

TATIANA KIKOT

Portuguese Animation Platform

Digital Platform development for the Animation Sector



2020

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Scientific Report

Mestrado em Design de Comunicação para o Turismo e Cultura

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2020

Portuguese Animation Platform
Digital Platform development for the Animation Sector

Work Authorship Declaration

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Abstract

Today, Portuguese Animation has proved to be an important part of national cultural heritage. The medium received more than 200 awards and honorable mentions in the most prestigious festivals. Portuguese Animation has a great potential in becoming an industry that can provide not only economic benefits, but also become a medium known by everyone locally and be acknowledged internationally.

One of the actual problems is the absence of specific media able to give visibility to the people working in this area. In order to fill this gap, the development of a new digital platform, still missing, has been suggested to the author to resolve the real problem.

Connecting a problem with Communication Design brought out the research question: “Can digital platform contribute to knowledge sharing for the students and professionals in the Animation sector, while enhancing engagement?” To answer the research the concept of “the practice-based approach” was used, where the development of a design project is not the objective, but is the integral part of the process, and techniques such as: literature review, case studies, and usability testing with in-person observations. In the end the functional prototype was developed to prove the hypothesis.

Portuguese Animation Platform is a digital platform designed to be a repository for the artworks of students and professionals in the Animation sector. This platform allows rapid and efficient communication and knowledge sharing for the users. For the research the characteristics of target public was studied, the User Interface (UI) and the User Experience (UX) aspects through the usability testing. The gathered data outcome enabled the identification of some issues and revealed what necessary improvements had to be made. All the participants expressed the excitement and strongly believe it can provide them a better experience. So the research question was positively answered and proved the hypothesis, suggesting that digital platform can contribute to knowledge sharing while enhancing engagement. This research and its practical outcome might contribute to a more sustainable growth of the Animation sector.

Keywords: *Animation, Digital Platforms, Communication Design, Interaction Design, Software Engineering, Usability Test.*

Resumo

Hoje, a Animação Portuguesa provou ser uma parte importante do património cultural nacional. O meio recebeu mais de 200 prémios e menções honrosas nos festivais de maior prestígio. Os anos 90 deram origem a obras notáveis como: “Os Salteadores” (1993) de Abi Feijo, “Estória do Gato e da Lua” (1995) de Pedro Serrazina, “A Suspeita” de José Miguel Ribeiro e “ História Trágica com Final Feliz” (2005) de Regina Pessoa. A Animação Portuguesa tem um grande potencial para se tornar uma indústria que pode oferecer, não apenas benefícios económicos, mas também tornar-se num meio valorizado por todos internamente e ter o reconhecido internacional. Nos últimos anos, em resultado de um desenvolvimento contínuo e de uma melhoria geral da qualidade técnica, a animação tornou-se muito mais proeminente. O avanço da tecnologia e o aparecimento de novas ideias, permitiram que a animação em Portugal tivesse uma evolução significativa.

A Casa da Animação, Associação Cultural com sede no Porto, foi criada em 2001. A principal missão da associação é criar, promover e apoiar a Animação Portuguesa em todo o mundo. A Casa da Animação é dada a conhecer ao público principalmente através do seu site na Internet, e da sua página de Facebook. No entanto, o site não fornece informações completas sobre os profissionais, estúdios ou as suas produções. Os filmes de animação são exibidos em festivais, mas neste caso, os espectadores são muito específicos, o que não contribui para a divulgação do meio entre a generalidade do público. A dificuldade em aparecer nos canais nacionais ou nos cinemas, reduz o reconhecimento e a noção do património cultural já construído, impedindo assim a sua evolução natural

Outra área da animação são os jogos digitais. Os animadores que colaboram em jogos assinam contratos de confidencialidade ou promovem-se em grupos fechados. Os jogos não têm folhas de créditos acessíveis para ver quem trabalhou neles.

Um dos problemas que se revela importante, é a ausência de um meio específico, capaz de dar visibilidade às pessoas que trabalham nesta área. Para preencher esta lacuna, foi sugerido ao autor o desenvolvimento de uma nova plataforma digital.

O Design de Comunicação e a investigação, desempenham um papel importante no desenvolvimento das ferramentas de informação adequadas, para garantir que a mensagem chega ao público-alvo.

O Design de Comunicação desenvolve a relação entre o visualizador e os recursos visuais. O seu objetivo é criar uma mensagem visual, clara e objectiva, que chame a atenção imediatamente, e seja percebida mais rapidamente do que um texto. Além do Design de Comunicação, o trabalho focou-se também no UI (Interface do Utilizador), de modo a melhor adequar as características da plataforma ao utilizador. No aspecto da UX (Experiência do Utilizador) foi dada atenção à forma e qualidade da interação com o utilizador, nomeadamente na resposta intuitiva à sua atividade dentro da plataforma e experiência visual durante a utilização.

Para poder propor a solução mais adequada e eficiente para esta área, será necessário analisar os conceitos atualmente aplicados nas plataformas existentes em Design de Comunicação e Interação, e descobrir quem são os usuários potenciais, para estabelecer as principais funcionalidades da plataforma.

Para resolver o problema levantou-se uma questão de pesquisa: “A plataforma digital pode contribuir para a partilha de conhecimentos entre estudantes e profissionais do setor da Animação, enquanto ao mesmo tempo melhora a interação entre eles?”

Para responder à questão de pesquisa foi utilizado o conceito de “abordagem baseada em situações práticas”, onde o desenvolvimento de um projeto de design não é o objetivo, mas sim parte integrante do processo. Para ter uma visão completa dos valores e opiniões dos utilizadores foram utilizadas técnicas como: revisão de literatura, estudos de caso, e testes de usabilidade com observações pessoais. No final, utilizando toda esta informação, para provar a hipótese, foi desenvolvido o protótipo funcional.

Algumas das características e objetivos desta plataforma já foram pré-estabelecidas antes do início da pesquisa. Devido à limitação de tempo e recursos, este estudo concentra-se nas duas áreas: Projetos e Artistas, deixando as outras para exploração futura. Por esse motivo, a recolha de dados foi organizada em duas partes.

Antes de dar início ao trabalho, havia a necessidade de validar as características e funções pré-estabelecidas da plataforma. O primeiro passo foi reunir as opiniões reais dos especialistas da área. Os profissionais do setor da Animação foram convidados a participar

na pesquisa, onde avaliaram as características pré-estabelecidas da plataforma e contribuíram com sugestões.

Depois do desenvolvimento da plataforma e da construção de um protótipo funcional, foram tidas em consideração as principais características, e os aspectos da Interface do Usuário (UI) e da Experiência do Usuário (UX), através de testes de usabilidade e entrevistas semi-estruturadas. Aqui, a avaliação qualitativa foi combinada com a exploração da plataforma, afim de obter informações sobre uma área, e encontrar desafios que necessitavam mais investigação. Os estudantes que frequentavam a graduação no curso de Imagem Animada da Universidade do Algarve (UAlg) foram convidados a participar num teste de usabilidade da plataforma. Depois de experimentar a plataforma pela primeira vez, cada participante respondeu às perguntas semi-abertas. Cada um dos participantes compartilhou os seus pensamentos durante uma sessão individual. As perguntas foram planeadas de modo a fornecer informações relevantes sobre a usabilidade da plataforma.

Portuguese Animation Platform é um software digital desenvolvido para ser um repositório dos trabalhos de estudantes e profissionais do setor da Animação. Esta plataforma permite a comunicação rápida e eficiente, e a partilha de conhecimento entre os usuários. O protótipo funcional possui muitos recursos importantes para atender às necessidades do utilizador, como: Registro, Login / Logout, área Usuário e Upload do Projeto. Além disso, a plataforma permite a navegação e a pesquisa por vários tipos de projeto ou por artista.

Os participantes deram uma resposta muito positiva sobre a sua experiência de uso da plataforma. Todos os participantes demonstraram uma grande curiosidade em usar este produto e conseguiram concluir todas as tarefas. Embora a maioria dos participantes não tivesse necessidade de ajuda, houve alguns que fizeram perguntas. Todos os participantes se mostraram entusiasmados com a ideia e acreditam firmemente que a plataforma lhes poderá vir a proporcionar uma melhor experiência na divulgação dos seus projetos.

Assim, podemos concluir que a questão de pesquisa foi respondida positivamente e comprovou a hipótese, assegurando que a plataforma digital pode contribuir para a partilha de conhecimento e, ao mesmo tempo, aumentar o envolvimento dos usuários. A análise dos dados recolhidos permitiu a identificação de alguns problemas, e revelou quais as melhorias necessárias. Esta pesquisa e o seu resultado prático podem contribuir para um crescimento mais sustentável do setor da Animação.

Este projeto permitiu combinar o conhecimento dos princípios e processos fundamentais de Design e os meios usados na comunicação moderna. Esta pesquisa e seus resultados práticos podem contribuir para um crescimento e expansão mais sustentável do setor da Animação, aumentando significativamente seu público no futuro.

Palavras-chave: Animação, Plataformas Digitais, Design de Comunicação, Design de Interação, Engenharia de software, Usabilidade, Teste de usabilidade;

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Index of abbreviations

API	Application Programming Interface
CLI	Command Line Interpreter
CSS	Cascading Style Sheets
DBMS	Database Management System
DOM	Document Object Model
HTML	HyperText Markup Language
HTTP	HyperText Transfer Protocol
IDE	Integrated Development Environment
IP	Internet Protocol
JSON	JavaScript Object Notation
MVP	Minimum Viable Product
NPM	Node Package Manager
ODM	Object Data Modeling
PAP	Portuguese Animation Platform
REST	Representational State Transfer
URL	Uniform Resource Locator

CHAPTER 1. Introduction

1.1. Scope, object of study and motivation

Opportunity to spread information, to be seen and recognize, and reach both local and global audiences is an important part of people working in any industry nowadays, animation is not an exception here. One of the actual problems is the absence of specific media able to give visibility to the people working in this area. In order to feel this gap, the development of a new digital platform, yet missing, has been suggested to the author to resolve the real problem.

Communication Design and research are playing an important role within information development and problem-solving, ensuring the message reaches the target audience. Hence, to be able to propose the most adequate and efficient solution, it is necessary to understand the foundations of Communication Design with some examples of Communication and Interaction Design, find out who the potential users are and establish main functionalities of the platform.

Additionally, the motivation for this project was to develop skills and competencies that allow creating a digital interface that corresponds to the actual standards in the web design and needs of the area. More, as the author of this project prefers ideas to have their practical application and has a background and some experience in computer engineering, implement these skills to develop a functional prototype. The reason is to become more competent and comprehend the balance between what helps users perform well and what users actually like to perform with. This includes understanding the importance of web design, learning design conventions and ethics, and building relationships between web development and web design.

1.2. Relevance of the problem and research question

Casa da Animação, Associação Cultural, based in Porto, has been created in 2001. The main mission of this association is to create, promote and support Portuguese Animation worldwide. Casa da Animação is represented to the public mainly through the website and the Facebook page.

However, the website is outdated and does not provide full information on professionals, studios and their production. The main reason is the absence of maintenance and support to update the website. Nonetheless, animation films run at festivals, yet the audience is so specific and limited making it difficult to spread and propagate films among the public. Animators who collaborate in games sign confidentiality contracts or promote themselves in

closed groups. Again, the games do not have accessible datasheets to see the people who worked on them.

Therefore, having detected this problem, there was a request to create a platform that would help to overcome this obstacle for professionals working in the Animation sector.

This followed up by personal motivation for accepting and taking this project for development. Since I wanted to deepen my previous education in Computer Engineering, I was interested in building a complete product, taking care of various sides of it. And to focus not only on project interface itself but also on its functionality. In this project, I therefore wanted to create something that would allow me to connect a back-end to the application and enable controlling it.

Thus, considering this a real problem, participation in this project development has been accepted, as it can give a valuable knowledge and experience. As for me, success in product development has always come from solving one of personal existing needs.

On the whole, the work was oriented towards developing a new platform that is easy to maintain, access and use. The final product should be allocated to UAIG in order to support alumni of the *Moving Image* course, students of other study cycles with professional performance in animation, and other professionals in the industry.

In order to benefit this sector, this project proposes the development of a digital repository that will allow rapid and efficient communication and knowledge sharing for the users. It is an open-source service with low maintenance level and multiple tools for searching and observing information. Consequently, the research is trying to answer the following question:

Can digital platform contribute to knowledge sharing for the students and professionals in the Animation sector, while enhancing engagement?

1.3. Aims, objectives and project design

The aims of this investigation are two:

01- To create a platform through the development of a project in Communication Design (practice-based approach) in order to solve a problem;

02- To build competencies in Communication Design. Furthermore, to critically frame the practice-based approach and results in order to understand and evaluate the principles and the methods used;

In order to approach this intricate and complex aim, the project is organized according to different objectives. These intend to acknowledge each “sub-dimension” in order to facilitate the analysis and provide better outcomes. Therefore, they are:

- Critically frame the project question and methodology within Communication Design in order to consider its elements, processes, and constraints;
- To identify and to analyze existing similar solutions and their implementation, considering its set of specifications;
- To identify Communication Design principles in order to organize the layouts of the platform, to maximize effectiveness both as a communication device and as digital repository;
- To understand how to lower the level of maintenance;
- To implement a prototype;

1.4. Adopted methodology

Over three decades consideration that design is distinct from the sciences and humanities became an accepted issue (Saikaly, 2019). However, the nature of design research was in the center of debates (Saikaly, 2019, p.2). Poggenpohl and Sato (2003) support the scientific approach to design research. They describe three models: empirical research, theoretical research, and methodological. Margolin (1999) argues for the humanities approach. But there are others who focus on the nature of design practice and its relationship to design research (Saikaly, 2019, p.5; Franz, 1998).

Saikaly (2019, p.2) treating the design as a “the third area” of human knowledge that is “concerned with the making and doing aspects of human activity...” (Archer, 1979, p.19). In justifying the existence of “the third area” Archer (1979, p.19) argues for the existence of a different approach of knowing- a “designerly mode of inquiry”. Which is comparable, but distinct from the scientific, humanistic and social modes of inquiry.

The investigation conducted by Saikaly (2003, p.8) shows the existence of three major approaches to design research: “the sciences and humanities approaches”, “the practice-centered approach”, and “the practice-based approach”.

As for the methodology of this research, it is framed around the concept of “the practice-based approach”, where the development of a design project is not the objective, but is the integral part of the process (Saikaly, 2003, p.9). The development is conducted in the context of theoretical and practical evolution that surrounds the author’s areas of concern. This allows to demonstrate the author’s contribution to design knowledge, through his ability, awareness, and expertise (Glanville & Schaik, 2003, p.37).

The research phases have a cyclic nature (Figure 1). The project development is combined to all major phases of the research. Each cycle represents a component of the project and its relative theoretical context that further leads to a better understanding of the general research problem.



Figure 1. Schematic representation of the cyclic parts of the research process. (Adopted Dominoni (2001) as cited in Saikaly (2003, p.7))

Research techniques involved are literature review on Communication, Interaction, and Web Design; and case studies (analysis of the existing websites and platforms that fit within the research, and identifying their strong and weak points. After all, design project is used to capture, analyze, explore and transmit ideas through sensibility, invention, validation, and implementation.

Abductive thinking will guide this research with the aim to invent a 'plausible' solution through design practice.

1.5. Scientific report structure

This scientific report is divided into five parts, described as follows:

Chapter 1. “Introduction” presents the scope, opportunities, and objects of study and explains the aims and objectives of the project. It focuses on the importance of the product along with the research question and the research adopted methodology.

Chapter 2. “Animation” is a chronological outline of the growth and evolution of animation, followed by a discussion of the early development of Portuguese Animation and its relationship to other storytelling medium.

Chapter 3. “Communication Design” describes the concepts of Communication Design, Interaction Design, User Experience Design, and User Interface Design. It analyses web platforms and catalogues for animation and artworks as the state-of-art and presents the four selected case studies: Women Who Draw, Gobelins L’ École de L’Image, Folio belas-artes ulisboa, and Catalogue des vidéos à la demande.

Chapter 4. “Proposal: PAP” describes the conceptual, semantic and technical characteristics, as well as the structure of the web platform and its functionalities. On a base of this proposal was developed a functional prototype to demonstrate a web platform. The application

developed is a Minimum Viable Product (MVP). The MVP can later be developed to cover different other aspects of an online platform.

Chapter 5. “Evaluation Procedure” consists of two parts. In the first one described the process of problem validation with professionals in the Animation sector. The second part includes a presentation of the final experiment conducted with the students of the Moving Image course in UAlg, along with procedures, results, and discussion of the results.

In the final chapter 6. “Conclusions”, are presented conclusions as well as the answer to the research question. It describes the contributions of the web platform and recommendations for future work.

CHAPTER 2. Animation

2.1. Animation: on its way to become a valued a medium

Animation, as a concept, has been around for a long time. Archeological artifacts prove that the idea to graphically capture motion has existed as long as humans have been creating visual representation. Noticeable examples from ancient times include several undated Paleolithic cave paintings showing animals with multiple limbs in an attempt to depict motion (Thomas, 1958).

The general consensus is that modern animation began in the 18th and 19th centuries with the spread of the Industrial Revolution in Europe and North America (Plateau, 1832, p.291). Experimentations with machines managed to make images appear to move. The first meaningful step came with the invention of the phenakistoscope (Figure 2a), a spinning disc that made it look like pictures were moving. This was followed by the invention of the zoetrope (William George Horner, 1834) (Figure 2b), a hollow drum that housed images on long interchangeable strips that spin and made the images appear to move. Later, the zoetrope has been updated into a praxinoscope (Charles-Emile Reynaud, 1877) (Figure 2d), with an inner circle of mirrors. In between, the spread of the flip-book (Figure 2c), also known as the kineograph (Latin for "moving picture"), was recognized as the first use of a linear sequence of images– like in booklet instead of circular drums.

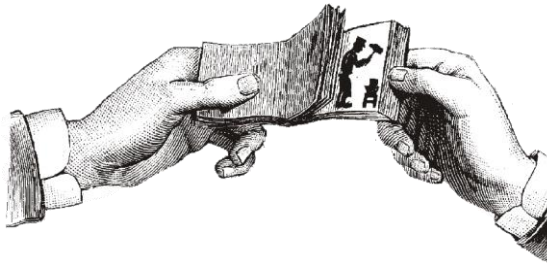
All these inventions played a significant part in popularizing the idea of animation and developing technologies closer to what it is today. The depiction of movement was continually improving making longer-lasting animation available in the future.



a) PHENAKITOSCOPE 1831
Invented by **Joseph Plateau**,
Belgian physicist



b) ZOETROPE 1834
Invented by **William George Horner**,
British mathematician



c) FLIP-BOOK 1868
Patented by **John Barnes Linnett**,
British lithograph



d) PRAXINOSCOPE 1877
Invented by **Charles-Émile Reynaud**,
French inventor

Figure 2 Animation devices available during the XIXth century

From now on, animation would progress extremely rapidly. In 1892, Charles-Émile Reynaud, the French educator and inventor of the praxinoscope (Figure 2d), projected his own personal animated project, *Pauvre Pierrot*, at a museum in Paris, by using the ‘Théâtre Optique’ (1898), another device of his own invention. This helped to realize that animation could be used as a medium for entertainment (Meyer, 2016).

The early 20th century marks the beginning of theatrical showings of cartoons, especially in the United States and France. Animation would go from an unexplored to a medium known by everyone. The true animation revolution in the United States, often known as the “Golden Age of Animation” (1940’s and 1950’s) gave birth to many of the most iconic characters of a generation. The films and cartoons made during that era, more than most live-action films, endured in the hearts and minds, remaining popular enough to be released and updated year after year.

In the 21st century, computer-generated imagery revolutionized animation and the medium become ever more diverse and specialized in tone and content. New ideas become more accepted and old ones have been refined. Animation production became accessible to everybody and techniques ceased to be limited to the photographic register of drawings and volumes to include 3D computer-generated imagery.

Overall animation has evolved intensely since the beginning. Today, the production of animation has become a fundamental activity in different media. Animation is found in cinema; television and audiovisual products; and interactive products like games and other information on digital platforms. Animation cannot be avoided, it will only continue to grow and mature as the 21st century continues.

2.2. A brief historical note about Portuguese Animation.

Portuguese Animation has its own path of development throughout the last century. The equipment was quite expensive and only available for those who worked in big studios. Education in the area did not exist. Therefore, it was difficult to develop artistic or commercial production in the area. Animation, as a professional activity in Portugal, began in the 60s in the studio of Mario Neves. At that time, there simply was not much room for or interest in animation in Portugal. There were certainly limiting factors facing the medium that come from its nature.

The position of animation improved when in 1973 the first Portuguese Film Institute (Instituto Português de Cinema) was founded, that allowed financing. After that, over two decades (1970-1990), the idea of Portuguese Animation began to develop under a different angle. It grew up into progressive sector with more professionals, more resources and more economic and cultural impact. The 90s gave birth to the most notable masterpieces as: “Os Salteadores” (1993) by Abi Feijó, “Estória do Gato e da Lua ” (1995) by Pedro Serrazina, “A Suspeita” by José Miguel Ribeiro and “História Trágica com Final Feliz” (2005) by Regina Pessoa (Figure 3).



Figure 3. “Os Salteadores” (1993) by Abi Feijó, “Estória do Gato e da Lua ” (1995) by Pedro Serrazina, “A Suspeita” by José Miguel Ribeiro and “História Trágica com Final Feliz” (2005) Regina Pessoa.

The beginning of 21st century was celebrated with the foundation of Casa da Animação. The main mission of this association is to create, promote and support Portuguese Animation worldwide.

Though only a decade and a half of the 21st century has passed, Portuguese Animation has already undergone significant change. The medium becomes ever more diverse, as new ideas become more accepted. Animation has become cheaper and easier to create and distribute. With more accessible computer-generated imagery and Internet experimental films, student animation, online web series, and other niche works have proliferated greatly.

During the last years, continued development and increase of quality made animation much more prominent. Increasing technological improvement, development of ideas and vision allowed animation to move forward. Today, Portuguese Animation proved to be an important part of national cultural heritage (AaVv, 2010). The medium received more than 200 awards and honorable mentions in the most prestigious festivals (AaVv, 2010). Portuguese Animation has a great potential in becoming an industry that can provide not only economic benefits but also become a medium known by everyone on the local market and be acknowledged internationally.

2.2.1. Limitations in development

Portuguese Animation has changed greatly since its beginning. But overall, has not succeeded so spectacularly to be appreciated and broadcasted as it should be. There are serious constraints that prevent it to proliferate within Portugal. Among them are reduction of funds and support, lack of human resources and training, absence of promotions and exhibitions, lack of distribution channels and weak visibility (AaVv, 2010, p.7). All these made an impact upon the way the medium is perceived and what contributions it makes.

The difficulty to be broadcasted on national channels, cinemas reduce the recognition and awareness of cultural heritage that is already built. Consequently, preventing it from its natural evolution (AaVv, 2010, p.8).

It is essential to accept animation as a dynamic element within national cultural industries (AaVv, 2010, p.10). And provide it appropriate and serious attention.

CHAPTER 3. Communication Design

Considering that the area of research of this project is Communication Design, it is necessary to explain the critical framework that grounds its investigation.

Conceptualization of Communication Design becomes extremely complex due to its various disciplines and influence over multiple areas. It is essential to get to the core of this concept in order to comprehend what brings together so many contrasting practices onto the same field.

3.1. Communication design

Today the term Communication Design might be interpreted in various ways (Frascara, 2004, p.1). Since there is not yet a unified theory, it is necessary to confront concepts of Design, proposed by different authors to understand the concept of Communication Design.

Moggridge (2007) proposed one of the most satisfying descriptions of design "a plan for arranging elements in such a way to accomplish a particular purpose in the best way" (p.648). The author emphasizes that design employs tacit knowledge of the unconscious mind rather than explicit knowledge of logically expressed thoughts. This is a reason why it is easier to "recognize the solution than to explain it" when creating Communication Design (Moggridge, 2007, p.650).

Back in the 90's Escorel (1999, p.62) admitted that design was a complex term covering various disciplines, from fashion to industrial production. The author emphasized that after almost a century of its development, the activity of design remained controversial and little known. The design has been all simultaneously: art, project practice, technological or scientific field, activity to support marketing techniques and many more (Escorel, 1999).

For Ralph and Wand (2009, p.108) design is an activity in which an agent, usually a human being that practices/manifests design through the specification of an object, which may have a physical or immaterial nature. The environment is the context where the intended object exists or operates. Goals represent what design object should achieve – the impacts that the object must have on its environment. Requirements are the structural or behavioral properties that the design objects must possess. The constraints are the limitations (Figure 4).

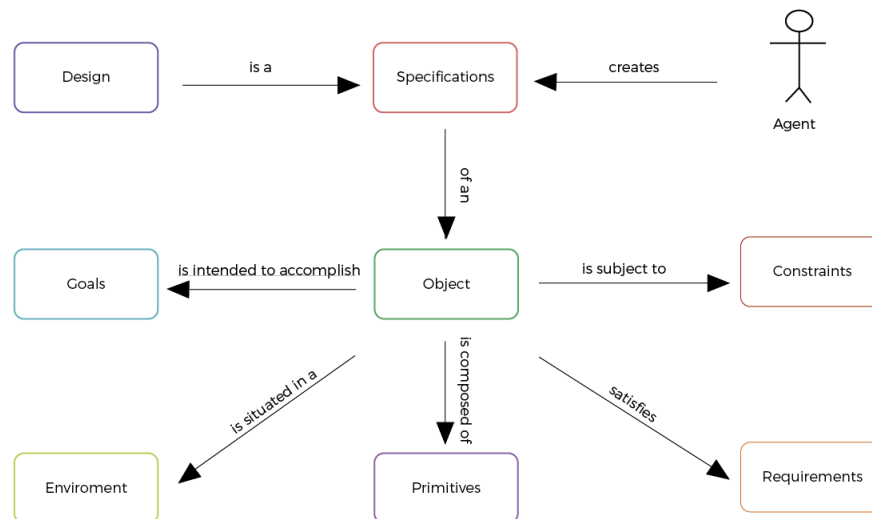


Figure 4. Adopted from Ralph and Wand (2009, p.108)

Despite thinking of design as something complex, Moggridge (2007) believes that the designer should not only be logical while working with functions but go beyond focusing on the receiver. According to this researcher, the design processes comprises five competencies: to create a solution from the constraints; to understand what will make the difference for the final result; to reformat problems and objectives; to create view and select alternatives; to view and make a prototype of what is intended (Moggridge, 2002, p.729). These competencies are part of a design process, which can follow or not this order. This process might be repetitive sometimes, and usually is unstructured, taking different directions.

In turn, Communication Design is seen as “the action of conceiving, programming, projecting, and realizing visual communications that are usually produced through industrial means and aimed at broadcasting specific messages to specific sectors of the public” Frascara (2004, p.2). It is a mixed discipline that is deeply connected with Psychology, Sociology, and Marketing as well as with Visual Communication (Frascara, 2004, p.57).

According to Frascara (2004), Communication Design is made with three elements: method (design), an objective (communication), and a medium (vision). For Frascara (2004) "Design is to invent, to project, to program, to coordinate a long list of human and technical factors, translating the invisible into visible, and communicating" (p.2).

Frascara (2004) denotes four key principles for design process: Perception and meaning; Language and Signification; Communication; Aesthetics. These principles are fundamental points of advice for making easy-to-use and pleasurable designs.

1) Perception and meaning

According to Frascara (2004), the attention of the viewer must be focused on the perception and the meaning of the visual design. Aspects of projects as clarity of form and content, facilitation and stimulation of reading and consideration of cultural, social, economic, technological, and ecological.

2) Language and signification

Language mediates between the communicator and the decoder, and between referred 'things' and meanings (what is formed in the recipient's head). And it must be understood according to a series of parameters.

The objective of the design is to be very careful and reasonable in selecting the content and the language. As requirements differ from project to project, Frascara (2004), advises making a checklist with the prerequisites with the user needs.

3) Communication

Frascara (2004, p.63) states that Communication is the reason for the existence of Visual Communication Design. Communication strives for a perception- a search for meaning. There are two fundamental components in any perception: the search for meaning, and the construction of meaning based on the incentives. To perceive is not just to receive information passively. The process involves searching, selecting, relating, organizing, establishing connections, remembering, and identifying, and defining hierarchies, judging, learning, and interpreting.

4) Aesthetics

As Frascara remarks, the importance of aesthetics is deeply connected with the understanding of the audience that communication is intended to reach. Aesthetics should be suitable and appropriate to the public, product, and message that it conveys. Here the languages and personal preferences of the target population play a major role. After all, design goes far beyond the primary needs that objects want to deliver (Maslow, 1970). According to Sudjic (2008, p.52), design is the DNA of society, as the social context, human nature, economic systems, technologies, and emotional and cultural values can be better perceived through and experienced. This displays an extreme connection between design and culture, as a producer of goods as well as cultural events.

3.2. Interaction Design

Today Communication Design should also be more and more enjoyable, attending not only to engineering, ergonomics, and production but also to the user's own experience. Under this aspect, there must be attention to the form and quality of interaction.

Until the mid-1990s Interaction Design was not recognized as a field of knowledge. For a long time, human behavior was considered apart from design. During this period, the term was linked to the usability and engineering of human factors to support the task (Lowgren, 2013, p.1).

Moggridge and Verplank are considered the founders of Interaction Design, starting to give presentations on the subject during the '80s. Moggridge (2007) explains his feelings:

I felt that there was an opportunity to create a new design discipline, dedicated to creating imaginative and attractive solutions in a virtual world, where one could design behaviors, animations, and sounds as well as shapes. This would be the equivalent of industrial design but in software rather than three-dimensional objects. Like the industrial design, the discipline would start from the needs and desires of the people who use a product or service, and strive to create designs that would give aesthetic pleasure as well as lasting satisfaction and enjoyment. (p.14)

Later, with the collaboration of Verplank, the concept was settled eventually as "Interaction Design". Verplank (2009) defines the central concern of Interaction Design "how to design for people – for their physical and emotional needs and increasingly for their intellect" (p.5).

Donald Norman also arguably deserves acknowledgment as a pioneer in Interaction Design. Norman (2006, p.217) emphasizes that although Interaction Design does not use words, it is an act of communication, sharing and exchanging meanings between designer and user/receiver.

Interaction designers are trying to define and analyze communication among users and technology and consequently simplify the interactions between them. Control of this communication may be accidental or intentional, but good design tries not to leave artifacts thrown at random (Norman, 2004). Thus, "the design is used to shape perceptions of how

objects are to be understood" (Sudjic, 2008, p.51) promoting the understanding of meaning through clues, or as Norman refers (2004, p.12), through signifiers.

In turn, for Moggridge (2002), Interaction Design was so young that there is very little established knowledge so far. The chances to satisfy all functional constraints and let alone with aesthetics are still low. Moggridge (2002) defines Interaction Design as "The design of the subjective and qualitative aspects of everything that is both digital and interactive, creating designs that are useful, desirable, and accessible" (p.659).

In sequence Saffer (2010, p.20) stresses that Interaction Design is still trying to find its place among similar disciplines such as architecture information, industrial design, visual (or graphic) design, User Experience Design, and human factors (Figure 5).

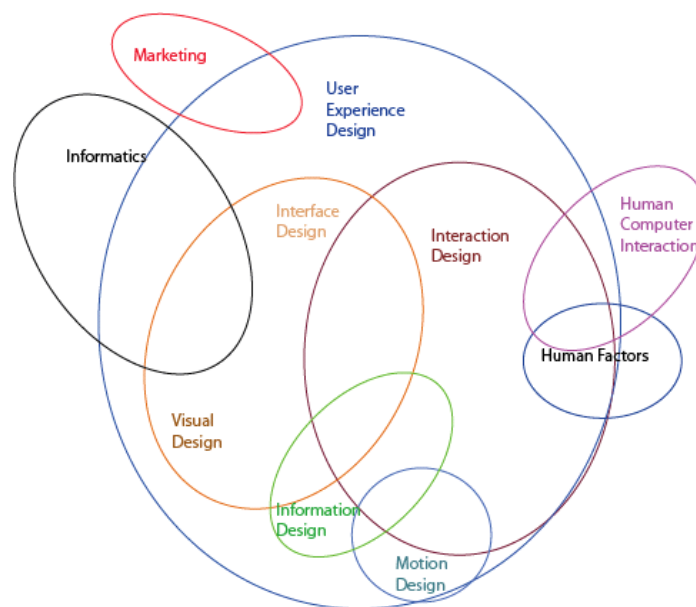


Figure 5. Adopted from Dan Saffer (2007, p.21)

According to Saffer (2010), there are three currents with a distinct focus on Interaction Design. The first is technology-centered and tries to make it more usable, useful and enjoyable. What has been produced by engineers is transformed and shaped to the pleasant combination of functionality and need of people. The second current is behavioral-centered. It takes into account the functionality and feedback of the products, according to the action of the people. The third one, social Interaction Design, aims to facilitate communication between humans and products. From this point of view, technology is less relevant, any products can make the connection between people.

Liddle (2007) referred to three stages of approval progress in Interaction Design: *enthusiastic* phase, *professional* phase (development) and *consumer* phase (interaction) (Figure 6). The *enthusiastic* phase is adoption, where starts the first communication and exploration of primary capacities of artifacts. The process concerns the product and technology itself. The *professional* phase is a *professional* usage, where technology is used at work for the performance of a task. Here the user often is not the buyer. Thus, the usage factor is left out by price, payment terms, performance specifications or after-sales support. At this stage, the technological complexity is welcome, as the purchasers are not concerned about the difficulty level. As the more elaborate the performance, the more their work will be valued. In this case, users do not mind spending much time learning how to use it. The *consumer* phase is related to the consumers, where people are less interested in the technology itself, but focus on what they can do with it. Users do not want to spend too much time learning how to use it and do not like to feel unaware. The *sine qua non* of acquisition is simplicity in the handling of the tool. Thus, at this stage Interaction Design acts by making the technology usable and pleasurable to the user. This phase is more challenging for production, which must be created for the most varied types of people, rather than focusing on specialists who should know how to use them.

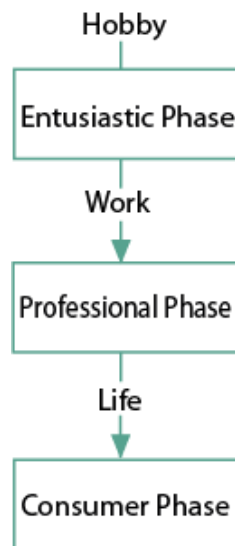


Figure 6. Adopted from Liddle (2007, p.244)

Therefore, Crampton (2007) stresses that: “Interaction Design is about shaping our everyday life through digital artifacts—for work, for play, and for entertainment” (p. XI). The author emphasizes the importance of five requirements for interaction designer: usability, utility, satisfaction, communication, and sociability. Usability is only the first step that is expected of a system, it needs to be useful by being appropriate to the goals and

desires, satisfying the user. While communication should occur during use, without the need for instructions. Sociability shows that social experiences are made possible by the network, bringing greater meaning to the object. This is the stage in which we live with websites, and it is therefore so important that we rely more and more on Interaction Design.

Interaction Design involves not only the focus on interaction but also on all other processes that influence it (Cooper et al., 2007; Crampton, 2007; Lowgren, 2013; Saffer, 2010). Some of them focus on solving problems and performing tasks, that is, on a restrictive idea of usability.

3.2.1. Usability

Usability is initially thought through the statement: “easy to learn, easy to use” (Carroll, 2013, p.27). More comprehensively, this concept means to concern on functionalities desired by the users with common skills and without previous experiences (Krug, 2006).

The importance of Usability cannot be devalued, this is a *sine qua non* condition for the success of any interface. If a site is difficult to use, people will leave it (Nielsen, 2013) or they will not spend much time on it (Krug, 2006). According to Krug (2006), the user only looks, does not read the details, and looks for key figures such as titles, subtitles or images. After all, a desktop computer screen is not a suitable medium for long readings, along with the mobile phone (p.22). The user looks at the screen as in a hurry, not needing to read everything, just looking for clues of interest, so not everything on a page will call to in-depth reading.

Krug (2006) explains the Usability principle as follows: “if something requires a large time investment - or seems to require - is less likely to be used” (p.19). And this is the reason for the author's first law: “do not make me think!” (Krug 2006, p.11). Therefore, pages need to be obvious, requiring no effort. In most situations, things must go into the obvious, having links, buttons easily perceived.

3.3. User Experience Design

The use of technology has changed dramatically, people started to use digital means out of work and away from the task environment, bringing technology to leisure. Thus, functionality and usability is not enough. Hassenzahl (2003) denotes that customers quite frequently take functional characteristics and product quality as granted, now they want

products that can touch their feelings and trigger their minds. Therefore, products must have an emotional component, so they have life and transform the process of use to highly exiting (Preece, Rogers, & Sharp, 2005; Saffer, 2010). With this in mind arise the idea of User Experience which captures a series of aesthetic, formal and emotional approaches (Preece et al., 2005).

For Cooper, Reimann, Cronin, Noessel, Csizmadi, & LeMoine (2014) User experience concerns three areas: form, behavior, and content (Figure 7). It specifically *designs the behavior* of complex interactive systems, and the design of information systems have to work smoothly in synchrony with each other in order to deliver an optimal experience to the users (Cooper et al., 2014; Saffer, 2007).

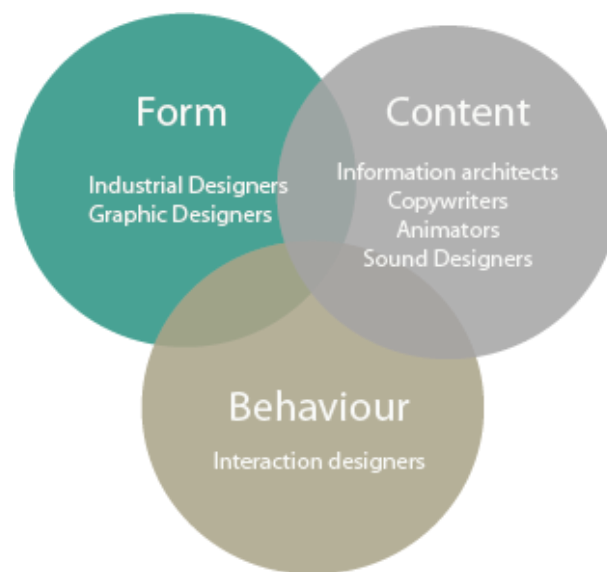


Figure 7. User experience concerned areas. Adapted from: Cooper et al., 2014, p.xxxi.

Garret (2010) defines User Experience objective as follows: “no aspect of the user’s experience with your product happens without your conscious, explicit intent.” (p.19). From this perspective, the design no longer focuses on the product itself but creates a significant experience through interactive devices- User Experience Design.

For Norman (2013) the industrial design works the materiality, the interaction works the intelligibility and usability of the system, but the User Experience Design works on "The practice of designing products, processes, services, events, and environments with a focus placed on the quality and enjoyment of the total experience”(p.5).

The User Experience Design originates from the need to think about the product through a global quality, is not limited only to pragmatic interests (objectives of the task), but also to hedonic needs and issues such as stimulation (personal growth, competence), identification

(self-expression, interaction with others) and recall, self-maintenance) (Hassenzahl, 2003, p.31).

The Hassenzahl' model (2003) assumes that each user adds some characteristics to a product or service when using it. User Experience is the result of these characteristics, which are different for each user, depending on the situation in which the product is used. The key elements of User Experience can all be grouped into four categories: manipulation, identification, stimulation, and evocation. On a higher level, categories can be grouped into pragmatic and hedonic attributes. Whereas the pragmatic characteristics relate to the practical usage and functions of the product. The hedonic characteristics relate to the user's psychological well-being. Understanding this segregation can help to design products with respect to User Experience.

3.4. Interface Design

The scope of the present investigation is the interface design that receives multiple influences from both the Interaction Design (Cooper et al., 2007) and User Experience Design (Garret, 2010).

The interaction between man and artifact takes place through the interface. In this case, the interface is an intermediary that connects the user with digital products.

The interface design should be based on principles of visual communication, which are the strategies for graphic behavior and information. Therefore, working on aesthetics in interface design is as valid as usability and functionality. Norman (2008) states: "To be truly beautiful, wondrous, and pleasurable, the product has to fulfill a useful function, work well, and be usable and understandable" (p.41).

According to Cooper et al. (2007), the interface design begins to work when you need to produce something graphic based on the designer's expression. This establishes a certain behavior that allows creating a style that is obtained through the characteristics of the brand, the objectives of the business and the needs and desires of the user.

For Cooper et al. (2014), when creating an interface, the following elements must be taken into account: context, shape, dimension, color (value/hue/saturation), orientation, texture, position, text, and typography. The author defines principles that help to create an interface. These not only reduce and organize the cognitive load but also promote analysis that will serve as a foundation for usability and user experience.

3.5. Designing for the Web

Complex interfaces have many goals and messages to convey on a single screen; what makes it challenging is to provide order, direction and pattern to obtain meaning. The number of applications and platforms that are developed now has resulted in a set of rapidly evolving standards and patterns; even though, there is no single pattern and no unified visual language for designing an application (Schlatter & Levinson, 2013, Bandura, 1986, Norman, 2013).

There are more than a hundred principles, laws, and guidelines for interface design (Schlatter & Levinson, 2013; Norman, 2013, Lidwell, 2003). However, this project and its investigation have time constraints and lack of long training in the area. For this reason, principles have been selected in order to match mostly the projects' objectives. The following has been selected from a variety of design disciplines, as they mostly affect connecting form with function and aesthetic with usage:

- Consistency
- Hierarchy
- Affordance
- Personality
- Feedback
- Color

In order to be more efficient in interpreting, these principles are going to be analyzed along with the platforms chosen to be referenced in the scope of this project in the following chapter.

3.5.1. Elements in interface design

Users examine a new site with the hope that it will match their expectations (Nielsen, 2013; Nielsen & Loranger, 2007). Thus, it is crucial for delivering a website efficiently and effectively, without frustration. In this way, it is the designer's job to leave cues for the user, to help interact with the system.

According to Tidwell (2011), these cues and commonly incorporated solutions are patterns/standards. Each pattern can be incorporated and adapted in a variety of ways, depending on the context, needs, and expectations. For Tidwell (2011) standards are more concrete and less general than the principles. In fact, they try to fill in and solve what the

principles proposed. Patterns are not individual elements, but the relationship between them, which are configured using a tool.

According to Tidwell (2011), the layout structure conventions are arranged in the following dimensions:

1. Page layout;
2. Fundamental elements of page design: logotype;
3. Navigation;
4. Resources often included;
5. Graphics and multimedia;
6. Advertising;
7. Typography.

Further, the attention will be concentrated on the first five dimensions. Typography is left out of research due to its complexity and Advertising due to its irrelevance to the study.

3.6. Analyze of existing and analogous solutions

For a better understanding of usability and interaction patterns and to draw concrete conclusions about the effectiveness of interface design for the web, the analysis of some web platforms that fit within the thematic follows. In total were chosen 4 platforms (Tab.1). Two represent the gateway for students' artworks from the Folio Belas Artes, University of Lisbon (Universidade de Lisboa, Portugal) and Gobelins School of the Image (Gobelins L'École de L'Image, Paris, France). Both provide the most complete specter of the content of the artworks and quite popular among the students. One is a National Center for Cinema and Moving Image (CNC) which was created to allow access and give financial aid to French Cinema and Audiovisual production sector. And one is a portal for women in art which represents a more modern approach for artist visibility. The selection was based on the purpose to understand what has been done already in order to critically frame and help to implement and improve this project. The analysis is based on the concepts explored in the following chapter, according to Interaction Design principles along with the patterns and elements, structure of the contents and main graphic elements

as typography, imagery, color, and layout. The device used for the analysis of applications was a desktop 24 inch with Intel operating system.

Name	Theme	Content	Observations
1. WomenWhoDraw www.womenwhodraw.com <i>Access: 18 November 2018</i>	An open directory of female illustrators	Female artworks	One-page website, where content accessible through the links. The links on the main page lead to the artists' individual galleries and websites.
2. Gobelins L'École de L'Image www.gobelins.fr <i>Access: 25 November 2018</i>	Digital Archive of Gobelins L'École de L'Image	Content presents artworks of students of Gobelins L'École de L'Image	Website is quite complete at the level of information, with the use of icons on the pages, and with details of each project.
3. Folio belas-artes ulisboa www.folio.belasartes.ulisboa.pt <i>Access: 17 November 2018</i>	Digital Archive of Faculty Belas-Artes ulisboa	Content presents artworks of student of Belas-Artes Ulisboa	Website is quite complete at the level of information, with the use of icons on the pages, and with details of each project.
4. Catalogue des vidéos à la Demande www.vod.cnc.fr <i>Access: 01 November 2018</i>	National Center for Cinema and Moving Image (CNC) France	Referencing engine with more than 10 000 films	Video on-demand with or without a subscription.

Table 1. A summary table of the selected platforms, each of which was numbered, with columns for the name, subject, and content

3.6.1. Case studies

1. *Women who Draw*

Women Who Draw functions as a gateway to a whole universe of female artwork. It was created in 2015 in order to increase the visibility of women, women of color and queer women (including trans and gender non-conforming) that work in art. The idea here is that editors, publishers, and art directors will consult *Women Who Draw* and hire these skilled artists for upcoming projects. This will cover the gender divide in creatives industries and stop talent being unfairly overlooked.

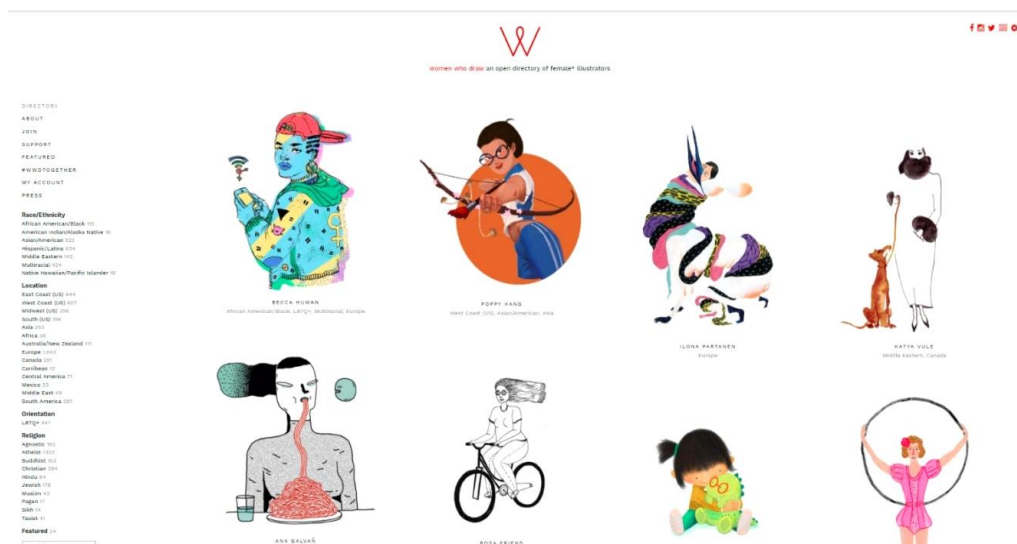


Figure 8. Main page Women who Draw.



Figure 9. Menu Women who Draw.

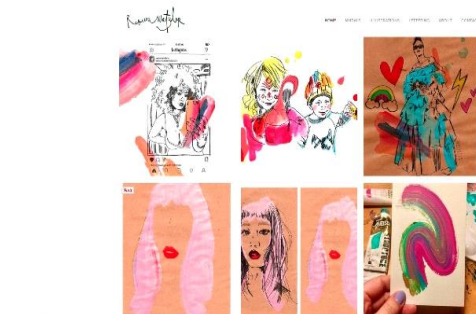


Figure 10. Redirection to artist page Women who Draw.

Interface design analysis

This beautifully designed site was created by and for female artists, and its name speaks for itself - *Women Who Draw*. Each artist is represented by an icon that displays her signature style.

The main page opens with a well-defined 4 column grid of artist illustrations and a navigation bar on the left side of the screen. The web-site has a simple and clear design, with a lot of white space. It is brief and consistent at the same time.

The content passes through the images of the works, and follows by technical information underneath the image (author, title, race/ethnicity, location, orientation, religion); eventually, on clicking on the illustration the user is redirected to the artists' individual galleries and websites.

The content is consistent, people are familiar with the elements that are in use. Similar operations and similar elements are used for achieving similar tasks (Norman, 2013). All images have the same edition and language; the use of color is well defined. All these help viewers filter out details that aren't relevant at the time, to avoid overload (Bandura, 1986).

The visual hierarchy is well established on various levels (Schlatter & Levinson, 2013). The users can easily see what they intend to see, the content is informative and rational Bandura (1986). On the application level, the logo of *Women Who Draw* is positioned at the top of the screen and differs by its size and color. The logo is executed in red, which emphasize the relation to female users, as female rate the red website higher than males (Singh, 2006). Without great visual emphasis follows a one-line description of what this website is all about.

It is noticeable, that the platform manifests a deeper understanding of users and their behavior. The sites' commitment to diversity in the art world does not stop with gender. The well-positioned navigation on-screen level (Schlatter & Levinson, 2013) includes indexation by religion, ethnicity, location, and sexual orientation as well. These allow to elevate the hierarchy and present more targeted options for the users (Schlatter & Levinson, 2013).

The interaction with the application is quite simple, however, the navigation looks overloaded and heavy since all items are displayed. Reducing navigation elements to the essentials on the main screen and uploading the content of the menu on click would help to make navigation clearer and more fluid.

The application does not require much attention from the user, as it does not contain much information, except the menu, neither have visually appealing and potentially distracting elements.

The website does have a personality, and in addition, colorful illustrations bring a lot of expressiveness and cheerfulness to it. Both the text and the commands are grayscale and black, the interactive icons are in red. Altogether the design has simplicity and well organized and harmonious in color.

This application is a good example of consistent design that respects visual hierarchy and has a very discreet personality, excellent not to divert attention from exposures.

2. *Folio belas-artes ulisboa*

This platform displays students' artworks of the Faculty of Fine Arts of the University of Lisbon (Universidade de Lisboa). The website is an endless source of inspiration to the occasional visitor and experienced artist. This is an open web platform that allows registered students to publish their artworks.

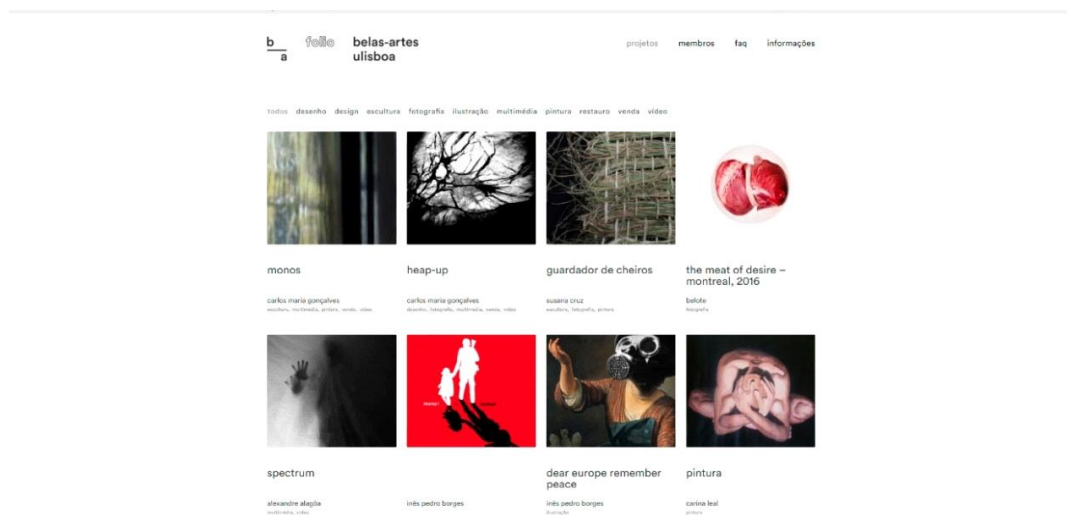


Figure 11. Main Page Folio belas-artes ulisboa

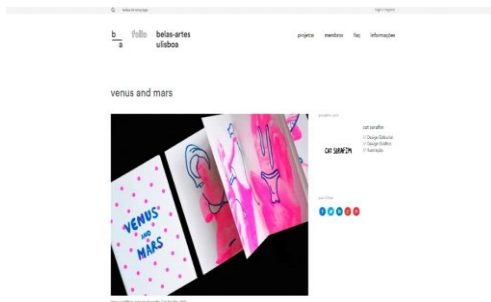


Figure 12. Project overview page Folio belas-artes ulisboa

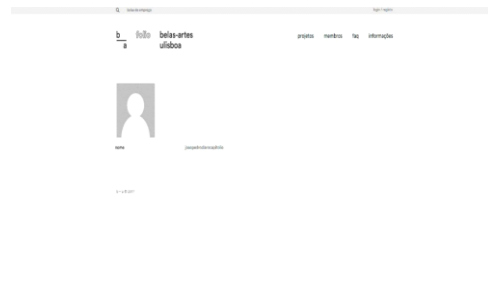


Figure 13. Member overview page Folio belas-artes ulisboa

Interface design analysis

The application of the *Folio belas-artes ulisboa* opens with a defined 4 column grid of projects' images and a navigation bar at the top of the screen. The application is consistent in terms of presentation and content structure, it is convenient and organized. The main interface elements (navigation, logo, etc.) are placed in recognized areas and maintain coherence in all screens, allowing to increase recognition and set emotional expectations (Lidwell, 2003).

However, in the displayed visual hierarchy navigation does not presented clearly on multiple levels (Schlatter & Levinson, 2013). By manipulating various characteristics such as size, color, and treatment of the navigation elements it should permit better visibility. As the more visible an element is, the more likely users will use it and vice versa when something is out of view, it's difficult to know how to use it (Norman, 2013a).

There are some issues with textual content and its alignment on the project page. These require improvement to elevate the readability, to perform better organized and rational content that is expected by the users and fits their pre-existing mental model (Bandura, 1986).

The typography is clear and easy to read. The chromatic palette (white and grey) conforms to the identity of the platform and conveys a sober message with attitude. The design is clean and organized with plenty of white space which attaches more importance to the content. Although there is not a lot of content on screen, the confusion is avoided by using white space to separate the page headings, pictures and text. This layout allows the viewer to rest their eyes before focusing on another element (Schlatter & Levinson, 2013).

Interaction is a weak part of this application, the poor attribution of visual properties to an interactive element and poor use of interaction patterns decreases the level of engagement. The application with interactive content must match what is perceived in the characteristics of that content or element corresponding to the expected communication by not changing completely the type of response.

In general, the application does have a quite good visual hierarchy, however, it needs small adjustments to make the visualization process more engaging, and also the use of size, color or higher color contrast could help a better hierarchy and platform in whole.

3. *Gobelins L'École de L'Image*

This web platform is very similar to Folio Belas-Artes Lisboa. It introduces to the students' artworks of Gobelins L'École de L'Image. The difference is that it does not exist independently, it is part of the Gobelins School website. It is also an open web platform, however, to register and publish artworks user should be a student of the faculty.

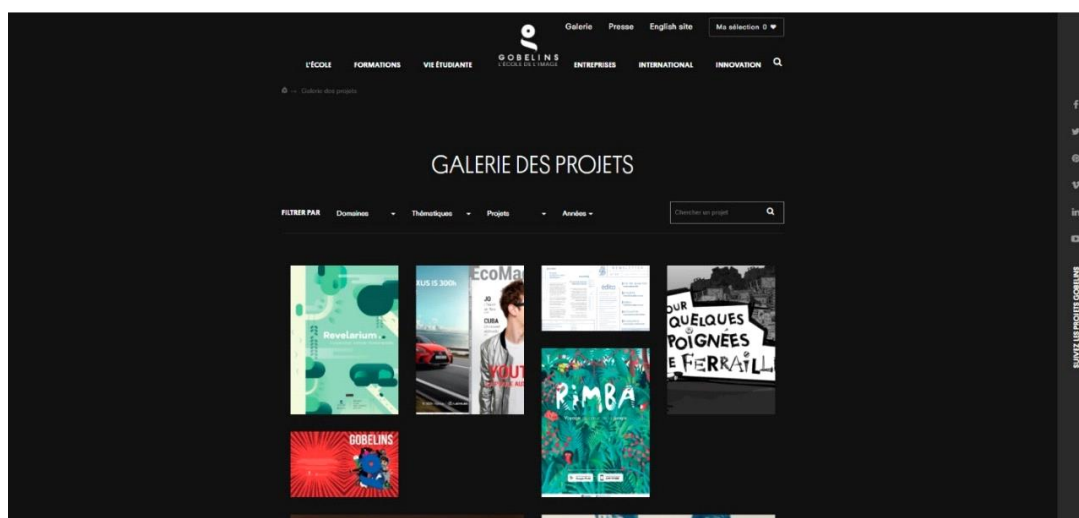


Figure 14. Main page Gobelins L'École de L'Image

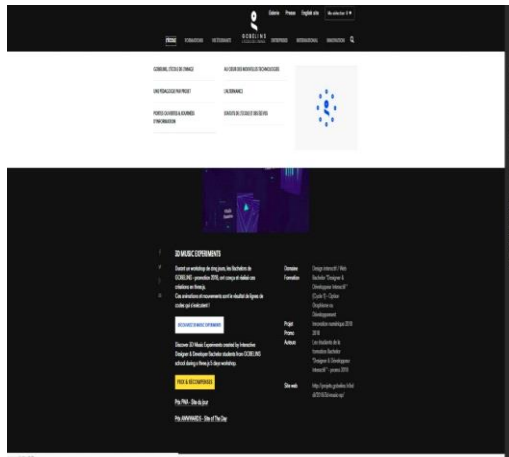


Figure 15. Menu Gobelins L'École de L'Image

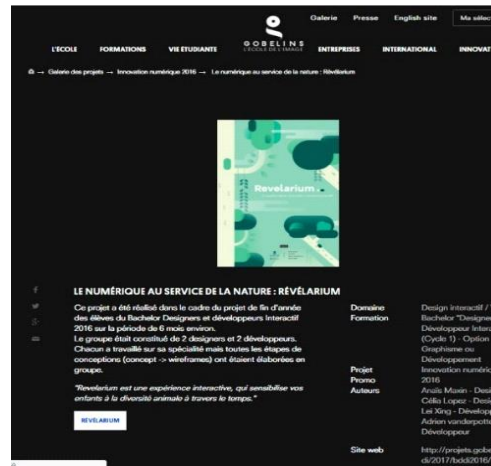


Figure 16. Project Presentation Gobelins L'École de L'Image

This platform has a strong identity and maintains coherence on all the pages and screens. The initial page meets users with a nice and stylish dark grey background and white lettering. The logo is situated in the middle of the menu, and slightly bigger than the rest of the content, helping to keep it always in focus.

The gallery is a part of the Gobelins L'École de L'Image main website and the gallery content placed under the main navigation. On application level, we can find the main navigation of the Gobelins L'École de L'Image, and on-screen level - navigation of the gallery. Although the navigations have a different visual representation, all together they make the layout a little bit confusing. Changing their size and color on different levels will permit better visibility and greater hierarchy (Norman, 2013a). These will allow to highlight and clarify to the viewers the most relevant parts are at the time.

The social menu bar is placed on the right part of the screen, and it remains in the same position on all pages, it does not get too much attention from the exposure objects, but at the same time is easily noticeable, when the user needs it.

The portfolio is presented through the asymmetric grid, which makes things more interesting, while still sticking to a grid to keep things ordered. The used technique is a masonry layout. The page is divided into regular columns along the horizontal plane, but the content blocks within those columns are of differing heights. The columns can be of double or triple width, or an individual element may take up two or more column widths, but it will always be divisible by the single column width. Here it is also applied the other way round—as in, content blocks of differing widths arranged into regular height rows.

The use of color and typography remains to be the same throughout all pages. Different shades of grey are used along with different typography to increase visibility.

In terms of interaction, the application offers simple and clear self-evident elements, uses common navigation patterns (buttons and interactive icons) and offers a good response to user interaction, for example, it is easy to reach the desired page.

The design of the application conveys a strong and dynamic personality mainly due to the exclusive use of black and white tones. In short, there are some inconsistencies at various levels, which may lead to longer learning time of the interface but it presents a reasonable visual hierarchy.

4. *Catalogue des vidéos à la demande*

National Center for Cinema and Moving Image (CNC) is wholly dedicated to the French cinema. In 2015 the Center launched an online engine allowing access "to the entire legal offer in France" (Wojciak, 2015). Thus, via vad.cnc.fr, the user can from a simple request (the title of a film, or a name of the director, actor or a year of production) find a video on demand with or without a subscription, with an option to download or to stream.

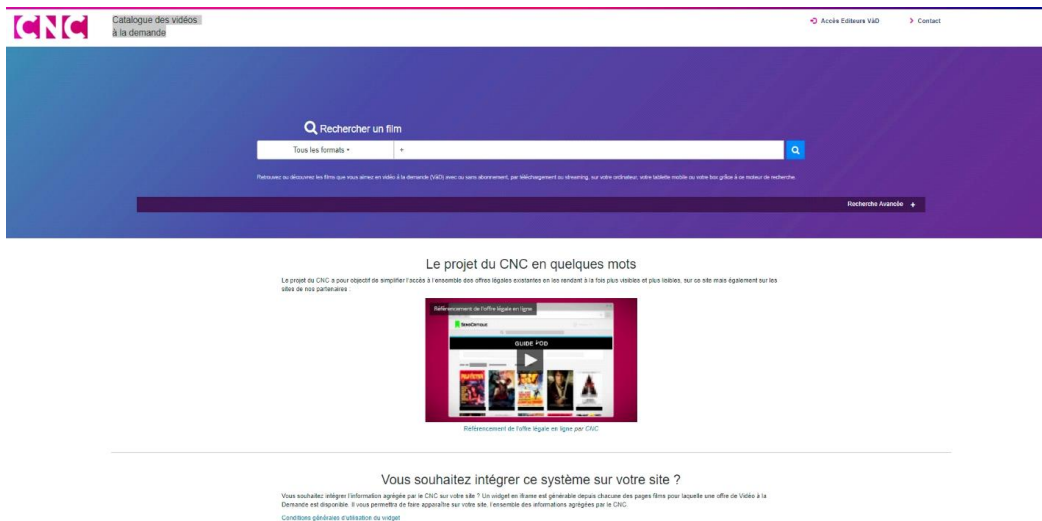


Figure 17. Main page Catalogue des vidéos à la demande

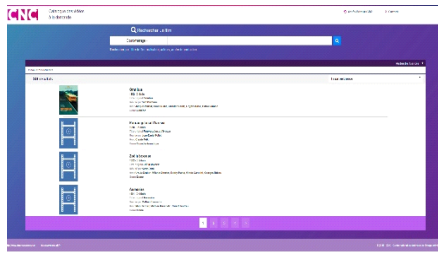


Figure 18. Visualization of projects Catalogue des vidéos à la demande

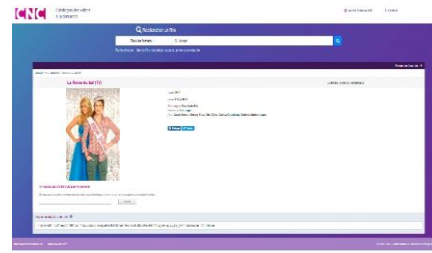


Figure 19. Project page Catalogue des vidéos à la demande

Interface design analysis

The *CNC* platform opens with the search bar and video presentation of what *CNC* is. The bar offers the choice of four types of projects or invites users to start a search by the project's name. By choosing any of these options the user is taken to the screen which functions as a list with potential choices.

The weaker part of this design is the layout as it is not balanced and well organized. One half of the screen is quite heavy with all the information concentrated there, and the other is completely empty. This organization affects the letter size, as it is very small and not comfortable to read, needing to increase the percentage of the screen. The same problems can be found on other pages. The solution could be the creation of the two to four-column grid that allows making the layout attractive and readable.

The visual hierarchy also needs attention, as it is hard to understand how elements are connected. The typography is poorly executed, all text is rendered using the same typeface and size, leaving the user to struggle where to look for certain information.

The multi-colored, organically flowing shapes of the *CNC* display is undoubtedly eye-catching. It makes good use of color, the blue-violet gradient as a screen color with white text and white background with black text in the main area.

In short, the platform maintains internal coherence but could be much better if a certain grid and hierarchy are applied.

3.6.2. Summary

After research in chapter 3, as well as analysis of web applications, it is possible to establish some practical guidance that is recommended to be applied or should be avoided in the creation of applications.

Bad practices

The use of a grid or a layout and its usage throughout the application should be well defined. It is best to keep a simple grid that allows seeing each element of its content well, avoiding overload of the visual space and the cognitive load of the user, who may feel disoriented with too much content in the minimum space. The absence of a grid can make it difficult to maintain consistency.

Interaction of an application and poor attribution of visual properties to an interactive element are not corresponding to the expectation of the user and change the type of response. The lack of response from an interface or a response different from what is expected by the user implies spending more time to learn how to use that interface, which in turn can leave the user impatient and leave the application.

In terms of hierarchy, an arbitrary arrangement of the elements on the screen makes it impossible to identify information priority and correct relations between the elements what in the end causes confusion, time consumption, and represents a great distraction, example *CNC*. The hierarchy can be established by means of several characteristics of the elements, and it is necessary to consider its application. For example, a small size of an element that allows an understanding that it has little importance can result in an unpleasant experience, such as the poor response (or lack thereof) of a button because it is too small, as in the *Folio belas-artes ulisboa* application.

In order to reduce confusion, frustration, discomfort, and disorientation, which may lead to the abandonment of the application and to achieve the maximum efficiency of time, the following must be avoided:

- Inconsistencies or redundancies;
- Lack of a good hierarchy;
- Unnecessary mental load;
- Application of inappropriate affordances for an element;

- An absence of feedback;
- A high number of actions to perform a task;
- Any sources of distraction.

Good practices

Like any product, digital or not, an application must be consistent at all times, maintaining a line of reasoning and interaction that the user can follow within the product. It is good practice to reflect the image of the institution in the application, which can be achieved by creating a good personality - faithful to the institution's message and values. A well-defined and presented personality of the product allows captivating the user more, due to the emotional character of the projected personality.

It is essential that the new technologies available to the public, whether hardware or software, are simple and easy enough that the user does not waste much time to realize how they work. The solutions are to maintain an interface with few elements, reduced to the essential, or in the words of Maeda (2006) "the simplest form of achieving the simplicity is through reduction weighted" (p.1).

A strong visual hierarchy allows for better visualization and apprehension of content. This can be achieved with the help of several features, whose strength can be evidenced by contrast (scale, chromatic or typographic weight), as we can see in the application of *Gobelins L'École de L'Image* and *Women who Draw*- red text on white background or white text on black background, for example. White space is also a good way to create contrast on the page, helping to place more emphasis on-screen content, which will be highlighted in the "blank". In the hierarchy, the relative importance of each element must be easily discernible, so essential information must occupy a prominent place, keeping the rest of the content subordinate.

The conclusions confirm that websites have positive and negative aspects, nevertheless, on the whole, they are relatively successful. Parallels are drawn with regards to layout and typography; however, imagery is visually more appealing and the color is more considered on *Gobelins L'École de L'Image* and *Women Who Draw*.

CHAPTER 4. Proposal- Portuguese Animation Platform

4.1. Objective

The main objective of this research is the development of a digital platform that will allow rapid and efficient communication and knowledge sharing for the alumni of the Moving Image course of UAlg, students of other study cycles and other professionals in the Animation. It will increase the visibility of artists and help them to be hired for the upcoming projects. The platform will help to explore artworks and provide information on the artists. Further in Chapter 5, will be presented results of usability testing with the student of the Moving Image course UAlg.

4.1.1. The platform specific objectives:

At the beginning of this investigation, the understanding of the user requirements was pre-established (Annex A). During the investigation process, these preliminary design ideas were evaluated and modified, and more features were added correspondingly:

- Introduce the artworks;
- Introduce the artists;
- Navigate users throughout the platform;
- Offer a quick search;
- Filter projects by type, name and date;
- Create a user account to save projects;
- Provide artist information with links to their websites with more detailed information;
- Present artworks with a quality photos and description;
- Present similar projects of the selected project;
- Present works on the artist page;
- To give visibility to Portuguese Animation agents (one of which is the University of Algarve) and their production.

4.2. The structure

As mentioned earlier, this platform intends to concentrate all information on artists and their projects in one place, so the content must allow easy understanding, and be able to provide a good experience using Interaction Design.

With the definition of tasks, it was possible to establish an organization of the content, where are set up two main areas: consultation by artists and consultation by projects (Figure 20). The platform is designed in such a way that all necessary data could be accessed within a few clicks on the screen. The platform includes login. To be more specific, the login page fulfills the requirement of information security, through which a registered user is allowed to access his/her user area, where can visualize portfolio and upload the projects

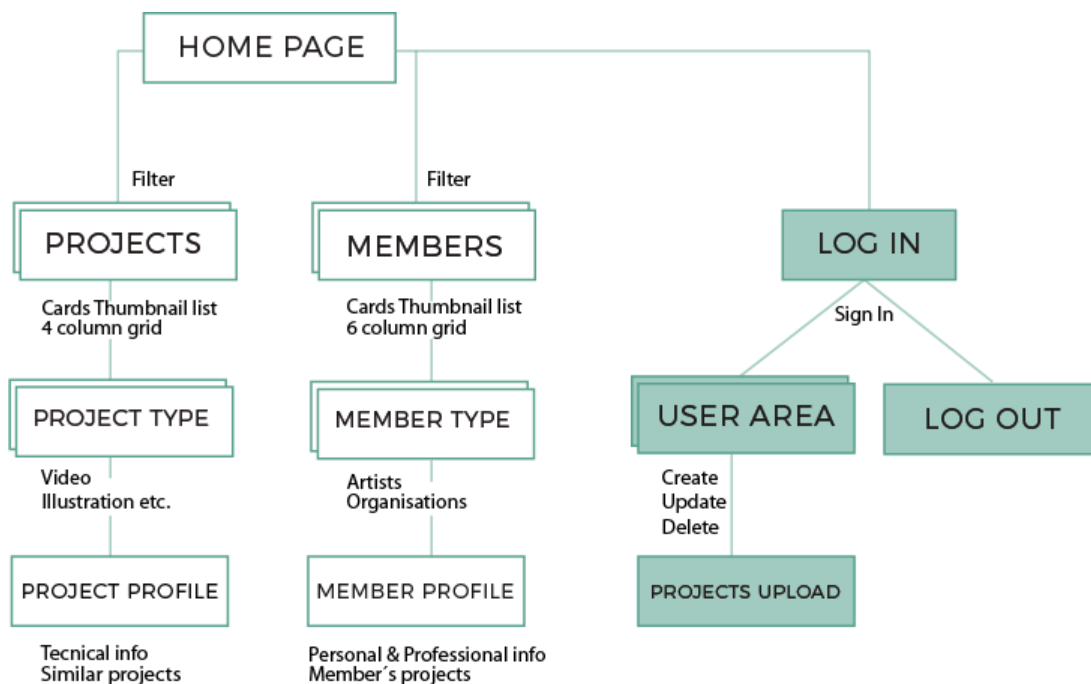


Figure 20. PAP Structure

4.3. Brand identity

4.3.1. Name

The name refers directly to the theme of Animation. For better identification the name accompanied by "Portuguese Animation Platform", a short version of the name - Abbreviation PAP.

4.3.2. Behind the logo

All artists have their own drive, have their own ambitions, and many of them share the ambition to make a small contribution in this world, making it better. The idea is to determine the visual identity with the users (Figure 21).



Figure 21. Logo Portuguese Animation Platform

The logo is based on the combination of a geometric structure made of the rectangles and the text. The repetitive rectangular emphasize not only connection with animation, but constant development of the platform's activities: its specializations are constantly evolving have no defined boundaries. The rectangular and strict text represent the platform's serious intentions and technological advancement.

4.4. Interface Design characteristic

4.4.1. Style

For the PAP platform has been chosen a modern look as its focus put firmly on the content. Here style tries to create engagement and builds expectations and emotions in users regarding an application's functionality and for whom and what it is intended. (Bandura, 1986). The choice of colors, typography, and some graphic elements emphasize modernity and dynamism.

The content layout is in such a way that no single element distracts attention from the visual hierarchy. Low level of interactivity, lack of complex elements, and a small amount of text bring simplicity to design, making it look friendly and approachable to users. Modern design characterized mainly as a minimal, white-based, and open; simple yet effective helping users concentrate on the most essential information. The simplicity of information architecture, carefully selected interactive elements prevent the user from misleading. Graphic and text elements convey simple and cool ideas with a clear and visible

form. Presenting a clear and engaging interface like minimalism, design stripe away all non-essential elements exposing essential functionality of visual elements.

4.4.2. Color pallet

The audience of PAP can be segmented in several different ways - interest, age, demographics, and behavior. Visual perception is quite individual for everyone. The color effect may be different because of factors such as age, culture, and gender. In order to increase brand recognition and loyalty, and decrease risks of being misconceived has been chosen a dark grey and white pallet. Dark grey is normally associated with intelligence, professionalism, mourning, and mystery. And white is safe and open.

More, the contrast of dark grey on white is the most readable and practical color scheme; dark grey over white or vice versa are enough to catch the viewer's eye.

According to Lidwell (2003) to bring the balance into composition, the colors should be combined in the proportion of 60%–30%–10%. The biggest part goes to the dominant white color, and a third of the composition takes secondary grey color and 10% percent goes to the color which helps to make the accents is fuchsia (Figure 22).

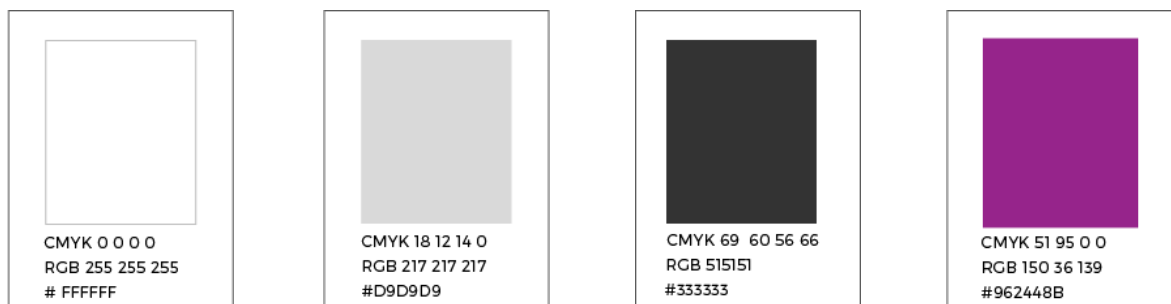


Figure 22. Primary and secondary colors

4.4.3. Typeface

The purpose of the PAP is to be readable. The selection of the typeface was based on aesthetic preference. Montserrat possesses the geometric simplicity of the letters and can be used as functional and informational at the same time. Montserrat is released under the SIL Open Font License making it is free software and is applicable across browsers and computers, what allows the website to be displayed correctly without awkward results on different devices (Figure 23).



Figure 23. Montserrat family

4.5. Design elements

4.5.1. Home Page

The homepage (Figure 24) of the platform meets users with the message instantly describing the main purpose of the platform: “Share Your Knowledge, Share Your Work, Share Your Ideas.” Sliding down there is a brief note expressing why the platform has been created and what the cultural and creative objectives are. These two elements (message and a note) playing the role of a storyteller that tries to engage an audience to experience a set of functionalities and events (Lidwell, 2003). Further down follows the gallery of the recently uploaded projects. The content is divided into three sections respectively. In order to allow people to know how to use it was applied to an interactive element (Figure 25), allowing to increase affordance (Lidwell, 2003). The applied fade-in and fade-out scroll transition between the sections adds a little magic to the platform.

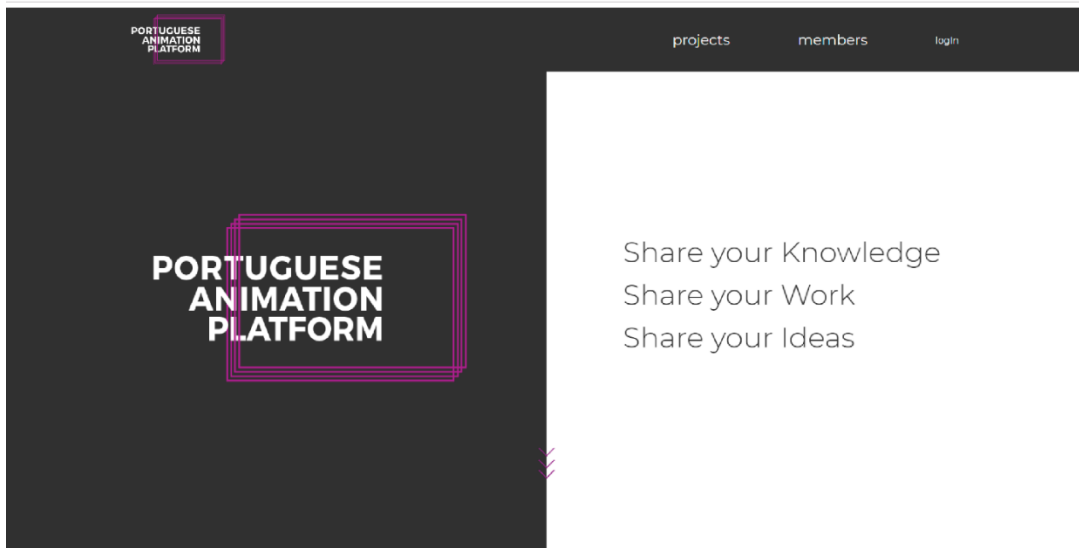


Figure 24. PAP Home page (section 1)



Figure 25. Scroll (Sliding effect)

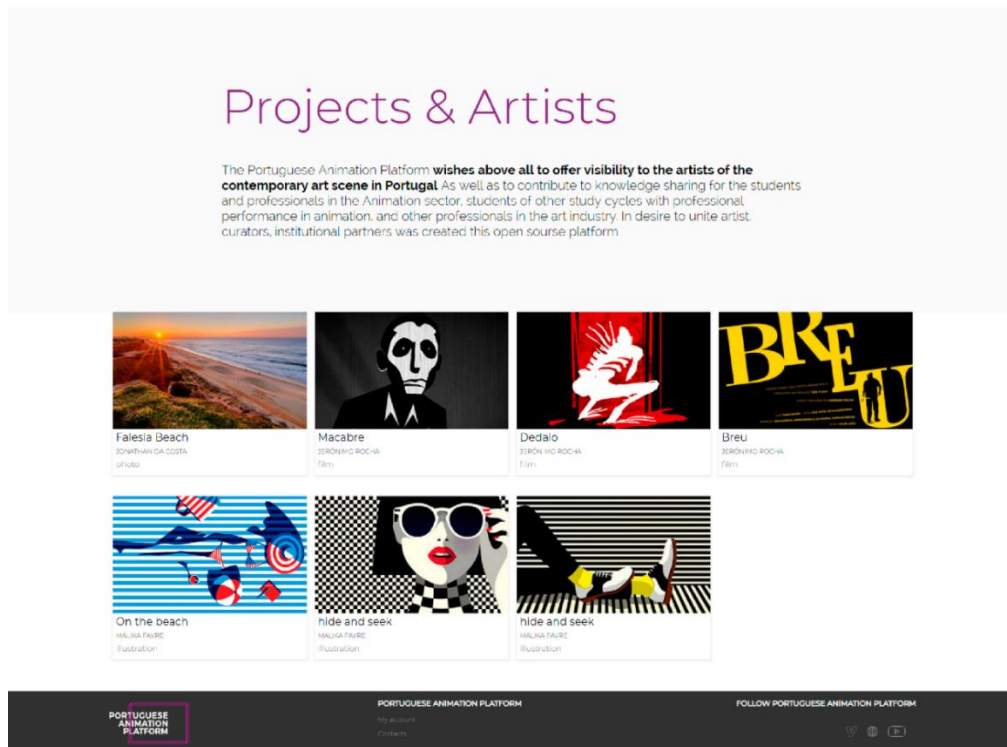


Figure 26. PAP Home page (section 2)

4.5.2. Navigation



Figure 27. Navigation. Main Menu

Navigation exists to help users find content and it should be simple and intuitive. To increase visibility (Lidwell, 2013) is used the dark grey bar at the corresponding location of the top menu helping users to easily recognize the purpose and objectives of the platform (Figure 27).

Navigation stands out and is consistent on all pages of the platform (Lidwell, 2013). The logo is placed in the top left corner and linked back with the home page.

To increase the visibility of hierarchical relationship within the platform, the navigation offers two main areas of interest where information is displayed: Projects and Members (Lidwell, 2003). Further, they are subdivided by the project's type and member type (Figure 28, Figure 29). This helps the user to gain faster knowledge about the structure of a platform while maximizing its clarity and effectiveness.

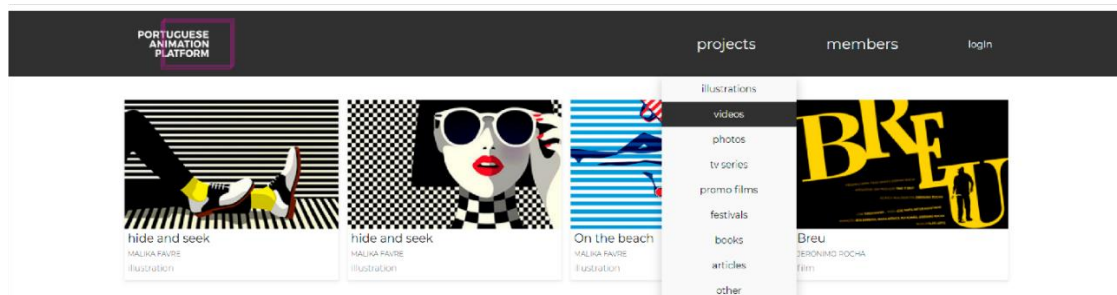


Figure 28. Sub-navigation Projects

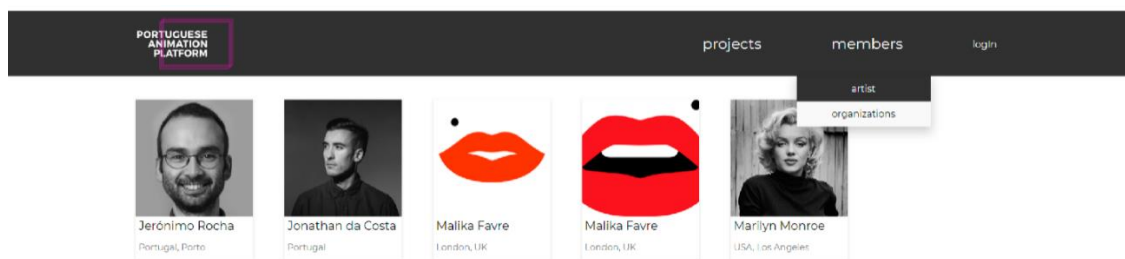


Figure 29. Sub-navigation Members

4.5.3. Layout

In never-ending search for more creative and engaging layouts, the grid will always rely on bringing harmony and logic to layouts. The project and members gallery are presented through the fixed aspect ratio thumbnail grid that allows a cleaner and aligned look. These have direct access on the home page, through two buttons in the navigation menu (projects and members). The remaining structure presented in Figure 30.

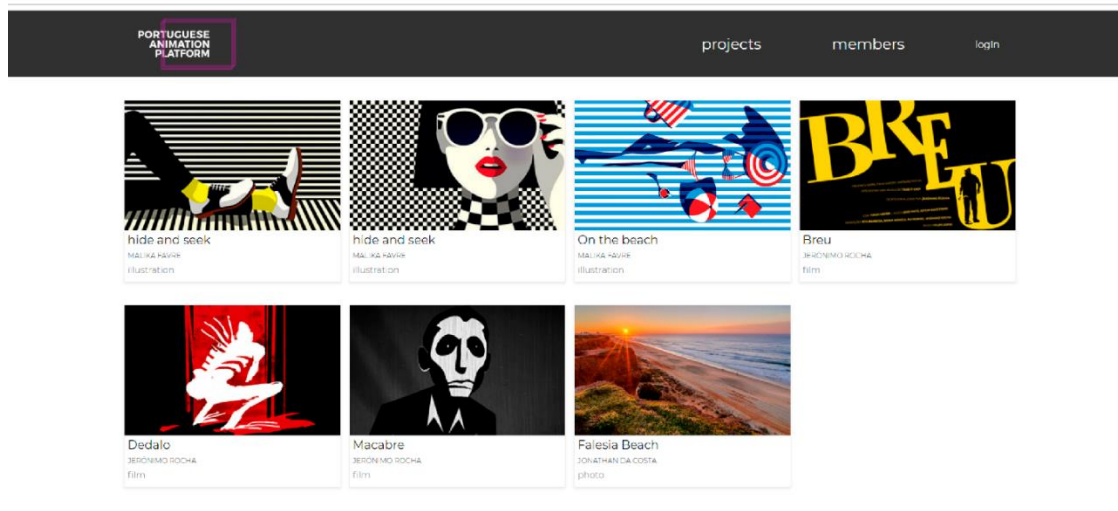


Figure 30. Projects layout 4 column grid

4.5.4. Card Design

Individual cards help organize varying types and sizes of elements, without letting the content being overwhelmed. Cards are a perfect tool to highlight multiple projects side-by-side and keep the homepage clean and organized, sequentially improving the user experience aspect. By breaking up different pieces of content into cards, users can choose which project they want to expand. The content of the card has multiple types like images and texts.

A card consists of multiple containers with one element occupying one container. One container has the image, and the other has text info as a title, name of the author, and type of the project (Figure 31). All they are linked to the next page and so on.



Figure 31. Project card



Figure 32. Member card

4.5.5. Member profile

Member profile has the most essential information about the user as image, professional name, education, experience, etc., and offers the redirection to the personal pages on social media or websites of the author. Also in the very bottom, the author most recent works are displayed.

Here, the usual discreet boxes of images and text begin to overlap and converge, creating beautifully unexpected juxtapositions of bitmap (Figure 33).

The content of the profile also divided into section allowing the transition between content in a rollover.

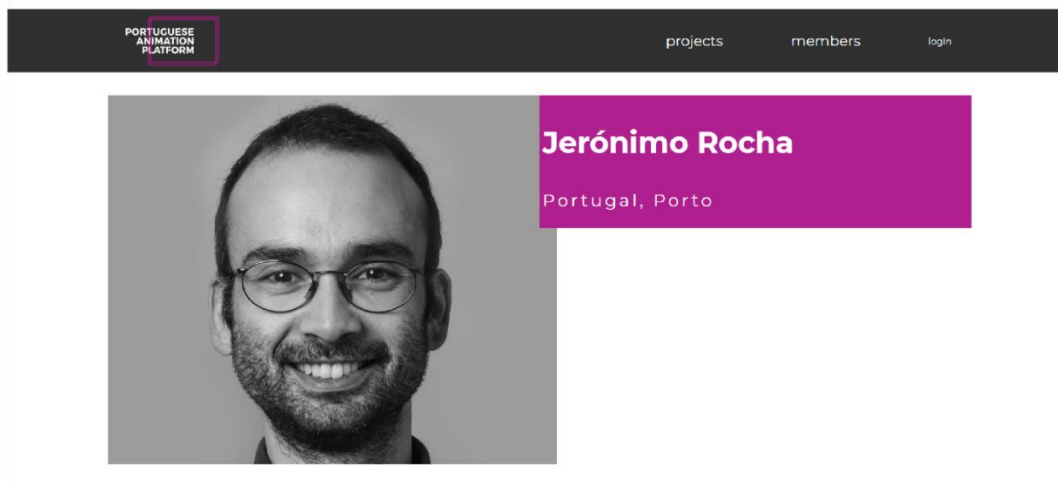



Figure 33. Member profile (section 1)

Course	Graphic Arts	Collaboration	
Area	Painting course	Premios	
Focus	Born in O'Porto in 1981, Jerónimo Rocha soon developed a taste for visual storytelling. Instead of playing football like most of the boys his age, he rather preferred to reenact movies and TV shows with a small bunch of renegade colleagues. He studied Graphic Arts in High (Technical) School and later graduated in the (Fine Arts) Painting course at the O'Porto University and post graduated in Pitching and Script Analysis at the Madrid Cinema School. Since 2005, he works at Take It Easy (a Lisbon based production company) as a fiction and commercial director, editor, animator and/or illustrator, where he also develops his personal projects, sometimes within the house's creative department: Easylab. He still dislikes football.	About	Born in O'Porto in 1981, Jerónimo Rocha soon developed a taste for visual storytelling. Instead of playing football like most of the boys his age, he rather preferred to reenact movies and TV shows with a small bunch of renegade colleagues. He studied Graphic Arts in High (Technical) School and later graduated in the (Fine Arts) Painting course at the O'Porto University and post graduated in Pitching and Script Analysis at the Madrid Cinema School. Since 2005, he works at Take It Easy (a Lisbon based production company) as a fiction and commercial director, editor, animator and/or illustrator, where he also develops his personal projects, sometimes within the house's creative department: Easylab. He still dislikes football.

Figure 34. Member profile (section 2)

PORTUGUESE ANIMATION PLATFORM
projects members login




Jerónimo Rocha


Portugal, Porto

Course	Graphic Arts	Collaboration	
Area	Painting course	Premios	
Focus	Born in O'Porto in 1981, Jerónimo Rocha soon developed a taste for visual storytelling. Instead of playing football like most of the boys his age, he rather preferred to reenact movies and TV shows with a small bunch of renegade colleagues. He studied Graphic Arts in High (Technical) School and later graduated in the (Fine Arts) Painting course at the O'Porto University and post graduated in Pitching and Script Analysis at the Madrid Cinema School. Since 2005, he works at Take It Easy (a Lisbon based production company) as a fiction and commercial director, editor, animator and/or illustrator, where he also develops his personal projects, sometimes within the House's creative department: Easylab. He still dislikes football.	About	Born in O'Porto in 1981, Jerónimo Rocha soon developed a taste for visual storytelling. Instead of playing football like most of the boys his age, he rather preferred to reenact movies and TV shows with a small bunch of renegade colleagues. He studied Graphic Arts in High (Technical) School and later graduated in the (Fine Arts) Painting course at the O'Porto University and post graduated in Pitching and Script Analysis at the Madrid Cinema School. Since 2005, he works at Take It Easy (a Lisbon based production company) as a fiction and commercial director, editor, animator and/or illustrator, where he also develops his personal projects, sometimes within the house's creative department: Easylab. He still dislikes football.


♥
▶



Macabre
film



Dedalo
film



Breu
film

PORTUGUESE ANIMATION PLATFORM
FOLLOW PORTUGUESE ANIMATION PLATFORM

Figure 35. Member profile (Complete version)

4.5.6. Project Profile.

Project profile, same to the member profile, offers the most essential information on the project. But here the layout is more intuitive and content depending on the type of project in order not to overwhelm the page. The information includes a reference to the author (Figure 36).

The screenshot shows the project profile for 'Macabre' on the Portuguese Animation Platform. The header includes the platform logo and navigation links for 'projects', 'members', and 'login'. The main visual is a stylized black and white illustration of a man's face with a white mask and a dark suit. Below the illustration, the title 'Macabre' is displayed, followed by the author's name 'Jerónimo Rocha' and the location 'Portugal, Porto'.

Year		Script	Jerónimo Rocha	Sound and Music	Jerónimo Rocha
Type of Project	Film	Animator	Jerónimo Rocha	Help	
Technique	Jerónimo Rocha	Production	Frederico Serra, Take It Easy	Budget	
Duration	Jerónimo Rocha	Post Production	Jerónimo Rocha	Secure Financing	

Sinopse

Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquod ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?

Similar Works

- Macabre** - JERÓNIMO ROCHA - Film
- Dedalo** - JERÓNIMO ROCHA - Film
- Breu** - JERÓNIMO ROCHA - Film

The footer contains the platform logo, 'PORTUGUESE ANIMATION PLATFORM', 'My account', 'Contact', and 'FOLLOW PORTUGUESE ANIMATION PLATFORM' with social media icons for Facebook, Instagram, and YouTube.

Figure 36. Project profile.

4.5.7. Links and active elements

On every website, it is necessary to label active elements. In PAP platform active elements are text, images and tabs. To allow them to be more usable and recognized they are expressed in a similar way (Lidwell, 2003). To help active elements be more eye-catching a flash effect was used. It manipulates the opacity of the active element at different stages to form a white flash effect (Figure 37).

When hovering over other active items cursor changes to a pointer. The links used are standard, easily recognizable stages as active and visited states.

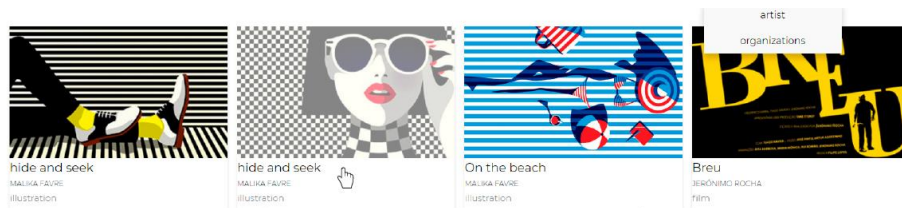


Figure 37. White flash. Duration 1.4 seconds.

4.5.8. System Inputs

Lidwell (2003) emphasizes that the quality of system output is dependent on the quality of system input. Problems occur when the incorrect type of input is fed into a system. The primary strategies for minimizing problems of type are affordances, constraints, and feedback. They improve User Experience and make user satisfaction more pleasurable and clear, explaining how the system works. These strategies structure input and minimize the frequency and magnitude of garbage input. Platform input designed in such a way that the user is never left alone to guess about what results are coming after an action has been taken (Norman, 2013b). Here the system inputs have a clear relationship between controls and carefully guide the user to the appropriate next action.

The primary strategies for minimizing problems of quality are previews and confirmations. These strategies allow the consequences of actions to be reviewed and verified prior to input. Thus, to simplify the input PAP platform suggests various forms depending on the project type. Users can easily choose the category of the project to type the most adequate information (Figure 38, Figure 39).

The screenshot shows a web form titled "new project". At the top left is a "choose a file" button. Below it is a "Name of Project" field with an "Error Text" placeholder. A "Synopsis" field follows with the instruction "Please include". The form is organized into three columns of input fields:

- Column 1:** "Year" (with "de" as a placeholder), "Type" (with "film" as a placeholder), "Technique", and "Duration".
- Column 2:** "Animation", "Production", "Technics 3D", and "Script".
- Column 3:** "Sound and Music", "Budget", "Secure Financing", and "Apolo".

 A "submit" button is located at the bottom right of the form.

Figure 38. Input for “film” project

what are you going to upload today?

A grid of nine buttons for project upload categories, arranged in three rows and three columns. The buttons are:

- Row 1: illustration, film, photo
- Row 2: book, promo film, festival
- Row 3: article, tv serie, other

 The "film" and "promo film" buttons are highlighted with a dark background and white text, while the others have a white background with dark text.

Figure 39. User are: Project upload

4.6. Development

The aim of this investigation project is a functional prototype of a platform that satisfies the needs of the students and professionals in the Animation sector. Thus, the implementation of this functional prototype is included in this research.

For any web application development, it is important to choose a correct technology stack that allows rapid prototyping, constant iteration, code reuse, maximum efficiency, and robustness. It is also important that the technology stack is easy to learn and understand by the developer working on the front-end and the back-end.

4.6.1. RESTful API

For PAP application development a RESTful API using NodeJs was implemented. REST is not a software architecture itself, but “a coordinated set of architectural constraints which attempts to minimize latency and network communication, while maximizing the independence and scalability of component implementations” (Fielding & Taylor, 2002).

The acronym API comes from Application Programming Interface. An API is a set of functions and procedures that fulfill one or many tasks for the purpose of being used by other software. It allows implementing the functions and procedures that conform to the API in another program without the need for programming them back.

As RESTful systems usually communicate with the Hypertext Transfer Protocol (HTTP), a REST API is a library-based completely on the HTTP standard. It is used to add functionality to a software somebody already owns safely. The functionality of an API is usually limited by the developer, so no more functionality can be added.

RESTful systems apply the four basic functions of persistent storage, CRUD (Create, Read, Update, Delete), to a set of resources. In terms of the HTTP standard, those actions can be translated to the HTTP methods (also known as verbs): POST, GET, PUT, and DELETE. In case of PAP platform has been implemented with only GET and POST methods.

4.6.2. Programming Environment

Node.JS is an open-source framework built on top of Google's v8 JavaScript engine for Google Chrome (Teixeira, 2013). JavaScript is a light-weight programming language often used in Web browsers. Also, Node.JS has built-in modules with support for file system operations, HTTP services, and many others.

Node.js is an open-source JavaScript environment that hangs JavaScript code. JavaScript was used primarily for client-side, where scripts are installed in a webpage's HTML and run client-side in the user's web browser. Node.js allows to use JavaScript to write Command Line tools and to construct dynamic web page content for server-side. Node.js represents a "JavaScript everywhere" paradigm (Wikipedia, 2018) bringing together web application development around a single programming language, instead of various languages for server-side and client-side scripts.

NPM is a package manager for the JavaScript programming language. It is the default package manager for the JavaScript runtime environment Node.js. The package manager NPM allows easy installation and publishing of third-party modules from a large and growing repository (Rauch, 2012; Teixeira, 2013). Each module has a manifest file that describes its name, version details and dependencies (Teixeira, 2013).

For the realization of the API described in this thesis, version 7 of the JavaScript is used, and it can be downloaded from the Node.js official page for free.

Finally, an Integrated Development Environment (IDE) is used for source code editing. The IDE chosen is JetBrains WebStorm because it includes a JavaScript compiler and interpreter. The version of WebStorm IDE used is 2018.2.3.

4.6.3. Other Tools

Additionally to the programming environment, other tools are also needed for the development of the API.

Git is a distributed version control system. Its usage along with gitBucket (an online project hosting) keeps the project in an organized manner and allows to view, revert or commit changes.

cUrl is used for the purpose of making HTTP requests and test the system and its final functionality. It allows transferring data with URL syntax.

MongoDB is used for storing data. MongoDB is a free and open-source cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with schemas.

Jade is a template engine for Node.js. At running time, Jade replaces variables in our file with actual values, and then send the resulting HTML string to the client.

The project does not use any other APIs to perform additional actions.

The communication between components is made through representations of resources. In this API, the format of those representations is JSON.

JavaScript Object Notation (JSON) is a lightweight data-interchange format. It was derived from the ECMAScript Programming Language Standard (ECMA-404 2013; RFC 7159.2014). JSON structure is an ordered list of objects (array of objects), where these objects represent a collection of name/value pairs separated by colons (:).

The utilization of JSON instead of another standard format like XML is due to its simplicity. Both XML and JSON are human-readable, but JSON does not need closing tags and is easier to read and is less dense.

4.7. Implementation

4.7.1. Data Flow

The diagram below represents the main flow of data and things that need to be implemented when handling an HTTP request/response Figure 40 and Figure 41.

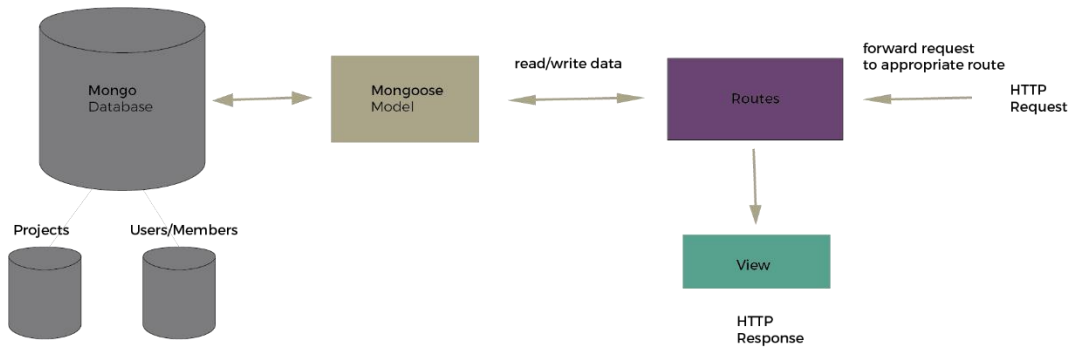


Figure 40. Data main flow

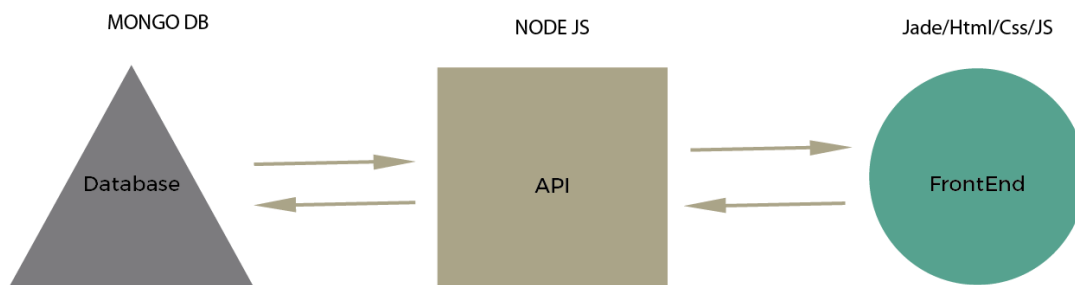


Figure 41. Data main flow (simplified)

"Routes" to forward the supported requests (and any information encoded in request URLs) to the appropriate data from the models, create an HTML page displaying the data, and return it to the user to view in the browser.

"Model" is a schema that maps to a MongoDB collection and defines the shape of the documents within that collection. A Mongoose schema defines the structure of the document, default values, validators, etc., whereas a Mongoose model provides an interface to the database for creating, querying, updating, deleting records, etc.

"Views" (templates) used to render the data.

4.7.2. Prototype

In much of computer science literature, it is realized that what works on paper does not necessarily work in the real world (March & Smith, 1995). The development of systems can be thought of as proof by demonstration. According to March and Smith (1995), Information Technology (IT) researchers deal with artificial phenomena in studies that can be classified into natural science and design science. Natural science is aimed at understanding the reality and includes research in physical, biological, social, and behavioral domains. Design science instead attempts to create things that serve human purposes. Natural scientists develop concepts and language to characterize phenomena and create theories. Design scientists produce and apply knowledge of tasks and situations in order to create effective artifacts that can be constructs, models, methods and implementations.

4.7.3. Web Platform Functionality

The web platform has the following functionality.

- Registration

On the main view, there are options for login and becoming a member. When the latter is chosen, the user is redirected to the registration view. He fills in his username, email, and password and member information. If no validation errors occur, such as the username or email are already in the database or the password is too short (must be at least 8 symbols), the user is redirected to the Login page.

- Login (Authorization token)

The user logs in on the main login view using the username and password. After successful login user is redirected to the map view. If login is unsuccessful, the error message is shown.

- Add a new project

The user, while being logged, can add a new project by tapping “Add project” in the User Area page. When on the project creation view, the user can choose between various types of projects.

The user can attach a picture to a project by tapping on “Add an image.” Next, the user is offered to choose an image from the photo gallery of the device. In the case, his object is

empty the user is shown a warning message telling him to go to the website and add objects to his gallery.

- User area

The user taps on the menu sign in the top left corner to enter to the User area. In the User area, there is submenu with the list of activities including view projects.

- Logout

The user pulls the left side of the screen or taps on the menu sign in the top left corner to open the menu. There is a logout option, which when pressed logs the user out and redirects him to the login view.

CHAPTER 5. Evaluation Procedure

The platform's major objective was always to unite the information not only with professionals in the Animation sector, but with students of the area as well. To make it independent of age, gender, level of proficiency, and focus on talent.

5.1 Survey with Professionals

As the idea to create the platform appeared before this research started, some of the characteristics and functionalities had been pre-established (Annex A). Due to the limitation of time and resources, this study is focused on two areas: Projects and Artists, leaving the other for future exploration.

In order to validate this information, the pilot questionnaire with professionals (Annex B) was launched. Individual questionnaires were considered as an appropriate strategy for data collection and researching, as their responses can provide active data for research (Gall, M, Gall, J. & Borg, 2003).

5.1.1 Survey design

Professionals' questionnaire (18 questions) is structured as follows:

- section one (participant profiling- 10 queries): biographical information, gender, age, academic and professional background, prior experience with social and communication platforms;
- section two (platform environment- 8 queries): includes the professional's awareness, as well as assessment of the communication platform's basic features and characteristics, their perception of usefulness, constraining factors for acceptance or rejection and willingness to try out a new communication environment in the future;

5.1.2 Diagnosis/Findings

The survey was designed through the LimeService platform and sent to 6 professionals in the Animation sector in March of the 2018 academic year. The survey was kept completely anonymous. Respondents did not provide their names, although they provided their sex and age. From these 6 invitations to participate in the survey, 3 were received; however, 1 was incomplete, which resulted in a response rate of 30 percent.

Profile

Both of the respondents are between 51-60 years old, with superior academic degree in Communication Design and Graphic Design. Both have professional experience as Animators and Directors. In addition, the queries related to the technology usage, revealed the following results: both of the participants use laptops, computers, and smartphones. When asked about the platforms that are used for communication, the most popular reply was Facebook and YouTube, followed by Vimeo.

Professionals experience.

In the second session of the survey participants were asked to evaluate the platforms functional characteristics that were initially pre-established. Under the most important characteristics were declared “Projects publication” and “Opportunity to spread projects between colleges and professionals of the area”. “News visualization” and “Information on courses in the area” were rated as moderate importance.

Regarding the most frequent activities the “The project publication”, “News of the area visualization”, and “Artist search” were rated as frequent ones. Regarding the project details to be displayed both respondents agreed on major characteristics as synopsis, realization, production etc. to be public.

Only the budget was considered as private information by one of the respondents.

5.1.3 Summary

The survey response rate (30%) might be questioned; however, it validates the author’s opinion regarding the existence of such a platform.

Summing up, the professionals’ answers denote that there is a need for a new communication tool for professionals working in the Animation sector. The professionals confirm the necessity to spread information on artists and their projects. And expect that it will allow to increase a higher exploration of Animation. This helps to gain insight into the area and find challenges that need further investigation (Jarvinen, 2000).

5.2. Prototype evaluation

Usability evaluation is recommended as an essential step for product creation and improvement. Usability testing is a method of testing the functionality of a website, app, or other digital product by observing real users as they attempt to complete tasks on it. The goal is to reveal areas of confusion and uncover opportunities to improve the user experience. Rubin and Chisnell (2008) developed a list of basic elements for usability test that were followed in this research:

- Use of a representative sample of end users;
- Representation of the actual work environment;
- Observation of end users who either use or review a representation of the product;
- Controlled interviewing and probing of the participants by the test moderator;
- Collection of qualitative performance and preference measures;
- Recommendation of improvements to the design of the product;

5.2.1 Evaluation

The PAP was created to serve as a proof by demonstration, allowing later to give the answers to the research questions. Furthermore, obtaining feedback from other perspectives was also important in order to provide a more sufficient discussion about the implementation choices. Therefore, students attending graduation in Moving Image at the University of Algarve (UAlg) were invited to participate in a platform usability test in order to have feedback. Each of the participants shared their thoughts during the individual session.

Firstly, participants were introduced to the PAP platform, to the background of the project, its aims and objectives. Next, they were presented to a number of tasks and encouraged to explore the platform. They were not explained how to use the platform, but they were aware of the testing observation during their experience. When the session was completed, each student took part in semi-structured individual interviews to obtain feedback and discuss their thoughts and recommendations for future improvements.

5.2.2 Usability test

The evaluation was conducted with six participants and featured approximately a thirty-minute individual session. This was done in order to capture the real thoughts of the participants and avoid influencing each other. During each session the participants were given the following tasks:

1. Explore the platform: home page, projects, and members;
2. Create an account;
3. Upload and publish a project;

These tasks were presented verbally to the participants as a list of goals that were encouraged to complete them before the session was over. The participants were given advice if they requested it. Further, by answering the participants' questions, it was possible to form an impression of how each participant progressed during the session.

5.2.3. Semi-Structured Interviews

After having tried the platform for the first time, each participant answered semi-open questions. The questions had been carefully planned in order to reveal relevant usability information about the platform. The reason for choosing this method was to have richer conversations with each of the participants yielding reflections and ideas for improvement. During the interviews, the participants were asked questions about their experience during the experiment session and how they valued the characteristics and elements of the platform. They were also asked to suggest how the platform could be improved based on their experience. The survey consisted of 6 open-ended questions (see Annex C).

5.2.4 Results

Moving Image (UAlg) students, with no prior exposure to the project, were invited to participate in this evaluation. Both sexes were represented among the participants, with the age between 19 and 25 years old. Three of the participants were first-year students, two were second-year students, and one was a third-year student. Also, two of the students were representatives of their classes. In this report, the participants were given other names to allow them to be anonymous. A more detailed overview of the participants is listed in the table:

	Name	Age	Genre
1	Lisa	20	female
2	António	25	male
3	André	20	male
4	Carolina	20	female
5	Mika	19	male
6	Sandra	19	female

Table 2. Overview of the usability test participants.

The participants gave very positive feedback regarding their using experience with the platform. All participants showed a great curiosity using this product and managed to complete all the tasks. While some of the participants did not ask for help, others only requested help a couple of times.

At first, the participants were invited to explore Home, Projects and Members pages. Generally, identifying the Projects and Members content did not present a problem, regarding the observation of the participants during the test. They did not have any doubts.

The easiest content to identify was the Projects, where all the respondents were successful. They considered the profile quite informative. Nonetheless, they suggested to add the following information:

	Description	Participant
1	Storyboard	#3 #2
2	Concept Art	#1 #2
3	Software	#2
4	Timing (Time spent on development)	#2
5	Trailer	#4 #6
6	Gallery	#1 #6 #3 #5

Table 3. Overview of the suggestions 1.

Additionally, everybody liked the section with similar projects below the chosen project. The participant #4 commented that it would be nice to have more than 4 projects proposed to view.

On the next open-ended question, participants were asked to explore the Members page. The member profile information was considered as appropriate and adequate. Here, all the participant suggested to add more personal information to the profile:

	Description	Participant
1	Telephone number (private/studio)	#1#2
2	E-mail	#1 #2 #6
3	Links to platforms (Twitter, Art Station, Deviant Art, Amino, and Instagram etc.)	#1 #2 #3 #4 #5 #6

Table 4. Overview of the suggestions 2.

After getting familiar with the platform, participants were asked to create an account and to upload a project. When asked about how easy or not it was to create a new account, all of the respondents confirmed that they did not have any difficulties to find the button menu to proceed to sign up section. Students managed to input the data easily and add project characteristics to the platform. However, sometimes it felt that they needed extra guidance or additional self-exploratory tags on input fields. Meanwhile, they commented that it would be nice to leave some information for future input in order to make the initial registration easier and faster. Participant #6 commented that it was a bit difficult to find login in the navigation menu, as the used font was not clear and visible enough for her.

The next question was meant to gather the opinion of user experience. Respondents considered the platform very useful, very accessible, with visually clear designed. Also found the platform very aesthetical, pleasurable and easy to navigate. All participants and especially participant #5 commented on plain and simple design that helps to focus on the most essential parts. Majority of the participant enjoyed the transition effect (fade-in and fade-out while scrolling) between sections on each page. Participant #6 remarked that it felt as the platform was alive.

The last three questions were orientated on future intentions. Firstly, participants answered if they believed that the platform could provide better visibility for them as artists. All participants replied positively to this question. Respondent #2 expressed that he liked very much the idea to build the platform and that it definitely can provide visibility for the users in the area, as well as increase visibility.

On the next open-ended question, participants were asked if they would use the PAP for their activity in the future. All participants expressed a definite desire to use it.

The last question that was proposed, was asking for any suggestions they might have for the platform. What they would add or change so order that we could improve for them in the future. All the respondents stated they think the platform has sufficient characteristics and elements for successful user experience.

5.3. Discussion

The aim of usability test is to validate that the platform meets the requirement of end-user and understand if every component of the platform operates well together on the system level. Here, the qualitative evaluation was combined with platform exploration helping to gain insight into an area and find challenges that need further investigation (Jarvinen, 2000). Due to the limitation of time and resource, this test was first conducted once with the students of the Moving Image course (UAlg) at the end of the lecturing period of 2019.

The platform was positively received by the participants. With regard to the structure and design of the platform, the participants found it difficult to suggest improvements. However, it was proposed to add some characteristics of the Projects' and Members' datasheet.

All the participants evaluated positively the experience of using the platform. Furthermore, it was emphasized by participant #2 that he liked how the platform was organized, and how he could navigate through its content. He also added that he liked the idea of creating this product, as he felt confident that he would use it.

Lastly, the login was a most time-consuming task, mostly because the respondents did not have any "walkthrough" guidance and did not know what to expect. With some guidance and sub-questions, they continued with success.

CHAPTER 6. Conclusions

Today, the demand for animation has expanded with the increase in targeted broadcasting hours by cable and satellite TV, availability of low-cost internet access, penetration of mobile devices along with the growing popularity of streaming video and video games. In addition, the demand for Animation to power immersive experiences such as Augmented Reality and Virtual Reality is growing exponentially. The rapid advancement of technology has made animation, available to the masses, and this industry has become one of the fastest growing segments in the global media and entertainment market. Despite the reduced support and difficulty in the internationalization and commercialization of the Portuguese Animation, new filmmakers, producers, and animators emerged, who won credits across borders, such as Regina Pessoa, Abi Feijó, José Miguel Ribeiro, and Humberto Santana among others.

The potential of Communication Design to solve issues is well recognized. To grow the sector is the task of the professionals working in this area. However, Communication Design can help to extend the recognition of Animation professionals. Help not only to stay afloat but to evolve, expand and prosper. Thus, this research connects Animation and culture with Communication Design.

In this investigation project, the purpose was to develop a new digital platform that allows the possibility to promote and popularize Portuguese Animation. It is a modern tool, which has been created according to the carefully selected solutions for a good Interaction Design where users can enjoy appropriate content and functional experience. The interface supports quality visual and sensorial content, which can be useful and accessible by every student and professional in the Animation sector.

The platform is designed in such a way that all the necessary data could be accessed within a few clicks on the screen. The platform includes login. To be more specific, the login page fulfills the requirement of information security, through which a registered user is allowed to access his/her user area, where can visualize portfolio and upload the projects. To sum up, there are notable benefits of PAP for the students and professionals in the Animation sector.

The usability test concluded that the development of a digital platform is satisfying the needs of animators, as they can share their experience, access quality information, and discover new professionals in this sector through the platform. As a result, usability test

confirmed that this platform can contribute to Portuguese Animation. The platform was positively received by the students and described as being simple to use. The users strongly believe this platform can provide them positive and extensive experience, and they would undoubtedly use PAP to place and spread their projects.

Thus, validating the prototype, it is responding positively to the research question suggesting that digital software can contribute to the knowledge sharing for the students and professionals in the Animation sector while enhancing engagement.

6.1. Competencies acquired in the process

This research covers the sphere of Communication Design which is an interdisciplinary field by nature. The project development involved in this study required a great critical reflection of the related social, cultural, and economic practices, as well as an investment of time and effort into this new task and research.

Alongside this expressive work, were developed a greater awareness and in-depth knowledge of the sociological and ethical implications of the created communications. To broaden the understanding of the practical side of the field, were studied the fundamentals of Communication Design. This project allowed to combine knowledge of fundamental design principles and processes, and the media used in modern communication. Were cultivated skills on how to conceptualize, develop, and refine design. Has been developed ability to work scientifically and apply proven methods to solve problems and design new solutions which enable to succeed in dynamic interdisciplinary contexts.

Finally, the motivation that prevailed in this study was to lay stable and firm foundations for future possibilities. The primary aim was to apply a comprehensive understanding of design to real tasks and processes and discover new insights on the topic of a choice. In this work were practiced all phases of complex communication projects, including project management, design, execution, and presentation. Were improved proficiency in graphic design as well as the latest computer graphics programs. Were expanded skills in a rich variety of design production tools, including web design and integrated new media.

This project allowed sharpening practical skills while also helping to gain broad practical experience that will be valuable in the future.

6.2. Future Work

The platform has shown potential as a tool for users. It was received positively by the students involved in the evaluation process. Still, it has room for improvements.

According to the feedback from testing and user evaluation, a couple of phenomena should be taken care of, and even modified, such as more detailed datasheet of the member and project, popup notifications during the input stage to avoid errors.

And more features need to be designed and implemented (Annex A), including the adoption of the platform to the multi-language versions; The PAP could be and should be extended to a mobile application which provides no boundaries at any time and any place. Furthermore, the monitoring of more platforms could be considered to extend PAP.

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Annex A.

Pre-established characteristics of the platform.

2				
3	SOBRE A PLATAFORMA			
4	REGISTO (login/pass)		termos e condições	
5	SERVIÇOS		Projetos	
6		BASE DE DADOS	Profissionais	
7		PARCEIROS		Estúdios/Empresas
8				Escolas
9				Festivais
10				Canais TV
11				Associações Setor
12		EMPREGO (recrutamento)		Oferta
13				Procura
14		PRODUÇÃO		Projetos para co-produção
15	VIDEO ON DEMAND			
16	NOTÍCIAS/EVENTOS/INCENTIVOS			
17	FÓRUM/CONSULTORIA			
18				
19				
20	PROFISSIONAIS			
21	INFORMAÇÃO DE CONTACTO	ATIVIDADE PROFISSIONAL	TIPO PROJETO	
22	nome profissional	nome produtor, realizador	filme	
23	contratado/freelancer	website produtor	série tv	
24	website	projetos (título, argumentista)	filme promocional	
25	portfolio	animador	festival	
26	atividade profissional	designer de som	livro	
27		músico	artigo	
28		técnico efeitos especiais	jogo interativo	
29		modelador	outros	
30		técnico de pós-produção		
31		investigador		
32		professor		
33				
34	PROJETOS			
35	FICHA TÉCNICA			
36	ano			
37	duração			
38	sinopse			
39	técnica			
40	realizador			
41	argumentista			
42	designer de som			
43	músicos			
44	animador			
45	técnico de pós-produção			
46	contacto distribuição			

Annex B.

The survey for professionals in the Animation sector in Portuguese.

Plataforma da Animação

Questionário para avaliação do interesse na criação de uma
Plataforma da Animação Portuguesa
para identificação dos profissionais e divulgação da respetiva produção.

Pretende-se perceber a atitude da comunidade portuguesa de animação relativamente à necessidade
de um ambiente próprio de identificação de projetos e de portefólios.

Documento realizado no âmbito do Mestrado em Design de Comunicação
para o Turismo e Cultura Universidade do Algarve.

Existem 18 perguntas neste inquérito

Perfil do utilizador

1 [] Género

Por favor, seleccione apenas uma das seguintes opções:

- Feminino
- Masculino

2 [] Idade

Escolha uma das seguintes respostas

Por favor, seleccione apenas uma das seguintes opções:

- 18-22
- 23-30
- 31-40
- 41-50
- 51-60
- mais de 61

3 [] Habilitações literárias

Escolha uma das seguintes respostas

Por favor, seleccione apenas uma das seguintes opções:

- Básico
- Secundário
- Superior
- Outro

4 [] Qual é o nome do curso?

Responda a esta pergunta apenas se as seguintes condições são verdadeiras:
A resposta for 'Superior' ou 'Outro' na pergunta '3 [P3] (Habilitações literárias)

Por favor, escreva aqui a sua resposta:

5 Experiência profissional

Introduza comentários apenas quando escolher uma resposta

Por favor, selecione todas as que se aplicam e forneça um comentário:

Produtor

Realizador

Animador

Editor

Designer de som

Músico

Técnico efeitos especiais

Técnico de pós-produção

Modelador

Investigador

Professor

Outro

6 Tipo de tecnologias de informação e comunicação que costuma usar

Selecione todas as que se apliquem

Por favor, selecione todas as que se aplicam:

Telemóvel

Portátil

- Smart phone
- Tablet
- Consola de jogos
- Computador de mesa
- Outro

Por favor, seleccione todas as que se aplicam:

7 Qual?

Responda a esta pergunta apenas se as seguintes condições são verdadeiras:

A resposta for 'Outro' na pergunta 8 [P5] (Tipo de tecnologias de informação e comunicação que costuma usar)

Por favor, escreva aqui a sua resposta:

8 Tipo de plataformas que costuma usar e o link para sua pagina

Introduza comentários apenas quando escolher uma resposta

Por favor, seleccione todas as que se aplicam e forneça um comentário:

- Facebook
- Youtube
- Behance
- Dribble
- Vine
- Vimeo
- Outro

9 Sofre de fadiga visual?

Por favor, seleccione apenas uma das seguintes opções:

- Sim
- Não

10 Usa óculos?

Por favor, seleccione apenas uma das seguintes opções:

- Sim

	Sempre	Frequentemente	Ocasionalmente	Raramente	Nunca
Partilha de projetos entre colegas e profissionais	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visualização de informação sobre cursos académicos e workshops da área	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pesquisa de informação sobre colegas e profissionais da área	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13 [] Que plataformas costuma usar para as seguintes atividades

Introduza comentários apenas quando escolher uma resposta

Por favor, seleccione todas as que se aplicam e forneça um comentário:

Visualização de notícias, eventos e projetos da área

Publicação de projetos de forma individual

Partilha de projetos entre colegas e profissionais

Visualização de informação sobre cursos académicos e workshops da área

Pesquisa de informação sobre colegas e profissionais da área

14 [] Deseja realizar outras atividades através da Plataforma da Animação Portuguesa?

Por favor, escreva aqui a sua resposta:

Não

Informações sobre tarefas

11 Avalie a importância das seguintes atividades

Por favor, selecione a posição apropriada para cada elemento:

	Muito importante	Importante	Moderadamente importante	Ligeiramente importante	Não importante
Visualização de notícias, eventos e projetos da área	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Publicação de projetos de forma individual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Partilha de projetos entre colegas e profissionais	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visualização de informação sobre cursos acadêmicos e workshops da área	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pesquisa de informação sobre colegas e profissionais da área	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12 Avalie a frequência das seguintes atividades

Por favor, selecione a posição apropriada para cada elemento:

	Sempre	Frequentemente	Ocasionalmente	Raramente	Nunca
Visualização de notícias, eventos e projetos da área	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Publicação de projetos de forma individual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15 [] Que informações do projeto deveriam ser públicas ou privadas?

Por favor, selecione a posição apropriada para cada elemento:

	Privada	Pública
Título do projeto	<input type="radio"/>	<input type="radio"/>
Realização	<input type="radio"/>	<input type="radio"/>
Argumento	<input type="radio"/>	<input type="radio"/>
Técnica	<input type="radio"/>	<input type="radio"/>
Gênero	<input type="radio"/>	<input type="radio"/>
Data de lançamento	<input type="radio"/>	<input type="radio"/>
Produção	<input type="radio"/>	<input type="radio"/>
Orçamento	<input type="radio"/>	<input type="radio"/>
Parceiros	<input type="radio"/>	<input type="radio"/>
Duração	<input type="radio"/>	<input type="radio"/>
Som e música	<input type="radio"/>	<input type="radio"/>
Formato	<input type="radio"/>	<input type="radio"/>
Outro	<input type="radio"/>	<input type="radio"/>

16 [] Que?

Responda a esta pergunta apenas se as seguintes condições são verdadeiras:

A resposta for 'Privada' ou 'Pública' na pergunta '15 [F8]' (Que informações do projeto deveriam ser públicas ou privadas? (Outro))

Por favor, escreva aqui a sua resposta:

17 [] Deseja adicionar outra informação pública ao seu projeto na Plataforma da Animação Portuguesa?

Por favor, escreva aqui a sua resposta:

18 Deseja adicionar um comentário final?

Por favor, escreva aqui a sua resposta:

Identificação da investigadora: Táfiana Kikot

Contacto: a46212@ualg.pt

Submeter o seu inquérito

Obrigado por ter concluído este inquérito.

Annex C.

Questions for Semi-Structured Interviews with alumni of the Moving Image course of UAlg.



Secção A:

A1. Como identifica os seguintes conteúdos?

- Home Page;
- Projects;
- Members.

A2. Como identifica os seguintes perfis?

- Project;
- Member

A3. Como identifica os seguintes processos?

- Criar a conta;
- Fazer o upload do projeto

A4. Acredita que esta plataforma pode proporcionar melhor visibilidade para artistas?

A5. Usaria esta plataforma para divulgação dos seus projetos?



A6. Tem outras sugestões para a plataforma?