, Ngan-Ling Wong, and Lee-Luan Ng (2017), it was stated that students have certain prejudices before coming to school. In light of all the findings and literature presented, it can be seen that the participating teachers have a general knowledge of popular culture, and this knowledge is consistent with the literature.

Based on the findings and discussions obtained from the research "What are the general views of visual arts teachers on popular culture?", various recommendations have been made. Firstly, in line with the

research findings and literature, in-service courses can be opened in the field of popular culture, which is determined to have many benefits in education, so that teachers can be informed and encouraged. Additionally, while obtaining teacher opinions on the use of popular culture in education, student and parent opinions were not included. Similar studies can be conducted by taking into account the opinions of teachers, students, and parents. Furthermore, research can be conducted in different cities and with different sample selections.

Limitations

Presenting the limitations of the research is one way to demonstrate the credibility of the data, and when presented in detail, it supports the reader in understanding the nature of the data (Glesne, 2015:296). In this direction, the limitations of the research are as follows:

The data in this research is limited to the 11 Visual Arts teachers collected from 6 middle schools, one public and one private school from each of the 3 central districts of Bursa (Osmangazi, Yildirim, Nilufer). Additionally, the research is limited to the field of visual arts education and is limited to the academic year 2018-2019. The data of the research is limited to two semi-structured interview forms created by the researchers and approved by an expert instructor in the field, document analysis, and observation data.

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CHAPTER 3

THE CIRCADIAN RHYTHM IN HUMAN-CENTERED INTERIOR LIGHTING DESIGN

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Introduction

Throughout the course of human history, the biological structure of man has also evolved as a result of his ability to adapt to changes in his surroundings and the conditions of that environment. While this enables people to survive in their natural environment, it also contributes to the building of an artificial environment in which they can live. Nonetheless, as a prerequisite of modern life, people must spend the majority of their time indoors. This gives interior designers a great deal of responsibility and a significant role in arranging environments that affect people's health, productivity, effectiveness, and happiness. Thus, it is vital to design interior spaces with an understanding of people's biological structures, social relationships, and daily routines. In accordance with this requirement, understanding the biological systems of people who use interior spaces aids in the creation of healthier, more productive, and more efficient spaces for them.

People employ a combination of senses to comprehend their environment. The senses serve to realize the perception of numerous stimuli and the environment. These senses, as well as processes such as hearing, smell, touch, taste, and sight, all contribute to perception. Regarding the definition of the word “sense”, it is the capacity to perceive and hear stimuli. The senses are meaningless bits of information created after the brain processes the impulses supplied by the sense organs (Plotnik, 2009). According to Atkinson (2008, 153), the concept of sensation is a compilation of stimuli-induced experiences. The perception process is the transmission of information to the brain via nerves and sensory organs. Nonetheless, previous experiences, culture, and ecology also influence the perception process. Gibson (1979) associates perception with the clues and visual capacity that individuals acquire from the environment as a result of their own movement.

The most important factor in providing the act of seeing, which is of great importance in the perception process, is light. Light is optical radiation that enters the eye and provides visual perception (Rea, 2000).

In his work *Perspektiva Communis*, John Pecham explained that nothing would appear without light (Lindberg, 1970). In a sense, light is required for vision to occur. The link between light and vision is of great importance for perceiving the environment because 80-90 percent of perception occurs through the sense of sight (Çetin et al, 2003). In this direction, eyesight is crucial for perceiving the surrounding world. Light is a crucial factor in the development of vision.

There is considerably more to the interaction between light and humans than fundamental processes like seeing and recognizing items around us. Although the effect of light on humans is not yet fully known, it can be examined in two distinct groups as visual and non-visual effects. (Giray, 2009). Studies are being conducted by the healthcare sector as well as other businesses from diverse sectors to determine the possible advantages of illumination that synchronize with the body's natural sleep and wake cycles. Because of this situation, lighting design that is in sync with the circadian rhythm is becoming increasingly prominent in the realm of human-oriented interior design. These strategically designed systems, known as circadian lighting, have the potential to have a beneficial effect on people's health, alertness, productivity, and more.

Interior Design

Interior architecture is "the profession of designing spaces to meet the needs of people based on their physical and spiritual traits and behaviors in terms of their functional, aesthetic, and symbolic roles." (Kaçar, 1997). When interiors are regarded as places where people are directly involved, social and psychological recognition of a person is one of the most important factors in the design and production of healthy and appropriate interior spaces. Regardless of whether the interior design standards are proper or spectacular in terms of form and dimension, designs that disregard the sociological and psychological demands of the user will lose their validity and significance since the user and his

life cannot coexist (Bozdayı, 2004). In this regard, material, color, and lighting play an essential role in the process of designing rooms in line with the user's needs, expectations, and aspirations. Because the user perceives and experiences the designed spaces through their senses, the user is affected both psychologically and physically (Kaçar, 1997). When interiors are regarded as places where people are directly involved, social and psychological recognition of a person is one of the most important factors in the design and production of healthy and appropriate interior spaces. Regardless of whether the interior design standards are proper or spectacular in terms of form and dimension, designs that disregard the sociological and psychological demands of the user will lose their validity and significance since the user and his life cannot coexist. (Bozdayı, 2004). In this regard, material, color, and lighting play an essential role in the process of designing rooms in line with the user's needs, expectations, and aspirations. Because the user perceives and experiences the designed spaces through their senses, the user is affected both psychologically and physically.

The process of perception involves understanding information about the surrounding environment that is gathered by our sense organs. The majority of data is acquired visually. Thus, visual information always has a significantly larger impact on individuals (Myers, 1989). Space is experienced and perceived by its user. In addition to perceiving places through their senses, people also comprehend information about space and time. The perception mechanism, which is achieved with the five sense organs and accomplishes semantic integrity with memory, is successful in the semantic analysis of space (Manav, 2015:22). Lighting is one of the most influential variables in the perception of space. In interior design, space is appropriately perceived when the variables that comprise it, such as its function, shape, and usage, and the physical elements, such as color, material, and light compromising their subsections, are designed correctly. This study focuses on the topic of color, which, along with material and light, are essential design guidelines (Özsavaş, 2016).

Artificial lighting is utilized as a source of illumination when natural lighting is insufficient or when a space is used between sunset and sunrise. “Because artificial lighting sources have direct effects on the people using the space. Just as the architecture of the buildings is planned according to their intended use, the lighting design is planned according to their useful life and purpose” (Parlakayıldız, 2023:140). Hasol (2014) underlines the importance of artificial lighting in generating the appropriate ambiance in space when natural lighting is insufficient, and defines artificial lighting as lighting produced by the use of artificial light sources.

Lighting in Interior Design

Since space is primarily perceived through the sense of sight, the direction and quality of the light that surrounds that space emerge as a crucial factor in determining its character. Because light clarifies or obscures boundaries, highlights form or texture, conceals or reveals a feature, and reduces or enlarges distances. By using light, spaces may be altered or even created, surfaces can be magnified or shrunk, things can be brought to the fore, textures and colors can be altered, and a new ambiance can be produced in the place. Yet, like water, light is an element that cannot take shape on its own like water, but requires the assistance of other components to take shape. They are the volumes that form the light, give it meaning, collect it, scatter it, soften it, and harden it. Distances, surfaces, and volumes evolve in a systematic manner, giving the light a plastic value (Altan, 2015). In this regard, bringing natural lighting into the space and making optimal use of it are critical design considerations for space designers. When natural lighting is insufficient, artificial lighting is an important component of interior design. Throughout human history, humans have attempted to satisfy their demand for lighting by employing various light sources. Over the years, numerous lights have replaced candles and gas lamps, first with air gas and then with various forms of electricity. Each of these lighting options has a unique character with its own benefits and drawbacks (Coles & House, 2014). Koster (2004) defined artificial lighting as a substitute for

natural lighting in locations with little or nonexistent sunlight. In this case, artificial lighting sources replicate natural light, allowing users to receive the necessary light and perceive it with their eyes.

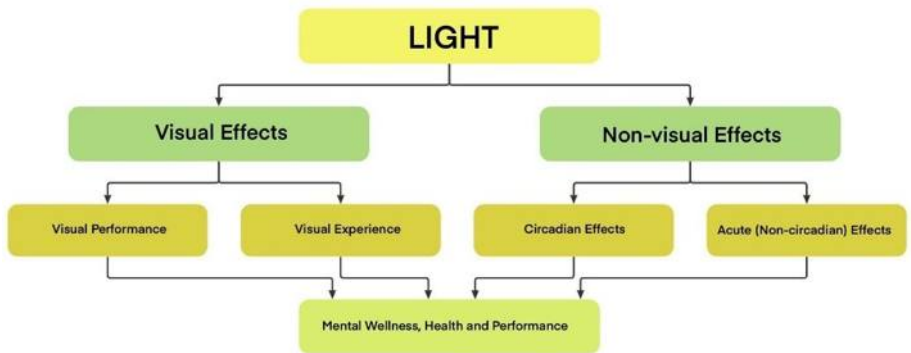


Figure 3.1. The effect of light on humans (Smolders, 2013).

It is commonly established that light affects people's mental wellness, physical health, and performance, as well as our perception of space. There are researches demonstrating that the amount of light has a moderate effect on work performance, social interactions, and communication but a large effect on visual performance, mood, preferences, satisfaction, health, and safety (Veitch and Newsham, 1996). According to Avci and Akbay (2023:9), “aside from the benefits to individuals' health and well-being, good lighting contributes to improved job performance (speed), fewer mistakes and rejections, increased safety, fewer accidents, and decreased absenteeism. This all adds up to increased productivity”. These impacts should be considered when planning the lighting for all inhabited places, and lighting solutions should be tailored to the intended function.

Light, according to Brooker and Stone (2012), is the most fundamental material, and without it, neither form nor ambiance can be generated in space. Lighting has a crucial part in establishing the ambiance of a space, allowing people to perceive it and enabling it to perform its

designated purposes. The effectiveness of the space's occupants is enhanced when the lighting is tailored to the space's intended use. It is vital to consider the forms of lighting in this context.

Houses, shopping malls, museums, entertainment venues, and hospitals are illuminated in accordance with their respective usage functions, as revealed by an examination of the lighting design for space usage. With the aid of lighting design, it is possible to highlight areas or goods that are to be visually highlighted in addition to supplying the lighting levels required by consumers.

Artificial Lighting Forms

Illumination shapes are determined by the spatial dispersion of light. This provides a variety of lighting options for the space. In accordance with the intended function of the space, general and localized lighting are selected. In general and localized lighting design, the purpose is determined by considering the usage function of the space and user needs. This situation serves multiple goals, including delivering the level of illumination required by the users during the space's utilization process and providing visual comfort. Even if general lighting and localized lighting can be employed in the same locations, it is vital to understand their respective purposes and contributions.

General Lighting

It is the complete illumination of space without consideration of any specific requirements (Sirel, 1992). Lighting in the space serves general purposes. It is sometimes referred to as physiological illumination in the literature. The primary function of physiological lighting is to guarantee that the eyes do not become weary and that good vision is maintained (Özkaya, 1994). Interior design lighting varies according to the direction of light. Examining these lighting forms reveals five distinct types: direct, indirect, semi-indirect, semi-direct, and homogenous.

- Direct lighting: The light is directed directly to the surface to be illuminated.
- Indirect lighting: It is the lighting created with the luminous intensity distribution in which 0-10% of the emitted luminous flux falls within the presumed limitless usable plane (Sirel, 2012).
- Semi-indirect lighting: In this type of lighting, 60-90% of the light is reflected upwards and 40-10% is reflected downwards. As most of the rays emitted by the lighting device are reflected by the surface above, the lighting efficiency will be low (Altuncu, 2007).
- Semi-direct lighting: 40-10% of the light is reflected upwards, whereas 60-90% is reflected downwards. Most of the rays emanating from the lighting device are directed downwards, resulting in a high illumination efficiency (Altuncu, 2007).
- Homogeneous lighting: It is the distribution of light in all directions in an identical manner. The light is equally distributed upwards and downwards.

Places, where natural lighting is impossible or insufficient, are fully lit with the use of general lighting. Yet, the lighting requirements vary depending on the purpose of the spaces. Certain areas of the spaces require localized lighting.

Localized Lighting

It is the favored method of supplementing ordinary lighting. It is utilized for regions that require emphasis, such as the space's components, features, and items. It is used when a small portion of a huge volume requires special lighting or when a great amount of lighting is required for a specific task (Şerefhanoglu, 1972). Depending on the intended use, localized lighting serves a variety of purposes, including accent, direction, and impact lighting. In this context, accent lighting is utilized to bring attention to a piece or object in the

environment. Orientation lighting, on the other hand, is utilized to offer spatial information, such as orientation lights. The purpose of effect lighting is to draw attention to a particular area while highlighting the light itself.

In addition to general lighting, localized lighting is employed to suit certain spatial requirements. This is valid for areas requiring localized lighting, such as workspaces. These workspaces should be illuminated sufficiently to provide the user with visual comfort. In addition to safeguarding the eye health of the users, this will also boost their productivity. Similarly, the types and intensities of illumination used in residences should be planned based on their intended usage and human health. There are several places within the homes that serve various purposes. It is essential to design the lighting according to the intended function of these places. When these prerequisites are met, it becomes necessary to implement ubiquitous lighting designs that support the circadian cycles, which are the internal rhythms of the users. This is only feasible by considering several variables such as the forms, colors, and intensity of the lighting used in the house/residence. With an awareness of human-oriented lighting within houses/residences, healthier, more productive, and more comfortable interior environments can be designed.

Human-Centered Design

Henry Dreyfuss, an industrial product designer, first referenced human-centered design in his 1955 book "Designing for People. In this regard, Dreyfuss highlighted the link between the human and the designer by stating that "If the point of contact between the product and the human is a cause of discontent, the designer has failed. When people become safer, more comfortable, more productive, and happier as a result of using the product, the designer has succeeded" (Dreyfuss, 2003:43). Even before this concept was introduced, people were exposed to designs that were created with them in mind. Nonetheless, Dreyfuss calls attention to this connection. In this trend, "In the 1990s, products

began to get smarter." It has arisen with the intention of serving the demands of people in all respects, despite the fact that this situation makes it occasionally difficult to use". The relationship between humans and design has been addressed in this context (Zhang & Dog, 2008:5). Since the broad adoption of the person and design paradigm, the scope of human-centered design has begun to expand.

The concept of human-centered design is analyzed as a concept that encompasses both the physical and social elements, with the person at the center. Akdemir (2017) provides information regarding the breadth of human-centered design by stating that "Human-centered design, which emerged in the design terminology in the 1990s, encompasses all human-centered challenges, innovations, and ideas. This circumstance brings together diverse disciplines and individuals from diverse backgrounds.

Human-centered design, like other design concepts, was influenced by environmental and social events along with changes in the process, and continued its evolution from the 1950s through the 2000s and continues to do so.

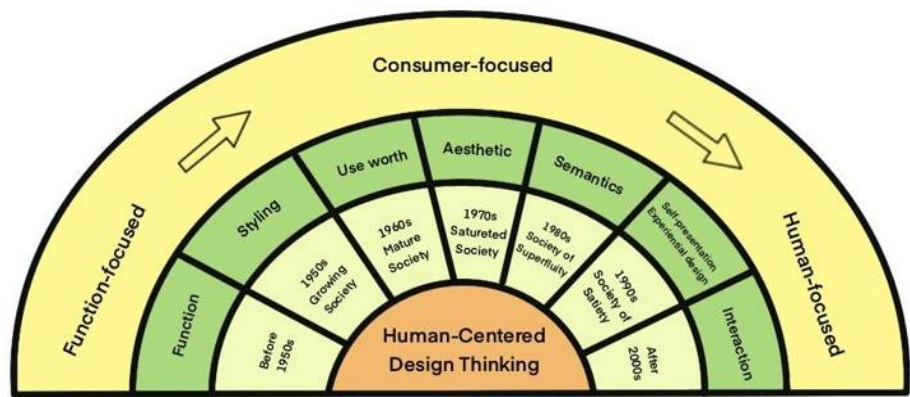


Figure 3.2. The development of human-centered design (Zhang & Dog, 2008:4).

According to Zhang and Dog, whereas a function-oriented approach dominated design in the early 1950s due to resource constraints, the

style began to acquire relevance with the expansion in production by the end of the 1950s. Throughout the 1960s, user requirements and expectations gained prominence. Country managers and producers relied on Freud's theories to gain knowledge about society. In order to guide society and mobilize the consumer society, Freud's nephew began to apply Freud's psychoanalytic techniques to society (Curtis, 2014). With these improvements, the products worth using have increased, and production has increased proportionally. Hence, the emphasis has shifted from the function to the user. In the 1970s, aesthetic concerns began to take precedence over function and the user. As a result of the significance of human preferences in the purchasing process, the 1980s and 1990s marked a turning point in terms of focusing on individuals. The relationship between person and product/space began to be thoroughly explored and investigated in the 2000s. (Zhang & Dog, 2008). While human-centered design advances, design techniques have also been determined by researchers.

Kelley and Littman (2001) developed a five-step method. In general, these steps are as follows:

- Understanding: Understanding the market, the customer, the technology, and the limits of the problem
- Observing: Observing real people in real-life situations
- Visualizing: Visualizing ideas and customers who will use them. To envision the clients who will use the new product and their experiences with the help of imaginary characters in new product categories during the brainstorming process, which is the most intense process.
- Evaluation and Refinement: It is the procedure where modifications are made and prototypes are built. Making evaluations and necessary adjustments on prototypes
- Implementation: Determined as commercializing ideas.

A design process in which the specified design methods are carried out may enable users to utilize the place or product more comfortably, efficiently, and in compliance with health conditions. Kelley and Littman (2001) call attention to the significance of watching users in their own context because people may not tell the truth and may not perceive the deficiencies. In this manner, it may be possible for people or users to be aware of the difficulties they encounter with space lighting design, but they may not be aware of the health issues they may encounter if the lighting is not human-centered. While this illustrates that a human-centered mindset should be reflected in interior design, it also necessitates improvement in lighting design with a human-centered perspective.

Human-Centric Lighting Design

Human-centric lighting is an idiom intended to describe lighting solutions that consider the traditional elements of lighting quality that are rooted in human vision while simultaneously incorporating new insights about the non-visual effects of light (Houser & Esposito, 2021). This idiom is common, yet its emergence can be described as ironic because lighting has always been a human-centered factor. Therefore, when talking about human-centric lighting, what is meant is lighting that takes into account both the visual and non-visual effects of exposing people to light and expands the range of possible effects, from visual performance and comfort to sleep quality, alertness, mood, and human health-related behaviors (Boyce, 2016).

The illuminated environment should provide a sense of comfort, peace, and security. It should also complement the architecture, and satisfy fundamental visual needs. The lighting should create a safe and appealing transition from the outdoors to the interior (Rea, 2000). “Nowadays, the usage density criterion has become a priority rather than the use of daylight in designs (Parlakııldız, 2023:140)”. Thus, with the help of interior lighting design, the user can see and perceive his

environment and construct his biological rhythm. Consequently, it can be stated that lighting design has a significant impact on human biology in interior design. In this context, it is crucial that interior lighting design be oriented toward human-centered lighting.

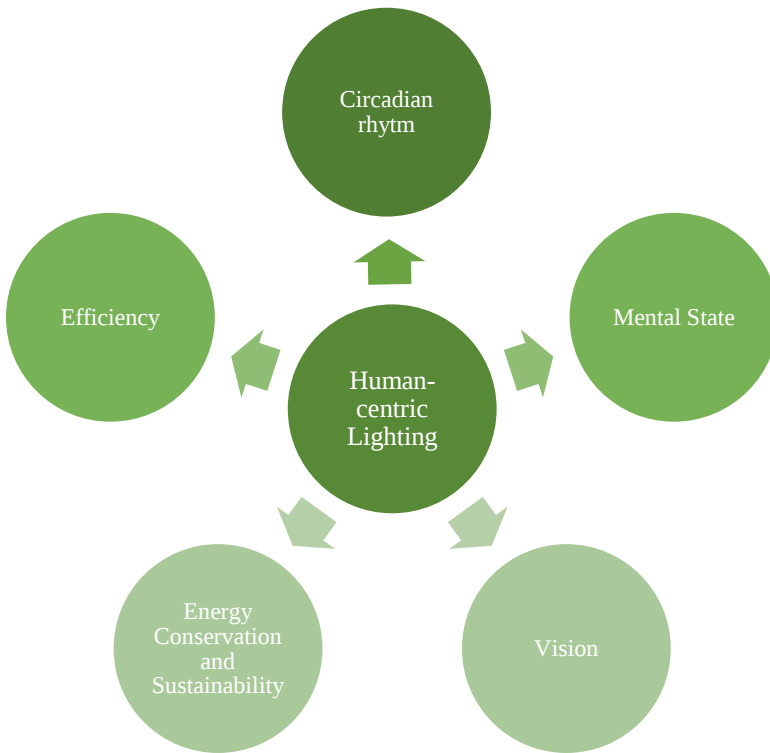


Figure 3.3. Human-centric lighting concept (Walerczyk, 2012).

Designing an interior that is in line with human nature requires lighting that is in tune with the circadian rhythm. Human-centric lighting systems can make the workplace more comfortable, especially in offices that don't get much natural light or in the winter when the body's clock isn't fully in sync with daylight. The application of human-centric lighting systems in office environments allows employees to have less anxiety, raise their vitality, improve their mood, minimize eye fatigue, and increase job satisfaction (Memiş & Ekren 2019:34). "While it is important to understand and quantify the effect of artificial light sources

on circadian entrainment in order to provide supplemental stimulus when needed, and prevent undesirable stimulus that can have an adverse effect on human well-being, it is also essential to understand the effect of the built environment on the natural light that humans have evolved to be entrained to."(Altenberg Vaz & Inanici, 2021:1).

According to Gürel (2001), in visual efficiency experiments performed under light beams of equal intensity but in various colors, the decrease in the speed of seeing clearly and distinguishing objects occurred in the following order: yellow, greenish-yellow, greenish orange, red, greenish blue, and blue. Still, there are some who believe that when employed for specific purposes, colored lights can be beneficial.

Frequently, we perceive color not as a separate entity, but as one of the many features of a given substance. The color we perceive on an object or surface is determined by the properties of the light reflected by that surface. The red glass transmits red wavelengths from one light source and absorbs most of the others. Blue dye transmits blue wavelengths and absorbs most of the others. All wavelengths are equally reflected by white or neutral gray matter. Illumination without color cognition alters perception or creates the impression that the materials' surface color is faulty or missing entirely. As a result, the colored materials to be utilized should be analyzed and chosen in accordance with the lighting circumstances (Altan, 2015).

Table 3.1. Perception of wavelengths as colors (Özkaya & Tüfekçi, 2011)

PHYSICAL Wavelength (nm)	PHYSIOLOGICAL Perception of Color in the Eye
380-420nm	Purple
420-495nm	Blue
495-566nm	Green
566-589nm	Yellow
589-627nm	Orange
627-780nm	Red

The shortest wavelengths in the visible spectrum correspond to the color purple, while the longest corresponds to the color red. There are an endless number of colors, each of which corresponds to a certain wavelength (Özkaya, 1994). Using lighting technology, blue light as a trigger can be modified to diminish blue light wavelengths later in the day in order to limit melatonin suppression by altering wavelengths and maintaining consistent corresponding color temperature (Doğan, 2021). In order to maintain the circadian rhythms of the users by maintaining the diurnal cycle in the interior with the lighting design, it is essential to modify the light's intensity and color temperature. When the sun is at its greatest point in the sky and people are most active, cool color temperatures range between 4000K and 10,000K. When people's awareness and focus need to be stimulated, a cool correlated color temperature is employed. Warm color temperatures between 2700K and 3500K indicate the time of day when people fall asleep, during sunrise and sunset. (Doğan, 2021).

Researchers in the field of human-centric lighting have demonstrated that light is a crucial "time signature" that can successfully regulate our body rhythm, and that people's exposure to improper light at the improper time produces a variety of system failures (PLD, 2016). In this context, it is vital to ensure that users are not exposed to the improper light at the improper time when interiors. Hence, the best thing a designer can do is offer the appropriate light at a suitable moment for the projects he is developing. (Houser & Esposito, 2021).

Circadian Rhythm

The circadian rhythm is the intrinsic rhythm within the human body due to its biological structure. The human body has been secreting hormones to hunt, collect, work, and digest food during the day since the stone era. In caverns, cavities, and homes, the hormones required for sleep and rest are released at night. Unlike the numbers shown by clocks, it is the brain that determines the biological clock. Çoruhlu

(2019) highlights the significance of circadian rhythm by asserting that we associate time with the wristwatch. Yet, the real-time meter is a unique brain center. This center, which measures the body's biological clock, instantaneously communicates the time to all other organs. In mammals, the central timer for the formation of circadian behavioral rhythms, which plays a role in the rhythm initiation and termination cycle at certain times, is stated as the suprachiasmatic nucleus in the hypothalamus (Welsh, Takahashi & Kay, 2010). The suprachiasmatic nucleus is designed to enhance human daytime alertness and overnight drowsiness. During the process of becoming awake, the timing of the circadian rhythm and the amount of time spent awake (sleep homeostasis) are altered (Borbély, 1982). The sleep phase is the result of the homeostatic process, which is determined by the length of time spent awake. Nevertheless, homeostasis and sleep requirements must be in harmony. This scenario impacts numerous factors, including human health and productivity. To attain this equilibrium, the circadian cycle must be in sync. Consequently, the circadian rhythm is regulated by the biological clock of the body. The cycles of activities like hormone secretions, sleep, and wake cycles are therefore determined (Akerstedt, 2007). The cycles of activity, including as hormone secretions and sleep-wake cycles, are therefore determined. In this approach, the pineal gland secretes melatonin for the sleep cycle, which is one of the most vital aspects of existence. Yet, in order for this hormone to be secreted, the human must be in a favorable environment.

This center of the brain serves as the body's master clock. Since the circadian rhythm is greatly influenced by the light changes that occur during the diurnal cycle and the light and dark conditions of the environment, environmental circumstances must be favorable for humans to complete their diurnal cycles.

In addition, the human ocular system works in a dual fashion to both facilitate vision and to synchronize and reset the internal circadian body clock with the 24-hour daily cycle (Inanici, Brennan & Clark, 2015). Many parts of the human body are influenced by 24-hour rhythms, including the sleep-wake cycle, changes in body temperature, and the

generation of melatonin and cortisol. In humans, the internal body clock is close to the 24-hour cycle and requires external cues such as the light-dark cycle to synchronize with local time (Lockley, 2009). Circadian drift is affected by the timing, intensity, duration, and wavelength of light, as well as the exposure history. According to studies, the spectrum and intensity of light alter the circadian clock. Light exposure duration can speed up or slow down this clock (Figueiro et al., 2008; Lockley, 2009):

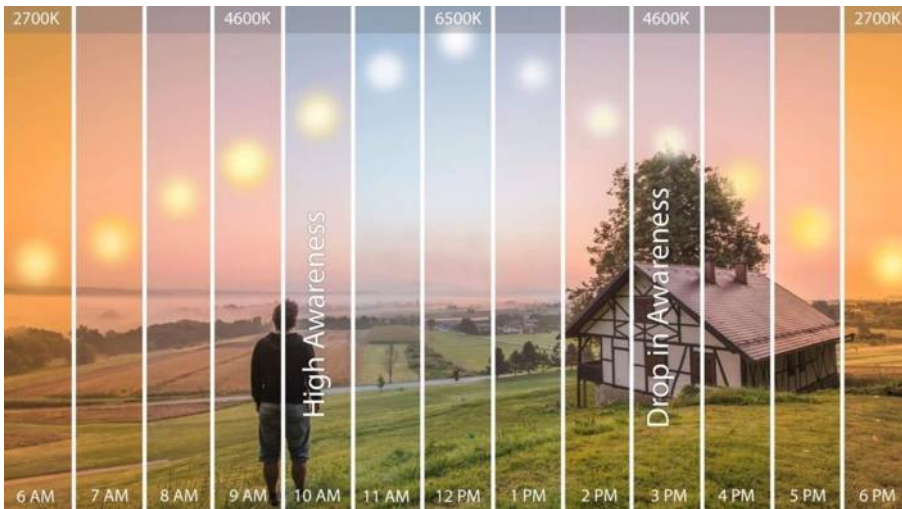


Figure 3.4. A diurnal profile of light levels³

For instance, in order to secrete melatonin at night, it is required to avoid stimulation such as blue light after 23:00. If the body is subjected to stimuli such as blue light, internal rhythm difficulties start to arise, and the body secretes hormones as if it were daytime. Because humans are "diurnal" creatures that live during the day, they perform the majority of their activities, such as eating, exercising, and working, during the day and sleep at night. Humans have an internal metabolic

³ Knoerzer, L. What is Circadian Lighting?
(<https://www.thelightingpractice.com/what-is-circadian-lighting/>)

clock that gives indications for timing metabolic reactions with scheduled activity (Sözlü Şanlıer, 2017). This synchronization, however, is susceptible to deterioration due to the alterations brought on by modern living. This scenario produces a variety of health issues in addition to sleep issues. In order to prevent these issues, it is acceptable to remain at a red light at night (Çoruhlu, 2019).

The lighting design, which is included in the interior design of houses/residences where people spend a substantial amount of time, should also help the preservation of the circadian rhythm. By supplying lighting in accordance with the internal rhythm, it can contribute to ensuring the sleep-wake balance of the users, thereby enhancing their productivity and physical and mental health.

Considering the amount of time users spend indoors, it is crucial to create lighting that is compatible with their internal rhythms in order to preserve their physical and mental health. In this regard, indoor lighting designs should play a role in controlling the circadian cycle with a human-centered approach. Thus, being one of the locations where users spend the most time, the lighting patterns of their houses should also complement the circadian rhythm.

Circadian Rhythm in Interior Lighting

According to Philips (2004), the usage of natural illumination indoors is beneficial for the physiological and psychological well-being of consumers since the human circadian rhythm advances with the day cycle. Therefore, when natural illumination is insufficient, it is essential that interior lighting solutions support and safeguard the circadian rhythm through human-centered design. This is because natural lighting helps users protect their physical and mental health by allowing them to perceive the passage of time while spending time indoors. In this regard, examples of human-oriented lighting design should support the circadian rhythm and be a priority in terms of protecting the productivity and health of users. According to Duine (2023), designing

illumination in accordance with the circadian cycle and emotional needs can promote the user's comfort, well-being, and performance.

One of the interior locations where consumers spend the most time is their homes. Home is a direct manifestation of man's attempt to build meaningful interactions with the physical world through his body, the most fundamental indicator of his existence and the primary area where he can meet his basic needs for the movement of man in his daily life is always predicated on leaving and returning to it (Göregenli, 2013). Nonetheless, it is uncommon to find residences where the preferred lighting is designed to support the circadian rhythm of the occupants. This circumstance is directly tied to the understanding of the consumers when utilizing the spaces in their houses or the expertise of the interior designer with whom they work regarding circadian rhythm and illumination.

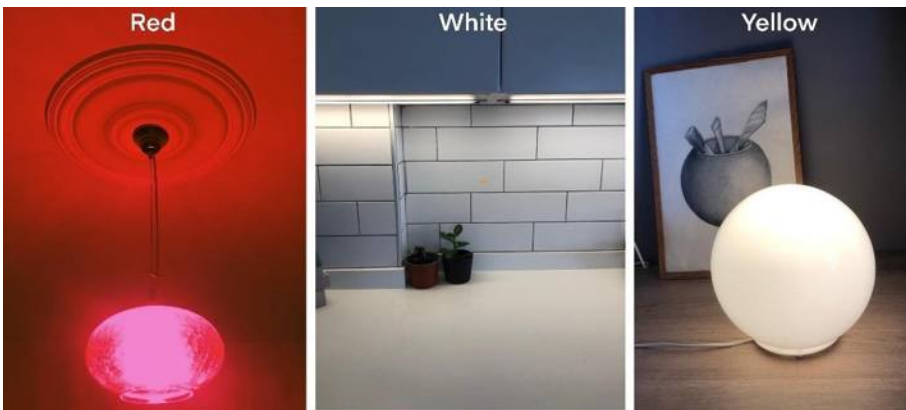


Figure 3.5. Home Lightings (Personal archive)

Users appear to favor interior illumination that has a reduced stimulating effect. Desired lighting will assist them in feeling and unwinding during the day cycle when the area is being used between 06:30 and 09:00 or between 15:30 and 18:30. Yet, when considering

the day cycle and lighting levels, this situation does not give them the lighting they require at noon.

It is observed that people prefer interior illumination with a stimulating effect. If users are exposed to illumination in the evening, it is probable that they will encounter problems with hormone release and, consequently, with their sleep-wake cycles. The same holds true for consumers exposed to trigger blue light at night (Çoruhlu, 2019). Researchers have discovered that space lighting and environmental stimuli can disturb the circadian cycle of users and worsen their physical and mental health.

If lighting is required at home after 23:00, the red light will promote the circadian cycle (Çoruhlu, 2019). Because houses are multipurpose environments, the examples provided demonstrate that the lighting utilized in them should be adapted according to the spaces, hours, and user requirements. While ensuring the visual comfort of the users in the spaces, it is feasible to promote the protection of their health with lighting designs that support the circadian rhythm using a human-centered approach.

Conclusion

Man, who in the past was able to establish a biological, physiological and psychological bond and balance with nature, has difficulty establishing the same balance in the artificial physical environment of modern life. At this point, the designer, who has the task of arranging the artificial physical environment to meet human needs, must anticipate the responses and behaviors that will emerge from the user's perception of the physical stimuli emanating from this environment (Altan, 2015). Correspondingly, in addition to the aesthetic concerns of the users, biological coding can also produce variations in the usage and function of space.

By putting people at the center of the design process and addressing all factors that are directly or indirectly related to humans, the human-centered design ensures that people are as safe, secure, and comfortable as possible when using space. The biological structure and demands of the human being are also fundamental factors that should be included in the design process. Due to its biological structure, circadian rhythm should be addressed as a factor in this approach and reevaluated, particularly in lighting design.

Analyzing the examples demonstrates that many design solutions are necessary to support the circadian cycle in the users' preferred lighting, especially in homes where people spend the majority of their time. This is because the areas in the houses serve a variety of purposes and hence vary. In areas such as the kitchen, toilet, bathroom, work area, and resting areas, users need both general and localized lighting as well as circadian rhythm-supporting lighting solutions. This is not, however, a frequent technique in residential lighting design. On the other hand, there are applications in which designers favor circadian lighting to boost the productivity and motivation of personnel in public spaces such as offices. It is known that there are circadian lighting solutions that raise staff productivity by maintaining the diurnal cycle indoors. Although this issue is becoming more prevalent, it is difficult to find instances of lighting designs in homes. As in office designs, users can be assisted in balancing their hormone secretions and, consequently, their sleep-wake cycles in terms of health thanks to the contributions of interior architects to the widespread usage of circadian lighting in homes. Consequently, despite the fact that physical, social, and psychological processes in relation to humans can produce manageable and variable impacts in the design, the desired outcome is always the well-being of the human being. In this respect, a supportive approach toward the circadian rhythm, which is one of the basic requirements of the human and whose control and interference do not yield particularly favorable results, makes human-centered interior design more accurate and significant. Neglecting the biological character of humans poses

the risk that interior architects, as designers, will be unable to fulfill their responsibilities towards the user.

The role of the interior architect is multifaceted, and they have the capacity to improve the user's life by providing functional, useful, comfortable, healthy, and safe solutions, along with aesthetic concerns. By using this ability, it is vital to employ a human-centered design approach and use circadian lighting as a solution to enhance the user's emotional and physical well-being in interior design. In addition to meeting the needs, expectations, and desires of the users, the interior architect also makes design decisions to protect the users' physical and psychological health. Circadian lighting is also mentioned as an illustration of this. Using circadian lighting in the interior design of homes, as well as in some workplace environments, solutions can be developed to promote the health of the users.

Consequently, circadian rhythm is a key component of human-centered interior design. Therefore, the interior architect should not only design the space but also contribute to the biological structure of the user by creating a comfortable space. In the context of human-centered design, circadian lighting can be said to contribute to all aspects of design, including mood, sustainability, energy conservation, and efficiency. Circadian lighting has the potential to contribute to all of these elements, and can therefore be considered part of the design process.

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CHAPTER 4

DIAGNOSIS OF CURRICULUM SKILLS IN FASHION, CLOTHING, AND TEXTILE BY GRADUATES IN FASHION DESIGN

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Introduction

The holistic knowledge of the design process in Fashion Design is one of the core skills for any graduate in the field. In this way, we understood that the student in Fashion Design must have theoretical and practical mastery of the contents. They ranged from textile fibers, passing through sewing stitches until reaching the commercialization process at the retail point of sale. This paper aims to diagnose the curricular knowledge of Fashion Design graduates at the Federal Institute of Rio Grande do Norte (IFRN) – Caicó campus. Methodologically, it is applied research with a descriptive objective and a quantitative and qualitative approach. Regarding technical procedures, through a questionnaire in person, we surveyed 11 graduating students in the last period of the course about the contents seen in the pedagogical project of the higher education course in Technology in Fashion Design at IFRN/ Here. We decided to apply the 2018 version of the Technology in Fashion Design group's National Student Performance Examination (ENADE) for the questions raised. Therefore, we identified a difficulty in practical subjects directly influenced by the pandemic period and remote teaching.

The term 'Fashion' has its roots in the Latin word *modus*, which refers to how individuals present themselves in a given space (Maximiliano and Tomasulo, 2013). Although people often associate this concept with clothing, its scope extends beyond this narrow interpretation. Lipovetsky (2009) defines fashion as a social tool, a visual and aesthetic portrait of the society to which it belongs. It is a dynamic concept that adapts to historical, geographical, and temporal changes.

Silva, Café, and Neto (2017) reveal that Research in Fashion Design has been advancing slowly. Despite efforts to accelerate its advance, it has not experienced rapid growth. The slow advance can be attributed to the perception by some that fashion is superficial and exists only to feed consumerism.

Lima (2006, p. 148) states that fashion is based more on phenomenological theories than science. The fashion industry operates on the principle of rejecting measurable and rational aspects. However, it is worth mentioning that the current fashion industry as a market sector is backed by substantial scientific knowledge. In short, fashion is informed by empirical observation and understanding that inform the development of scientifically grounded codes and laws.

Maria Gabriela Marinho established the inaugural Fashion program in Brazil in the 1980s, officially launching in 1987 at Faculdade Santa Marcelina in São Paulo. It was in 1964 that Eugenie Jeanne Villien made history by being the first to teach Fashion Design as an academic subject in the Design and Visual Arts course. His initiative paved the way for the first formal fashion education in Brazil. Years later, Villien was instrumental in establishing the country's first higher education fashion course.

In fashion-related education, Puls (2010) highlights three prominent features of observation. First, the positioning of universities in modern society. Second, higher education skills and obstacles in Fashion Design. And thirdly, a recent historical account of Fashion Design. In this paper's scope, we will expose the skills and challenges of teaching fashion at the tertiary level in greater depth. The author emphasizes the fundamental role of learning professionals in this transition period. Nevertheless, it highlights the social, political, and educational obligations inherent to their speeches and guidelines for the student's academic and professional trajectory.

The evolution of higher education in Fashion Design brought contemporary elements to Brazil. In the past, aspiring designers had to leave the country to learn the practical and theoretical aspects of the field. However, over time, the demand for knowledge was met by the emergence of the role of the stylist. These professionals work in developing fashion collections and products at smaller companies, relying on their creative and illustrative skills rather than formal design education. While designers tend to be associated with the industry, the

stylist's work leans more towards the artistic side of fashion. (Pires, 2002; Wolff *et al.*, 2012).

Historically, fashion seen on Brazilian streets largely imitated international trends and models, prioritizing marketing objectives over individual expression. This approach has led to stigmas and social stereotypes around the industry, limiting its perception of hand drawing and sewing skills. As a result, seeking higher education focusing on alternative design methodologies became devalued and considered unnecessary by society (Puls, 2010; Aguiar, 2015).

Caicó, located in Rio Grande do Norte (Brazil), boasts a prominent position in bone production in Brazil. Located on the axis of Seridó Potiguar, the region is known for producing clothing and household items, such as beds, tables, and baths, and handicrafts, such as embroidery. The Federal Institute of Education, Science, and Technology of Rio Grande do Norte (IFRN) – Campus Caicó, which already offers technical courses in textiles and apparel, recognized the potential for a higher education course in Fashion Design. The program aims to produce academically and technologically advanced professionals to make waves in the creative industry (Lopes; Medeiros, 2012; Araújo, 2013; FIERN, 2017; 2019; IFRN, 2019A).

The application of this study follows the principles of meaningful learning described by David Ausubel. Pelizzari *et al.* (2002) emphasize recognizing and building on students' pre-existing knowledge, thus, allowing the students to develop mental structures to identify and retain new information. Essentially, the purpose of meaningful learning is that new ideas connect with the learner's existing knowledge in a substantive and non-random way (Moreira, 2012).

Therefore, we justified this paper around two main points; first, the need to update the perception of Fashion Design students by exposing how they face their daily mishaps. Both in terms of how they incorporate themselves individually into society with exacerbated judgments on their training and expected opportunities in the job market. In addition,

they were also contributing to the development of more effective actions concerning the coordination of the higher education technology course in Fashion Design by focusing the pedagogical planning on the student.

This topic is especially relevant given the current context, emphasizing the importance of the teaching-learning process. With that in mind, this paper aims to diagnose the level of mastery of curricular content by undergraduates in Fashion Design at IFRN – Caicó.

Materials, methods, and data

We classified the research according to its nature as applied. It aimed to develop knowledge to generate applications regarding the best practices in higher education courses, particularly Fashion Design at the IFRN - Campus Caicó. Regarding its objective, we classified the research as descriptive, with a quantitative and qualitative approach (Gil, 2008; 2017; Muratovsky, 2016). Regarding technical procedures, this is a case study focusing on analyzing multiple events. According to Santos *et al.* (2018, p. 92), the case study is an empirical research method that investigates phenomena in their real-life context. Thus, a vital characteristic of this method is the demand for multiple sources of evidence to enable internal validation and analysis. We intended to measure the curriculum knowledge of the course students by comparing different questionnaires.

In this way, the investigation has its methodological basis for data collection built through a questionnaire, applied in person with the actively enrolled students, and to complete the current year (2022) of the higher education course in Fashion Design about the knowledge learned from its the political-pedagogical project.

To configure the research instrument, we decided to apply the questions established from the National Student Performance Exam (ENADE) 2018 from the technology in the Fashion Design section. Thus, we used

this strategy to compare the institution's learning with what is expected by a national body regulating professional training. The ENADE test is subdivided into general training questions (discursive and objective) and specific components (discursive and objective). To optimize the evaluation and diagnosis of students' learning, for this paper, we decided to focus only on understanding the objective questions of a specific component. In all, 26 questions we divided into the different curricular competencies of training in Fashion Design.

Of the questions raised, the contents varied between modeling (5 questions), Clothing Technology (4), Fundamentals and Methodology of Fashion Design (2), Collection Creation and Development (2), Fashion Marketing (2), Customization (2), Technology and Textile Materials (1), Creative Research (1), Ecodesign (1), Semiotics (1), Fashion Design (1), Portfolio and Work (1), Fashion Image (2) and History of Fashion (1). The research instrument was applied in just one day, in a test format, without consultation, lasting three hours (7:00 pm to 10:00 pm). We used the questionnaire for 11 students with a graduate date scheduled for 2022 from a universe of 12 individuals.

Discussions and Results

For the analysis, we decided to decode each area in a specific way, understanding the inherent difficulty of each question. Each topic is given the reality of the curriculum offered by the course. Therefore, in Figure 4.1 below, one can observe the absolute frequency of correct answers for the first group of themes.

For the fundamentals and methodology of Fashion Design, metricized from two questions in the test, a generally high level of errors was found. The first question on this topic was about an artistic movement and the principle of ordering the form. Such difficulty resides inherently in visual literacy, emphasized by Dondis (2003), where the construction of the designer requires a deepening regarding the observation and reading of the visual elements that configure the world. This path is

tiring and time-consuming for the designer. It demands an extensive study of visual language, its effect on artifacts, and what is observed. Thus, Silveira (2018) explains that understanding visual elements, their organization, composition, interrelationships, and the cultural signs present in artifacts is at the heart of successful design practices.

The second question on the fundamentals and methodology of Fashion Design dealt with the technical dimension of color. A high level of errors was also found, demonstrating the weakness of the students regarding such content. This can be influenced by the fact that “Study of Color” is an optional course subject; therefore, the student has little contact with the material.

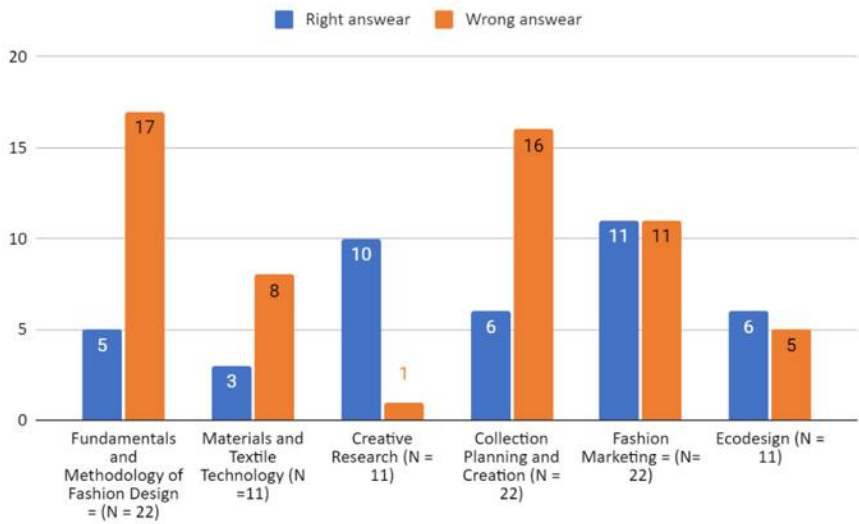


Figure 4.1. Correct and wrong answers to the topics studied (part 1)⁶

Then, on materials and textile technology, the content was measured from one question, where most students missed the alternative. The question was about the attributes of yarns and textile fibers,

⁶ Prepared by the authors according to research data

demonstrating a need to review such content with the students, considering that these are essential questions for the planning and developing Fashion artifacts. On the other hand, regarding Creative research, only one of the students missed the question raised, which discussed the types of research that needed to be conducted with a focus on product development.

A high level of incorrect answers was observed regarding the theme of planning and creating a fashion collection, measured from two questions. Such difficulties were related to understanding the relationship between the style elements of a fashion collection and the development of its generating concept. In addition, there was difficulty regarding the stages encompassing a fashion collection's planning.

Then, Fashion Marketing is discussed, where it was also metrified from two questions. Thus, a balanced level was observed between successes and errors in the test. However, the most significant difficulty was in the question about drawing up a business plan, where only two of the eleven students got it right. As for the Ecodesign content, which dealt with slow fashion, a higher level of correct answers was observed, with some incorrect answers.

In the first block of themes, we observed that the subjects with the most significant difficulties were fundamentals of design in terms of understanding the principles of ordering the visual elements in the form of a product. Textile materials and technology, on the structure and properties of fibers and yarns. Creation of a collection, regarding the schedule for creating a fashion collection. And we notice difficulty developing a business plan in fashion marketing/entrepreneurship subject. Then, the second block of themes was evaluated (Figure 4.2).

The first theme of this second section was manufacturing technology. We metricized it from four questions in the test, material directly correlated with the theme of sewing, one of the practical difficulties identified by the professors among the students of the course. This reality proved to be balanced regarding theory, as the questions.

However, they varied negatively, with more errors than successes; the correct answers were still relatively close. The main difficulties dealt with defining the operational sequence of the parts and how this information can be transposed to the conformation of a technical sheet. In addition, another problem encountered concerns knowledge about planning for spreading and cutting, a discipline that was removed from the curriculum in its recent revision. Therefore, we notice that the content must be implemented in the political-pedagogical project of another curricular component. Nevertheless, we identified that students had an easier understanding of the technical drawing process.

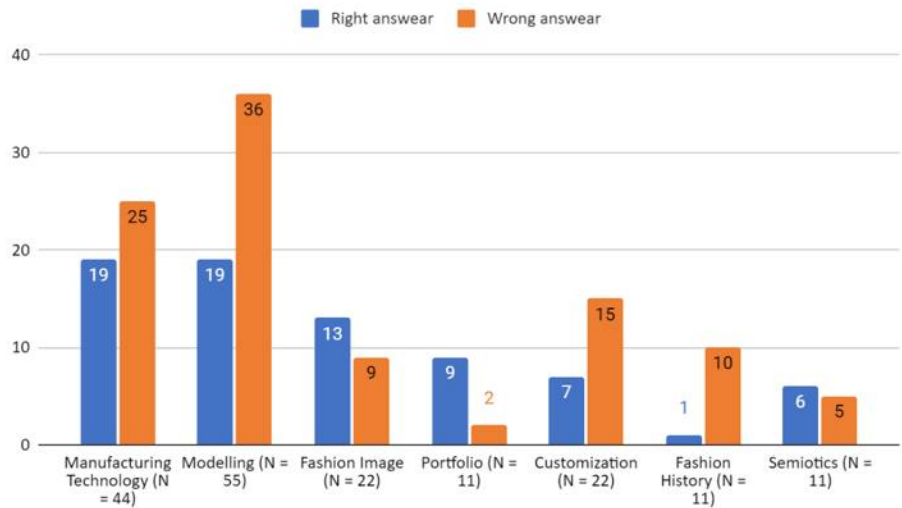


Figure 4.2. Correct and wrong answers for the topics studied (part 2)⁷

Inherent to the technology of making, the next topic dealt with modeling subject content, metricized from five questions, and noting the vast difficulty of the students, with a significant majority of errors. The observed challenges were three-dimensional modeling; decoding a flared

⁷ Prepared by the authors according to research data

skirt pattern; modeling for plus size clothing, emphasizing pence; and zero waste modeling, focusing on developing ecologically oriented parts. On the other hand, the students stood out positively about computerized modeling (CAD), demonstrating a detailed understanding of such content.

The following two themes showed positive levels of relationship, where the number of hits surpassed the number of errors. The difficulty encountered for the Fashion Image content residing in the fashion editorial theory and the stylists' role in this process. As for the portfolio, the students had an easy understanding of the role of this material in selecting designers. Semiotics demonstrated a balance between successes and errors, requiring a more profound knowledge of signs, especially the visual ones, and their role in constructing a language.

For the last two themes, customization and fashion history, there were more errors than successes. Regarding the first, the students had significant difficulty identifying the processes to which denim is subjected, especially sustainably. On the other hand, they answered quickly about textile processing. Regarding fashion history, the students had difficulty regarding the elements of Paul Poiret's concept and understanding of the female silhouette in the 20th century.

Bearing this in mind, the main difficulties encountered in this second block of questions were manufacturing technology in terms of operational sequence, spreading, and cutting. The subject of modeling in identifying the flattened and three-dimensional product. Customization, regarding the processes to which the denim is submitted. And the history of fashion on the recognition of the female silhouette. It is worth emphasizing that some of these results are because the students were still in the sixth period when this questionnaire was applied. Some of these disciplines were offered in that same period. In addition, one can observe the effects of the pandemic, where these students completed two of their three years of training remotely.

Final Considerations

The contemporary teaching-learning process demands planning centered on the student and the individualities of each one. Therefore, it is essential to understand the knowledge of Fashion students before their training, as this allows for identifying their skills, interests, and learning needs. Understanding what the student already knows and their knowledge gaps enable the teacher to develop more effective and personalized teaching strategies. Thus, it offers opportunities for student to improve their strengths and overcome their limitations. In this way, it is possible to prepare students for the demands of the job market and contribute to their professional success. With that in mind, a survey was carried out with 11 students from the last period of the higher education course in Fashion Design. For that, we use the ENADE test questions to identify whether the curriculum reaches the levels desired by the national regulatory organization.

In this context, there was a vast difficulty in various subjects, especially those of a practical nature. The pandemic may influence these results since the group used as a sample completed 2/3 of their training during the remote period. The main difficulties were design fundamentals, textiles, collection creation, fashion marketing, manufacturing technology, modeling, customization, and Fashion history.

For future research, a systematic review of all political-pedagogical projects of federal institutes and universities that offer courses in the Fashion area is recommended. It is, furthermore, focusing on revising the IFRN – Campus Caicó curriculum project, making it more suited to market needs and what ENADE expects for professionals in the area.

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CHAPTER 5

FASHION AND THE ENVIRONMENT: RECYCLING OF UMBRELLA AND CARDBOARD BOXES IN THE DEVELOPMENT OF GENDERLESS FASHION PRODUCTS

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Introduction

It is increasingly urgent to discuss the role of fashion in creating more sustainable production processes and more conscious consumption. Therefore, this paper proposes the development of a fashion product from cardboard packages/boxes and umbrellas. The methodology is experimental research based on product development research tests. The piece chosen was a jacket inspired by the oversized style to be used by men and women aged between 15 and 50 years. The product's primary functions are waterproofness, allowing it to be used in rainy seasons. Nevertheless, we could also see thermal comfort during hot days and reflective strips that give the person using it greater visibility. The product proved to be satisfactory, reaching the desired aesthetic, functional, and technical aspects, showing that it is possible to create a garment by reusing cardboard boxes and umbrellas. An analysis that could be done was that after making the piece, it was noticed that the material of the cardboard packages needed to go through a process to give it more resistance.

As discussions about the environmental future of our planet grow, the importance of fashion's role in creating more sustainable production processes and more conscious consumption is highlighted. The 26th UN Climate Change Conference (COP-26) occurred between October 31 and November 12, 2021, in Glasgow, Scotland. Thus, once again put on the agenda in the media discussions about the planet's environmental future, greenhouse effect, and sustainability, among others. Regarding the textile industry and the earth's sustainability, it is known to be "one of the most polluting activities of the last century" (Berlim, 2014, p. 33). For that, fast fashion is responsible, given its short and disposable cycle (Rodrigues, Dupont, and Muller, 2021, n.p).

Fashion designers must be concerned with the environment, the future of the planet, and the next generations. In this regard, it is worth focusing on recycling and reusing materials that take years to decompose in nature. Therefore, working on proposing new uses for discarded materials, transforming them into raw materials to manufacture fashion products, such as clothing or accessories that can be commercialized.

In this sense, we observed that the number of designers using the theory of the 3 Rs (Reduce, Reuse, and Recycle) in developing their products is increasing. Therefore, it creates more sustainable products (Anicet, Bessa, and Broega, 2011). Regarding material recycling, a product that stands out is the Tetra Pak-type carton boxes, used to pack foods like milk and juices. Paper fibers, polyethylene, and aluminum used in its composition are reused from this material.

Martins (2020, p. 17) points out that “in 2019, the company Tetra Pak produced more than 190 billion packages in more than 160 countries, while SIG Combibloc produced 38 billion carton packs in 68 countries”. When discussing this production quantity, one considers the environmental impact and the need for recycling this material. Thus, we should consider how significant environmental contribution can be when recycling this material.

Another product, which is still little explored in recycling and very common to be found in landfills in large cities, are umbrellas, parasols, and parasols. Dullius, Silva, and Zago (2019, p. 21) recall that “discarded umbrellas have recyclable materials, such as iron and plastic. However, the waterproof fabric is discarded, undermining economic, environmental, and social sustainability concepts.” In this sense, when observing the materials that make up umbrellas, it is known that they are all subject to transformation and reuse in many ways in the construction of fashion products. This choice of use comes from its structure being full of materials like iron, plastics, and waterproof synthetic fabric.

Given the discussions addressed, this study seeks to answer the following questions: *can the materials of carton boxes and umbrellas be recycled in fashion? Is it possible to create a garment from these materials?*

Methodology

The Design Science Research methods will be used. It foresees the elaboration “of an artifact as a mechanism for developing solutions to a problem and for the very understanding of the nature of the problem”

(Santos *et al.*, 2018, p. 73). The method is configured from steps, also called cycles, where a) Cycle of Relevance comprises the contextualization of the research in the real environment studied, identifying opportunities; b) Cycle of Rigor concerns the phase of uniting scientific bases through literature reviews with the needs of the research project; and, c) Design Cycle, the stage where the products will be developed and later tested with the users (Hevner and Chatterjee, 2010).

For the development of the clothing product, the method proposed by Baxter (2011) was adopted, with four stages that will guide the process:

- Step 1 – **Immersion:** In this phase, the definition of the target audience, also called consumers, was sought;
- Step 2 – **Conceptual Project:** At this point, the aesthetic aspects of the product are developed, observing fashion information;
- Step 3 – **Definition of Materials and Technologies:** In this step, the raw material, materials, and technologies used in the construction of the piece are selected;
- Step 4 – **Usability test:** At this point, the technique is evaluated, its construction, the appearance of the part, and, finally, its functionality.

Immersion

The jacket developed from the fabric used in the manufacture of umbrellas and cardboard from Tetra Pak boxes is aimed at cyclists and motorcyclists, men or women aged between 15 and 50 years. Therefore, people with a young, modern spirit who like to practice outdoor sports. These individuals have an ecological conscience, are concerned with the environment, and value the consumption of sustainable products. Thus, the target audience is daring people who like wearing versatile and comfortable clothes but have social and environmental responsibility.

Next, a study of competing products was conducted, where we found three. With this, we observe that the three only offer waterproof

characteristics, none offering thermal comfort, regarding its use at higher temperatures and without reflective strips on dark or poorly lit roads. Given these flaws, our product aims to provide a product with aesthetic appeal linked to its functions of comfort and protection.

In product style, it is common to create patterns, practicality, and comfort. Some characteristics of those who enjoy sports style are more basic and traditional pieces, plaid prints, stripes, or more uniform, smooth pieces. It is possible to identify a texture mix by exploring the possibilities as much as possible. In this sense, the product developed sought inspiration from a fashion trend from the 80s and 90s. The fashion trends featured pieces inspired by the rock style of the 80s and 90s, with dark colors and geometric proportions.

In addition to the oversized, inspiration was sought from streetwear looks (Image 05), a style often used by many urban tribes. It's much more about how to wear a garment, about showing who you are than just wearing something expensive without your personality showing through (WEAR, 2021).

Considering the material used and the concept of the piece developed, as well as the colors of the *Pantone Color Institute* 2022, we sought from vibrant and cheerful colors to sober colors. Thus, adapt to the characteristics present in the personality of people who use the sportive style. The lines are strategically applied, referencing sports and casual fashion in the piece's design, with bright or sober colors, depending on the customer's taste. However, darker colors, such as black and purple, were preferred for the piece proposed in this report.

Conceptual project

Initially, it was thought of creating a coat made with the reuse of umbrella fabrics. Later, after seeing a report on thermal blankets made from milk cartons for homeless people to warm up from the cold, it was thought of making a lined jacket with cardboard boxes. After further research into the thermal properties of the carton boxes used in civil construction, we agreed on using the aluminum part of the boxes on the

outside of the product. The choice was due to the need to reflect the sun and protect from solid heat at night. These strategies function as a reflective element of car lights, giving greater visibility to the user, pedestrian, cyclist, or motorcyclist (Figure 5.1).



Figure 5.1. Final product design⁵

Definition of Materials and Technologies

The following materials were used for the construction of the piece (Figure 5.2):



Figure 5.2. Tetra-Pak cardboard material preparation and umbrella fabric⁶

⁵ Prepared by the authors

⁶ Prepared by the authors

- 03 used umbrellas, equivalent to 2 meters of polyester.
- 06 Tetra-Pak cardboard boxes, applied to the outside of the product;
- 01 meter of cotton lining;
- 15 cm of ribbed mesh;
- 03 zippers of 50 cm;
- 01 zipper of 60 cm;
- Sewing thread.

The equipment and technology used in the execution were a straight sewing machine and an overlock sewing machine.

Usability test

Concerning aesthetics, the piece met its aesthetic goals. When wearing it, it was observed in the practice tests that the product allows the movements of the arms. Therefore, users can use it to practice sports, work, or leisure, with or without the sleeves and hood (Figure 5.3). It proved to be highly satisfactory regarding impermeability, reflectivity, and thermal comfort.

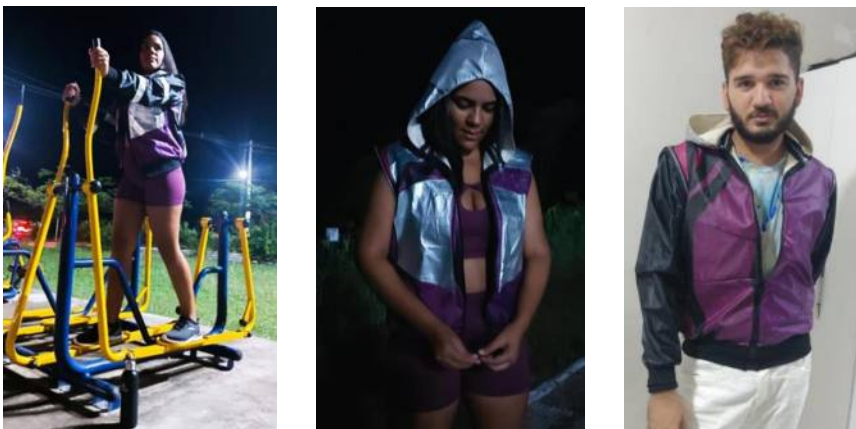


Figure 5.3. Product prototype⁷

⁷ Prepared by the authors

Final Considerations

Increasingly, there is an urgent need to discuss the role of fashion in creating more sustainable production processes and more conscious consumption. Therefore, this work aimed to develop a fashion product produced from cardboard boxes and umbrellas, materials that would end up in the trash, bringing more pollution to the environment.

In this sense, this work had the general objective of proposing the creation of a garment from materials that would go to the trash, such as umbrellas intersecting them with cardboard boxes of the Tetra-Pak type. The piece chosen was a jacket inspired by the oversized style to be used by men and women, therefore, being a genderless product for people in the age group between 15 and 50 years old. The product's primary functions are waterproofness, allowing it to be used in rainy seasons, thermal comfort during hot days, and reflective strips that give greater visibility to the person using it, bringing more excellent safety against the risk of being run over when used at night. Regarding the methodology, as it is experimental research based on methodological research tests of product development, the study used the exploratory bibliographical review for the technical procedures.

The product proved to be satisfactory, reaching the desired aesthetic, functional, and technical aspects, showing that it is possible to create a garment by reusing cardboard boxes and umbrellas. One analysis that could be done was that after making the piece, it was noticed that the material of the cardboard packages needed to go through a process to give it more resistance.

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CHAPTER 6

REMINDER REPRESENTATIONS IN ECOSYSTEM CONSERVATION: EXAMPLES IN THE CONTEXT OF ART

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Introduction

In the context of ecosystem conservation, representations can play an important role in raising awareness and promoting action towards environmental issues. Art can be a powerful tool for creating such representations. Mythology can also provide inspiration for representations of ecosystems in the context of art and conservation. Some examples; Indigenous Mythology, many indigenous cultures have creation stories that describe the origins of the natural world and the relationships between humans, animals, and the environment. These stories can provide inspiration for artworks that represent ecosystems and promote conservation efforts. For example, an artist might create a painting that depicts a traditional creation story or a sculpture that represents a sacred animal from indigenous mythology, Animal Symbolism, animals have long been used as symbols in mythology, representing different qualities or aspects of the natural world. Artists can use animal symbolism to create artworks that represent ecosystems and highlight the importance of protecting biodiversity. For example, an artist might create a series of paintings that depict endangered animals and their habitats, using the animals' symbolic meanings to convey a message of conservation. Landscape Painting, landscape painting has a long history in art, and many artists have used this genre to represent natural environments and ecosystems. Landscape paintings can be used to raise awareness about environmental issues, such as deforestation, pollution, and climate change. For example, an artist might create a painting that depicts a polluted river or a deforested landscape, drawing attention to the impact of human activities on the environment. Mythical Creatures, mythical creatures, such as dragons or unicorns, can also be used to represent ecosystems in art. These creatures can symbolize the power and beauty of the natural world, as well as the need to protect it. For example, an artist might create a sculpture of a mythical creature that represents a specific ecosystem, such as a dragon that symbolizes a forest ecosystem. This chapter provides examples of how the artist uses symbols to convey a message of protection and attract attention. In general, considerations in the context of mythology studies include close analysis of works of art that use mythological themes and symbols to represent ecosystems, and an

assessment of the cultural and historical contexts in which these works of art were created. It is thought that this chapter will contribute to the ongoing study of how art fits into a broader tradition of mythical representations of natural environments and environmentalism in art.

Coral wombs

Coral wombs can be seen as a symbolic representation of the interconnectedness between the ocean and the cycles of life. Coral reefs are often referred to as the "rainforests of the sea" due to their incredible biodiversity, and they are home to countless species of fish, invertebrates, and other marine creatures. The idea of a "coral womb" can suggest the importance of these reefs as a source of fertility and growth in the ocean. Just as a womb provides a nurturing environment for the development of a new life, coral reefs provide a habitat that supports the growth and survival of many species. However, coral reefs are under threat from a variety of factors, including climate change, pollution, overfishing, and destructive fishing practices. This has led to the destruction and degradation of many coral reefs around the world, which in turn has had a devastating impact on the marine ecosystems that rely on them. The representation of coral wombs can therefore also serve as a reminder of the urgent need to protect and preserve these fragile ecosystems. By doing so, we can help to ensure that the ocean continues to be a source of life and vitality for generations to come.

*“Yemaya, Blessed Mother of the Seas,
Let Your Sacred Waters wash over me.
Mother, embrace me, Your humble child.
Cleanse me, Nurture me, Sustain me.
Yemaya, Beautiful One.
You Who wears the Seven Skirts of the Seven Seas,
Swirl around me and create a flow of energy
that can wash away all bane.
Yemaya, Mistress of the Moon,
Shine Your light onto me,
And fill me with your magic.*

*Help me to accomplish my goals
Yemaya, Healing Ocean Mother
I ask You to fill me with Your Healing Energy
Let Your Cleansing Waters wash over me”
(Unknown)*

Global Mythological Water Goddesses

Water goddesses are found in many mythological traditions around the world. some examples of global mythological water goddesses:

Yemaya

Yemaya is a goddess from the Yoruba religion, which originated in West Africa. She is the goddess of the ocean and is often depicted as a mermaid or with a fish tail.

In a study by Morgaine (2021), legend has it that Yemaya was taken to America with the enslaved. Traces of her can be found in Cuban Santería, Haitian Vodou, Christianity and neo-paganism. Morgaine lays out the ways in which readers can integrate the power of Yemaya into their daily lives, and provides spells, altar preparations, and rituals for the "mother of all life" for greater protection, peace, luck, and love. Morgaine advises that Yemaya is not a "godturn"; She is a mother and lover, but she is also a warrior who can punish those who oppose her. Instructive descriptions of the rituals and the historical roots of Yemaya make this an excellent introduction to a lesser-known deity.

Tiamat

Tiamat is an ancient Babylonian goddess who represents the primordial waters from which all life emerged. She is often depicted as a sea serpent or dragon. The name Tiamat is uncontracted form of the word *tâmtu*, meaning "sea". The long vowel *â* is contracted from the short vowels *i* and *a*. The word is in the "absolute state," a noun form that is equivalent to the vocative (a grammatical case which directly

invokes or addresses a person or deity; literally the name means "O, sea!") (Helle, 2016). The legend of Tiamat is one of the earliest recorded versions of Chaoskampf, the battle between a cultural hero and a chthonic or water monster, snake or dragon (Thorkild, 1968).

Amphitrite - Amphitrite is a goddess from Greek mythology who is the wife of Poseidon, the god of the sea. She is often depicted riding in a chariot pulled by sea creatures.

Amphitrite is technically the Goddess of the Sea and the wife of Poseidon. In classical mythology, her title is also "Queen of the Seas". Amphitrite was one of the sea nymphs, the Nereids, who had fifty sisters in total... When Poseidon saw her dancing and singing with her sisters, he fell in love with her. The story of Poseidon's choice of Amphitrite for his wife is unique because she was not originally seduced to be taken as Poseidon's wife. But when he sent a dolphin for himself, he agreed... According to Greek Mythology, he was initially considered an important figure, as he was mentioned in the Homeric Hymn at the birth of Apollo. Amphitrite was actually a small figure, and this is probably what created her lower status compared to Venus. It also cannot be denied that works of art such as Bernini's The Birth of Venus elevate Venus to a different level in our collective cultural psyche (ROSY BVM, 2021).

Mazu

Mazu is a goddess from Chinese mythology who is worshipped as a protector of fishermen and sailors. She is often depicted as a young woman wearing a red dress and holding a magical staff. In Chinese mythology, Mazu (媽祖), the goddess of the sea, is closely related to Guanyin (觀音), the goddess of mercy. She is known as the patron goddess of sailors, fishermen and travelers. It is especially common in coastal communities of South China, places like Fujian and Macau, and overseas Chinese communities. Before she became a goddess, Mazu's human name was Lín Mò (林默) or "Silent Lin". In Taoism, she is

known as Tian Shang Sheng Mu (天上聖母) or "goddess of heaven". In the Southern regions of China, Mazu is called Ā-mā (阿媽), which means "grandmother" or "mother" in the community. Unlike many Chinese mythological figures, Mazu was believed to be a real girl named Lin Mo who lived off the coast of Fujian on Meizhou Island in the tenth century. The Mazu is said to appear to sailors as a pure beam of light when they needed it (Hamilton, 2022).

Deeply integrated into the lives of coastal Chinese and their descendants, the belief in and commemoration of Mazu is an important cultural bond that supports the family harmony, social cohesion, and social identity of these communities. In 2009, it was included in the Representative List of the Intangible Cultural Heritage of Humanity (UNESCO,2009).



Figure 6.1. Mazu²

Sedna

Sedna is a goddess from Inuit mythology who is associated with the sea and the creatures that live in it. She is often depicted with long hair that represents seaweed and is said to live at the bottom of the ocean.

² Hamilton, 2022

"Betrayed by her own father and left to die in the cold sea, Sedna ascended and became a powerful goddess often associated with the deep sea. Its symbols are also associated with the deep sea and the creatures that live in it. Sedna is the Lady of Life and Death for the Inuit people because she is the one who provides for them. If he is not respected, he begins to feel his hands smeared with pain, and in his misery he sends sickness, storm, and hunger to punish people. Only when someone is willing to make the journey home and help with their pain will they allow the animals to return to hunt. But when people treat him with respect and care, they receive his blessing." (Turnbull, 2022).

Mami Wata

Mami Wata is a water spirit from African mythology who is often depicted as a mermaid or with a serpent's tail. She is associated with water, fertility, and healing. Beautiful, protective, seductive and dangerous, the water spirit Mami Wata surrounds her with a rich array of arts as well as a host of other water spirits. It honors the foundational, sacred nature of water³

Saraswati

Saraswati is a Hindu goddess who is associated with knowledge, music, and the arts. She is often depicted with a swan, which represents wisdom, and is associated with the river Saraswati. These are just a few examples of the many mythological water goddesses found around the world. Each goddess represents different aspects of water, such as its power, beauty, and life-giving properties, and reflects the cultural values and beliefs of the people who worship them. Goddess Saraswati is depicted in different types of art such as paintings and iconography and as a beautiful woman

³ <https://africa.si.edu/exhibits/mamiwata/intro.html>

dressed in pure white, mostly represented in a sitting position on a white lotus representing light, knowledge and truth⁴

Oshun

Oshun is a Yoruba goddess who is widely venerated in the Afro-Caribbean diaspora. She is associated with many aspects of life, including love, fertility, beauty, sensuality, and the arts. In Yoruba mythology, Oshun is often depicted as a beautiful, seductive woman who is adorned with gold and other precious metals. She is also associated with rivers, especially the Oshun River in Nigeria, where she is believed to reside. Oshun is often invoked in rituals and ceremonies that involve love, marriage, childbirth, and other aspects of life that are associated with fertility and creativity. She is also believed to have healing powers, and is sometimes called upon to help heal physical and emotional wounds. In the Afro-Caribbean diaspora, Oshun has been syncretized with various Catholic saints, including Our Lady of Charity and Our Lady of Regla. This has helped to ensure the survival and continued veneration of the goddess in the face of religious persecution and cultural suppression. The Yoruba community's belief that tradition would strengthen their honor reflects their cultural values and practices. The Yoruba people place great importance on their cultural heritage, and they believe that upholding their traditions is a way of preserving their identity and maintaining their dignity as a people. This belief is rooted in the Yoruba worldview, which emphasizes the interconnectedness of the past, present, and future. Tradition plays a vital role in Yoruba society, and it is considered a source of strength and stability. The Yoruba people believe that their ancestors and the spirits of their land are still present in their daily lives, and that by following their traditions, they can maintain a positive relationship with these spiritual beings. Additionally, Yoruba tradition provides a framework for social interaction, governance, and decision-making,

⁴ (<https://www.originalbuddhas.com/blog/saraswati-the-hindu-goddess-of-knowledge>).

which helps to maintain order and harmony within the community. It is seen that historical, cultural and social components come together in the Yoruba festival. These components play an important role especially in religious ceremonies. The Yoruba community felt that tradition would strengthen their honor (Owomoyela 1971:123; Kuyebi, 2008).



Figure 6.2. Oshun⁵

Global mythologies have long associated women with an ocean-animal form-Olokun, Atargatis, Eingana, Sedna, Ganga-Yamuna, to name but a few. They are an enduring legacy to the eco-sphere community and the foundation of my work as symbols of strength, fertility, and regeneration. This human-animal embodiment reflects the weight and roots of diverse cultural traditions. In my practice, I interpret these hybrid-goddesses as possessors of ‘Coral wombs’ that shape and define the eco-sphere-community, resulting in expanding ‘Blue Ecologies’. The power and presence of these hybrid human-animal deities prompts me to re-examine the cultural narratives that were and can potentially be instituted within the realm of the Ecocene. My chromatic description of harmonies shared by women and oceans is my ‘Water Working’ series, *Coral Wombs blossom within Blue Ecologies* (2019-21) or *Trinetra* (Universal Eye), their ‘Coral Wombs’ being the principal source of life on earth. The cradle of life, the amniotic fluid within the woman’s womb, releases the newborn

⁵ <https://the-demonic-paradise.fandom.com/wiki/Oshun>

to breathe and drink from the ‘Blue Ecologies’, the waters of life. The relationship between women and oceans: their network, permanency, and global presence, reinforces the reality of the biosphere, as one of ecological solidarity towards environmental sustainability. My montage of works performs as an interwoven multidimensional description-narrative that echoes and generates differentiated audience interpretations. Recent interventionists have rejected the “pictorial way of representing or symbolizing surroundings” (Cosgrove and Daniels, 1989), as well as “the division between inner and outer worlds—respectively of mind and matter, meaning and substance—upon which such distinction rests” (Ingold, 2000). Nevertheless, it was abstraction in art that enabled the engagement of all senses and feelings and facilitated the spectator’s experiential participation. The narratives of such artists either contend with the environmental impact of climate “change” (Jeffery, 2019) or, as Confortini (2011) notes, women “charged” on communities and their far-reaching consequences for organic and cultural life on earth.



Artist : Roma Madan Soni
Medium : Mixed Media Sculptural Installation
Size : 480 x 120 x 120 cm

Figure 6.3. Water Drops on Coral (2019)⁶

⁶ <https://romasoni.blogspot.com/2020/08/water-drops-on-coral.html>

Water Woman

Trintera is inspired by Nairobi-American artist Wangechi Mutu's *Water Woman* (2017), who, in her cast bronze ebony skin and large mermaid tail, sits atop a grassy mound, as she gazes east across Laguna Gloria, catching the sun. Rooted in the legends of both the East-African woman-mermaid, Nguva the "bewitching female aquatic being with powers to entrance and drown susceptible mortals" (Mutu, 2017), and the dugong, found in warm coastal waters from East-Africa to Australia, the *Water Woman* personifies the secrets of a promising Ecocene tomorrow. The cunning temptress, Nguva deconstructs and disrupts the dominant historical narrative of colonialism and masculinity, by assuming a human form to entice, drag, and drown the invaders into the ocean. Her inter-woven components of East-African legends and Afro-surrealist elements of science-fantasy together critique coloured and female stereotypes, and the widespread global notions of race, power, and colonialism. As Mutu (2017) describes, Nguva sirens a rooted incandescent, charcoal-hued female form, as she replaces the pervasive Western iconography embedded in Hellenic, Nordic, and Anglo-Saxon representations of pale-skinned, silken-haired women in art and in the media.

Indigenous Coeval Communication

Japanese artist Nahoko Kojima's life-size (32m long) washi papercut suspended Blue Whale, *Shiro* (2018) that glistens in a deep dark meditative space, simulates the bottomless ocean and the "giving women" inspires my work. Kojima (2020) weaves paper and thread to embed her personal corpus within the fostered fabric of the animal form she constructs to experience its "hidden Beauty and... the processes of change and augmentation" and the oceanic agency. Interwoven within its materiality is a dialogue of the reception of the grey whales across cultures and communities that correspond to its migrant route. However, even though Japan is repeatedly imagined as a nation with an

extended history of whaling, Holm (2020) argues that many coastal populations in Northeast Japan did not participate in active whale hunting until the expiration of the Meiji period (1868–1912). The indigenous fishermen, based on the concept of “coeval moral ecologies” (Coevality, 2016) believed that whales were the incarnation of the gods of the seas, who would transport fish near the coast. These communities benefited from the presence of whales and feared the ecological damage whaling caused to the coast, its flora and fauna, and, eventually, its death. They battled against Western Japanese whalers who tried to introduce whaling in their area. Her work shows how whalers, politicians, and fisheries scientists break the chain of coeval communication as they downplay fisherman’s knowledge on a global level, and present supposedly impartial scientific data that pushes the connection between whaling and fishing into the background.



Artist : Nahoko Kojima
Medium : Papercut

Figure 6.4. Shiro (2018)⁷

Consuming the Ocean

Singaporean artist Tan Zi Xi’s 20,000 pieces of refuse suspended motionless, *Plastic Ocean* (2016), is a disturbingly immersive memento

⁷ <http://www.solokojima.com/shiro-blue-whale-papercut-art/>
<https://www.facebook.com/gurumagazinebangkok/videos/shiro-by-nahoko-kojima/157991968479157/>

of the permanent impression on oceans. In Gibson-Graham's (2011) words, it negotiates cynicism, playfulness, and comicality to actively connect the spectators with the problem. Tanzer et. al (2015) observe how the installation's large-scale immerses spectators in a discourse based on the consequences of ocean anthropocentrism in specific ways: stories of species facing extinction, of once-thriving non-mechanized fishing communities now conferring of bulk fish exhaustion, of the imminent danger of coral acidification, and of the mounting existence and spread of ocean plastic.

As Dooren (2014) describes, Tan Zi Xi engages her audience in stories of life and death at the cliff edge to provide "presence" and "vitality" to "disappearing others." Plastic Ocean contests Probyn's assertion regarding the need for humans to eat fish to fulfil their protein requirements in her book *Eating the Ocean* (2016). Similarly, Buchanan (2019), in his article "Must We Eat Fish?" maintains that we need to work toward a global cessation on consuming seafood to give aquatic species the opportunity to reconstruct and evade extermination, a destiny that numerous species face today, so Coral Wombs blossom within Blue Ecologies.



Artist : Tan Zi-Xi
Medium: Plastic Trash

Figure 6.5. Plastic Ocean (2016)⁸

⁸ <https://www.facebook.com/startindiafoundation/photos/pcb.915913915232445/915913288565841/?type=3&theater>

Our complex entanglement with Water

As a water goddess, she melts male desires

American street artist Caledonia Curry's (Swoon) Greek Goddess *Thalassa* (2014) rises sixteen-feet tall, crowned with seaweed entangled in her hair, adorned with a horseshoe crab plastron sternum, and a ribcage bordered with wriggling pipefish, taking her spectators to the depths of the ocean. Her free-flowing Goddess-like form that disperses nebulous oceanic species and skeletal-fish streamers omni-directionally, portrays her as the guardian of the colossal network of live rivers, seas, and oceans. Nevertheless, their skeletal remains arouse and remind spectators of what was devastated by the "Florida Deepwater Horizon Oil Spill," amongst other oil discharges. In Theweleit's (1987) words, as a water goddess, she melts male desires; she "lives in water," threatens to flow away and liquefy masculine virility. Her gigantic size resists dictatorial suppression and "opens up the borders of a hitherto unknown human productive potential, setting in motion streams of money, commodities, and workers" (Theweleit, 1987). She decomposes the capitalist's powers toward amassing and accretion to counteract the new industrious probabilities from turning into new human ease.



Artist : Caledonia Curry
Medium : Mixed Media-trash

Figure 6.6. Greek Goddess Thalassa (2014)⁹

⁹ Courtesy of Sal Rodriguez and Caledonia Curry <https://swoonstudio.org/#/thalassa/>

Conclusion

Every day, millions of women and girls experience violence globally. As Carter (2014) notes, this violence takes many forms, including close physical and sexual partner abuse, child and enforced marriage, female genital mutilation, sex trafficking, and rape. Similarly, Tanzer et al. (2015) note how 90% of the ocean's coral reefs, 'the guardians of the oceans', are dead or dying because of oil spills, water pollution, destruction by anchors, and ghost fishing nets. Both women and the oceans survive as controlled products of patriarchy and capitalism. *Coral Wombs blossom within Blue Ecologies* visualises the oceans and their global web of seas, rivers, lakes, and holy wells as a feminine force in flux. Their 'Coral Wombs' nestled within 'Blue Ecologies' has a long history in the crosscurrents of rationalization, scholastic notions, and scientific epistemology of primaeval civilizations, and even today for those that live in alignment with the eco-sphere. Barber (1991) and Drewal (1992) note that the everyday lifestyle of such cultures relies on women's performative agency within an aesthetics of fluidity and eco-interaction. Oyewumi (1997) explains how biology, like gender, is communally constructed in its variability for contexts like the African-Brazilian-Yoruba, Sub-Saharan-Bantu, Caribbean-Dahomey, European-Baltic, and Hindu-Shaktism amongst others. Along coasts of Africa and Americas, the woman is worshipped as the dark-blue-fishtailed Olokun who wears a deep-sea coral necklace, as she conglomerates the 'Coral Wombs' as the 'Mother of Fishes'. Embodied as the Syrian Mermaid-Goddess Atargatis, the Aztec-deity Chalchiuhtlicue, Australian-aboriginal Enigama, Inuit Goddess Sedna, Indian Goddesses Ganga-Yamuna or the Irish merman/merrow, her dual role is associated with the womb and water, as life-giver and life-ender, she sustains the cycle of life so *Coral Wombs blossom within Blue Ecologies*.

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CHAPTER 7

SUSTAINABLE DESIGN PRODUCTS IN PORTUGAL¹

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¹ This article is an expanded and edited version of the paper titled "Sustainable Design Products in Portugal " presented at the 1. International Congress and Exhibition on Sustainability in Music, Art, Textile and Fashion (ICESMATF 2023) organized online by ICSSIET Congress on January, 26-27 Madrid, Spain

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Introduction

A new generation of designers in Portugal is developing design projects based on sustainability principles. These projects have an approach that aims to conserve natural resources, reduce waste, use renewable energy sources and increase social responsibility awareness. For example, some Portuguese designers design furniture or accessories using recycled materials. These designs help to take a step towards a more sustainable future by reducing environmental impact while at the same time helping to reduce waste. In addition, they develop design projects based on renewable energy sources. For example, they can design a lighting system that works by harnessing solar energy. This design aims to have an eco-friendly approach while saving energy. The new generation of designers in Portugal also cares about a sense of social responsibility. Therefore, their designs can be aimed at providing social benefit. For example, a designer might design a tool designed to improve the quality of life for people with disabilities. In general, a new generation of designers in Portugal are developing projects that reduce environmental impact and provide social benefit based on sustainable design principles. This approach is seen as an important step towards a more sustainable future.

This chapter discusses some sustainable design products, taking into account the importance given to the product life cycle in Portugal in the context of developing products with national and environmentally friendly materials that have the agreed-upon value for material culture.

Literature



Portugal has a growing community of designers and entrepreneurs who are committed to developing sustainable design products that are both environmentally friendly and socially responsible. These products use innovative materials, manufacturing techniques and design concepts to create functional and aesthetically pleasing objects with minimal impact on the environment. An example of sustainable design products in Portugal is mushroom products, like the vegetal leather. Portugal is one of the world's larger producers of mushrooms, and many designers in the country are exploring the use of this sustainable material in

innovative ways. Cork is lightweight, durable and has natural insulating properties, which makes it an ideal material for a wide range of products, including furniture, upholstery and even fashion accessories. Another example of sustainable design products in Portugal are recycled and upcycled products.

Designers are finding creative ways to turn waste materials into new products. For example, using discarded plastic bottles – PET (polyethylene) – to make furniture or turning old bicycle parts into lighting fixtures.

Portugal is also known for its sustainable fashion industry, where designers use eco-friendly materials such as organic cotton, linen and recycled fabrics to create clothing and accessories. Some designers also incorporate traditional Portuguese textile techniques such as weaving and embroidery into their designs, creating unique and culturally significant products.

Sustainable Design

Sustainable design refers to the practice or philosophy of designing products, buildings, and systems that contribute to social and economic well-being, have a minimal negative impact on the environment and human health and can be developed or produced from a sustainable resource base (Fued-Like, 2009). It involves thinking the entire life cycle of a product or system, from the sourcing of materials and manufacturing to its use and disposal. It also include the practice of eco-design, considering the environmental impacts associated with a product during it lifecycle since acquisition of raw materials until the production, manufacturing and use and the end of life. By reducing the environmental impacts, eco-design also improves aesthetic and funcional aspects of the products, with consideration to social and ethical needs. Sustainable design takes into account factors such as energy efficiency, water conservation, waste reduction, use of renewable materials, and consideration for the health and well-being of the people who will be using the product or system.

Although design for sustainability is a design approach that aims to reduce the negative impact of design on the environment, according to Ashby et al. (2005), design for the environment is the activity normally performed by design engineers that takes into account the environmental degradation of products in current design practices for the next 10 years of the product (average expected life span of the product) (Sapuan, 2021).

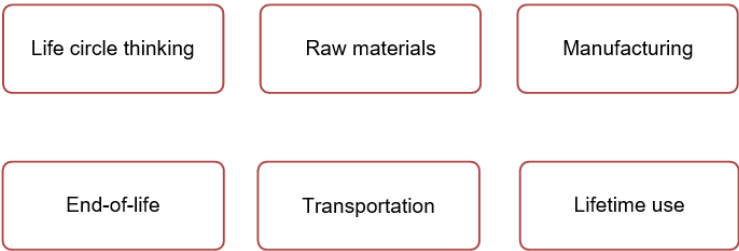


Figure 7.1. Sustainable Design³

Sustainable design products can be classified in a variety of ways, depending on the criteria used for classification.



Figure 7.2. Classification of design products developed in Portugal under the social, environmental and economic principles of sustainability⁴

³ Figure 1 was created by author.

⁴ Figure 2 was created by author.

The mapping of design products developed under the social, environmental and economic principles of sustainability in Portugal is given in Figure 3.

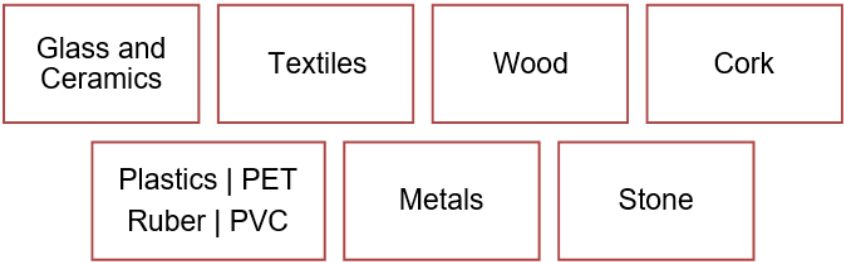


Figure 7.3. Classify the products⁵

Some Design Products



Design by João Sabino Material: plastic ABS (outside) Nylon (inside)
Process: 3D printing



Picture 7.1. Key Bag⁶

⁵ Figure 3 was created by author.
⁶ Kpriss (October 6th, 2009). <https://stylefrizz.com/200910/keybag-by-joao-sabino-le-geek-cest-chic/>

Joao Sabino's handbags are made of 393 keys (yes, just like the computer keyboard keys). With black nylon lining and available in four colors (white, black, pink, red) Kpriss (October 6th, 2009).



O caos é uma ordem por decifrar Design by KURVA DESIGN Jorge Moita e Daniela Pais

Material: Tyvek

Infinite design possibilities 2012

Pictures 7.2. | 7.3. LaGa Bag José & Pilar



La.GA stands out for its graphic layouts as well as being an innovative bag. It is a limited edition and certified for authenticity. Each bag is made from 100% semi-rigid Tyvek Graphics Quality that is less than a millimeter thin and weighs less than 40 grams. However, it can withstand a load of up to 55 kg! It has washable fabric.

It seems like La.GA is a brand that values both form and function, making their bags not only stylish but also practical.



Design by Vitor Agostinho for VÍCARA Materials: earthenware and glass
Process: Mutant Molds

Pictures 7.4. | 7.5. Layers Jar | Poliedro#56 Jar⁷

The Poliedro collection, designed by Vitor Agostinho, is made using a flexible steel mold that forms different shapes when each piece is manufactured. Handmade from blown glass.

Mutant Molds is a process that involves using a mold made from a mix of different materials, such as clay, sand, and plaster, to create unique and unconventional shapes. By using this process, Vitor Agostinho is able to create earthenware and glass pieces that have a distinct and organic look, with variations in texture and shape that cannot be achieved with traditional molds. The combination of earthenware and glass in this design also adds an interesting dynamic to the piece. Earthenware is a type of clay that is fired at a lower temperature than other types of ceramics, resulting in a porous and somewhat fragile material. Glass, on the other hand, is a strong and non-porous material that can be molded and shaped while it is still hot. The combination of these two materials in Vitor Agostinho's design creates a beautiful contrast between the delicate, organic shapes of the earthenware and the sleek, transparent quality of the glass.

⁷ <https://vicara.pt/products/poliedro-collection>



Design by Alda Tomás in SPAL - Sociedade de Porcelanas de Alcobaça for REMADE
 Material: Remaining scraps of porcelain grouted with the addition of Epoxy (2007) |
 Material: mud from remaining parts of porcelain resulting from the Residual Waters
 Treatment Station. ETAR of SPAL (2007).

Pictures 7.6. | 7.7. Bowl Restart (left) | Bowl Attitude (right)⁸



Design by Henrique Ralheta to Experimenta | Designwise (2001) | Design by Alexandre
 Caldas for AroundtheTree (2014)
 Materials: Metallic structure made by cluster of wasted cotton – upholstery and pockets.
 Materials: wood, iron and cork

Pictures 7.8 | 7.9. Chair Roots | Chair Re-Pocket⁹

⁸ Revolution9909 - pt - Revolution 99-09 é uma exposição sobre design português nas | Docsity

⁹ <https://experimentadesign.pt/press/pt/kits/experimentadesign.htm>

This collaboration between a designer of product and a fashion designer resulted on a piece of furniture where they applied dress codes. According to the logic of the pockets, the armchair keeps two blankets stored in your interior, visible only when in use. The coating is made in handmade fabric, in a reuse of the cotton waste, dyed black on the outside and in the original colours in the Pockets.

The Portuguese Roots Chair won the Silver Award given by A Design Awards. The designer, who created the AROUNDtheTREE project, reinterpreted the iconic Portuguese chair  in wood, iron and cork. In addition to the distinction, he was invited to be part of the permanent exhibition of MUDE – National Museum of Design. The author developed an ecological and modern project with originally Portuguese raw materials in a chair with a strong identity.



Material: Recicled plastic PET – Polyethylene | Recycled woods

Pictures 7.10. | 7.11. Peachy Boots by Lemon Jelly | Sunglasses by Cuzcuz by Ana Mendes ¹⁰

Lemon Jelly is a portuguese factory in labour since 1973. It's a conscient brand that transforms recicled plastic and has an animal

¹⁰ <https://aroundthetree.eu/pt/historia-portuguese-roots/>,
<https://www.nit.pt/compras/moda/cuscuz-o-projeto-portugues-de-pai-e-filha-esta-a-conquistar-o-munda-da-moda-la-fora>

friendly and vegan attitude with a closing the loop initiative, from recycled to recyclable. Here, nothing is lost and all is transformed with a sustainability local production from Portugal with renewable energy's resources: solar energy and with Social sustainability: from choice to priority. The production is environment friendly: less 90% of CO2 emissions of sustainable fashion and the packaging is 80% recyclable; 72% off the waste is recyclable, performing with a wasteless act with 0% of waste.

CUSCUZ is a sustainable Portuguese brand of fashion and design accessories. The main product of the brand are sunglasses developed in a conscious way in the face of environmental problems. The CUSCUZ brand aims to make people aware of responsible consumption, to make them question their actions, as well as their moral and ethical values, in order to voluntarily adopt consumption habits contrary to "fast fashion". The CUSCUZ brand thus offers a range of customizable products, fully manufactured "gender-free", highlighting the diversity in minimalist and timeless design (Lemon Jelly).



Material: Natural black cork and white cork | Dimensions: L46xW45xH73cm | L95xW56xH35cm

Pictures 7.12. | 7.13. Cut Chair | Layer Coffee Table by Toni Grilo for Blackcork (2014)¹¹

¹¹ https://www.domusweb.it/en/news/2014/02/11/toni_grilo_blackcork.html

The collection Blackcork of furniture, includes chairs, stools, coffee tables and consoles in expanded black cork O as a natural resource, a stool with concrete counterweight. Blackcork is a Portuguese contemporary furniture brand that uses cork of the branches for the manufacture of cork granules. These are in autoclave, being 100% natural process and without use of additives. The technology developed by Sofalca, consists of injecting water vapour through the pellets that will expand and agglutinate with the resins of the cork. This process gives a dark colour to the agglomerated cork, like chocolate brown. *Cut* consists in series of stools and chairs in natural black cork and oak. *Layer* is a shelf, a coffee table and a console in natural black cork, white cork and lacquered steel.



Material: Fused glass marbles on a mould | Fused white porcelain pieces on a mould

Pictures 7.14. | 7.15. Bowl Guelas by Elder Monteiro | Bowl Dominó by Filipe Alarcão¹²

Between past and present, this piece departs from childhood imagery to challenge the functional rationalism of everyday adult life. This decorative piece combines a simple shape with optical illusion plays on the casual observer's perception.



¹² REVOLUTION (2010); Graís (2013).



Material: Grey Recycled fabric. 70% of its composition is post-consumer recycled PES (Plastic and polyester fabrics). Vegetable tanned leather. | Dimensions: 45cm x 23 cm x +-12 cm Adjustable Strap: 70cm - 126cm. This portuguese brand uses leather that is a by-product' of the food industry, environmental-friendly. *Maria Maleta* uses synthetic materials that can add value to our products, recyclable and/or recycled.

Picture 7.16. Sustainable Paper Bag Recycled for Maria Maleta¹³



Material: Handwoven organic reed. Full vegetable-tanned leather. GOTS cotton lining. Handmade ceramic. | Re-used plastic pen caps. | Organic cotton. Toino Abel takes a modern approach to basketry. They bring together an in-house designed collection with a unique savoir-faire while merging nature, design and folk culture by developing baskets and bags. The brand has rescued the ancient craft of reed basket making in Portugal. Bag built from felt pens recovered in elementary schools. Project carried out by Naulila Luís in the discipline Final Project of the Degree in Industrial Design. Owner brand chooses to develop classic and timeless designs which lasts a lifetime. By creating timeless products, with no expiration date, which will always be available, season after season, suppliers gain more experience and ways to build them with less waste.

Pictures 7.17. | 7.18. | 7.19. Basket Celeste by Toino Abel | Pens Bag by Naulila Luís | Sustainable Montmartre Bag by Ownever

¹³ Shoulder Bag in Recycled fabric from Plastic | European Design (mariamaleta.com)



Material: Cork agglomerate and reciclable plastic | Cork and pencils | Cork aglomerata and laqued MDF – Medium density fiberboard

Pictures 7.20. | 7.21. | 7.22. Ice Contentor Gelo – Frappé by Filipe Alarcão | **Bowl Furo** by *Fernando Brízio* for Colletion MATERIA by Amorim Cork | **Lasca Support** by Marco Sousa Santos (2009)¹⁴

This frappé with lid and coated with a casing in plastic makes the most of the properties of thermal insulation of cork, as well as its unique texture. The interior temperature remains low while the outside never loses touch warm and dry, natural of this material.

Furo vase is composed of a central piece in cork, in which fit thirty-six colored pencils or four red pencils, in two configurations distinct and many other patterns of drawing. The pencil-legs can be removed for a more easy storage or when you feel the need to limit this object's artistic type.

Like a polished pebble from a riverbed, Lasca's gently rounded shape and rich texture reintroduce the feel of nature into its environment. Featuring different sizes and shapes, Lasca works as a support or working surface. More stable than a board, more practical and versatile than a table, it can serve to put down the television remote or a glass, support the laptop or put down your notebook or reading materials.

In 2009, Corticeira Amorim, world leader in Cork industry challenged Experimentadesign thinking strategically about cork as the raw material of

¹⁴ <https://www.toinoabel.com/shop/celeste>

Mala de canetas - Escola das Caldas

<https://www.ownever.com/collections/collection/products/montmartre>

https://www.amorim.com/xms/files/v1/Documentacao/catalogo_Materia_PT.pdf

choice, at the same time introducing to the creative community and the General public A new look at this material Millennial. This was the starting point of MATERIA, a new collection of unpublished objects in cork.



Material: Burel

Pictures 7.23. | 7.24. | 7.25. Dressing Hooded Cape “Eu não tenho medo” by Burel Factory and Storytailors (2013) \ Project by Sancha Trindade: “A cidade na ponta dos dedos”¹⁵

The cover “Eu não tenho medo” (“I’m not afraid”), is an iconic piece, but more than a design dress piece to buy and use, is also a portuguese manifest against the crisis times. The material burel which this hooded cape is made, burel, is a Portuguese handmade fabric, made of wool from Serra da Estrela (Saw of Estrela) breed sheep of the Bordaleira, Churra and Merina types. This material stands out for its quality, good thermal properties and a very appealing visual aspect. Developing projects like this, we are acting above the sustainable principles, using local materials and preserving tradicional crafts, our culture and identity.

Results

As a result of the research, it is possible to say that there is a consistent opportunity to develop a complete study on sustainable design products

¹⁵ <https://curated.sancha.co/eu-nao-tenho-medo-no-mude-ate-16-de-junho/~>

in Portugal. For example, Portuguese designers can develop packaging products made from biodegradable materials. These packaging products reduce waste and have less impact on the environment thanks to their natural biodegradability. In addition, some designers are able to create reusable packaging and communication products, such as glass bottles that can be refilled and used multiple times.

As Portugal is also home to a growing community of designers developing sustainable communication and product design, these products can be designed to have minimal impact on the environment while still being aesthetically pleasing and effective in assume their functions. For example, some designers use recycled materials such as paper and cardboard to create communication products such as flyers and business cards. Usually while in the past there was a gap in sustainable packaging and communication design products in Portugal, there is now a growing movement towards more environmentally friendly and innovative products. Portuguese designers and entrepreneurs take the lead in developing new and exciting products that have a positive impact on the environment and society.

The last generations of designers in Portugal, tend to create their own small productions, using techniques developed by their own, sustainable, and socially responsible. We mapped a variety of Portuguese sustainable design products: furniture, fashion and fashion accessories, glass, ceramics or other homeware products developed under sustainable design philosophy and principles, with environmental purpose, using natural resources, national materials or new applications of local crafts and materials, for Portuguese brands and companies, to inspire the future design generations, working with more sustainable products and implement a new concept of living.

According to Papanek (2006, p. 346), design is to be ecologically responsible and social responsive, revolutionary, or even radical. This subject must dedicate itself to follow the principles of nature, doing the most with the least resources, which means less consumption, longer cycles of use and recycling more materials, by using the sense of social responsibility and finally survive through design.

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