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Master Thesis

Information design, as a means of communication, for engagement in sustainable projects

Case study on Energieavantgarde Anhalt e.V.

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ENERGIEAVANTGARDE
ANHALT

Abstract

This master's thesis is a reflection on the theme of the importance and influence of information design, as a means of communication, to engage in sustainable projects. This is a reality transversal to all areas, but in this thesis, it will be specifically applied to its influence and impact to engage the audience in sustainable projects. At the same time, it intends to understand, through usability tests, questionnaires and interviews, the influence of the presentation of information on communication and the potential for engagement. The practical application of this method is carried out on the non-governmental organisation Energieavantgarde Anhalt e. V. (EAA), situated in the Anhalt region of Germany.

To introduce the topic and contextualise the relevance of information design as a communication medium, the historical background of the discipline and the growing importance of the topic in society and in democratisation and social participation are explained. Next, several communication processes are described, to better understand the importance of information and the process that occurs between the sender and receiver when a message is transmitted. Then, the importance of information design to increase community engagement in sustainable projects is explained.

EAA's current website has a page dedicated to one of the organisation's current projects, this page uses mainly text as a means of communication (Variant A). A second Variant of this same webpage is developed (Variant B), this second Variant uses Infographic as its main means of communication. The aim is to compare these two Variants, both of which convey the same information, and understand which of the two works better in terms of usability and which of the two is more engaging to users. To this end, the process of usability testing is defined, as well as the most well-known evaluation methods advocated by different authors and the choice of the set of methods used in the usability test carried out as a practical part of this thesis was explained.

The first part of the thesis is dedicated to the historical and informative contextualisation of information design and its importance in people's engagement in sustainable projects. The second part applies this theory to the concrete case of EAA by combining different usability testing methodologies, namely AB/Test, comparative usability test, questionnaires before and after the A/B test and interview after the comparative usability test. Ten usability tests are carried out and the results are then analysed qualitatively and quantitatively. Due to the ten person sample size of the usability tests, special focus is given to the analysis of the qualitative results, namely the answers to the questionnaires, interviews and the notes collected during the thinking aloud section of the usability test. The method used for the qualitative assessment was Mayring's qualitative content analysis, which consists of grouping information into categories.

This categorization is presented in the appendices of this thesis and in graphic form in the analysis of the results.

In the discussion, all parameters evaluated during the usability test are compared, in order to understand if the information design, as a means of communication, influences the engagement in sustainable projects.

Acknowledgements

When I decided to study Information Design and Media Management, I already recognised the importance of communication for engaging and involving people. I had worked for several years in the field of corporate communication and marketing and therefore knew the power of advertising and influence well. With the development of the planet's climate situation, the need to use this powerful tool of influence that is communication became obvious to me. This is in order to explain and engage people to actively participate in this global fight that can only be won with everyone's participation. I am worried about the planetary and climate crisis we are living through and the society we are building. Nowadays, I see information being spread at breakneck speed, but I have the feeling that no one absorbs it. We live in the information age that could be called the disinformation age. We have never had so many means and channels of information at our disposal, nor such a need to adjust the information we want to transmit to so many different platforms. The target audiences are increasingly patient and informed, but they have less and less time and capacity to concentrate in order to absorb so much information. Worse than that, I feel there is a biased interpretation and use of information, which has made possible the emergence of false information that is divulged as if it were the truth and it influences the masses to accept information, that is not substantiated or verified, as truth.

It is this reality that has encouraged me to study information design, because of the possibility to help transmit reliable information in a simple and appealing way, and in this way contribute to the protection of climate and the environment. I believe that the democratisation of information was a huge step forward on a social level and I advocate for all human beings to have the right to receive and understand truthful information in different areas and that this information should be adjusted to their needs and abilities. I believe in the power of information to move communities and engage them to be active in their regions and I believe that information design, i.e. working with and adapting the information to be transmitted, is the key to achieving this engagement. I intend to verify, through the work done in this thesis in cooperation with Energieavantgarde Anhalt e. V., whether the impact of information design is significant for community engagement and involvement in sustainable projects.

I am grateful for the cooperation, freedom and trust of EAA, its board members and employees, especially my tutor Sven Wüstenhagen, for the realisation of this thesis and for my development as a professional and a person. I am also grateful for the empathy, sympathy, professionalism, humanism, enthusiasm, trust and availability that Prof. Marco Zeugner has shown to me and to my idea since we first made contact.

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“The only way to do a good job is to love what you do.” Steve Jobs

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List of Acronyms

AIDA ..... Attention Interest Desire Action
CEO ..... Chief Executive Officer
EESI ..... Environmental and Energy Study Institute
ICT ..... Information Communication Technology
IDA ..... Information Design Association
IDJ ..... Information Design Journal
IIID ..... International Institute of Information Design
ISO ..... International Standards Organization
ISOTYPE ..... International System of Typographic Picture Education
OECD ..... Organisation for Economic Cooperation and Development
SDGs ..... Sustainable Development Goals
SEO ..... Search Engine Optimization
UI-Design ..... User Interface Design
UN ..... United Nations
UNESCO ..... United Nations Educational, Scientific and Cultural Organization
USA ..... United States of America
UX-Design ..... User Experience Design
UXPA ..... Usability Expert and former President of the Usability Professional's Association

1. Introduction

1.1. Motivation and why Energieavantgarde Anhalt e. V. as a case of study

We live in the information age, but we have never been so uninformed. We receive stimuli all the time, a huge volume of messages coming from various media sources and work in the most diverse ways. But your average human being does not have the capacity to absorb so much information. We need to filter what is important to us or what adds more value to us and, in this process, a great deal of important information is lost. We also need to filter truth from lies, manipulation from engagement. This filtering process is extremely challenging, as we are not empowered with the most grounded and reliable knowledge. Information design grows as social intervention in the information age and democratisation grows. Information design is an integrative means of communication that studies the target audience and adapts the message to be communicated to that audience in the most effective and efficient way. Through the use of graphics, images, video, icons and well-written and structured text, information design expresses complex messages in a simple way, it turns the abstract into the specific and assesses the veracity of the information transmitted, contributing to the engagement, reputation and positioning of brands, companies and organisations.

Information design is transversal and necessary in all areas. There are, however, some areas in which it becomes essential, as is the case of climate protection and sustainability. This is a complex issue, studied by many, but which concerns everyone. As such, it is the right and duty of all citizens to be well informed about the causes and consequences of the degradation of our planet. Achieving this collective awareness is only possible if the message is developed according to the needs and interests of the target audience, it must appear appealing and integrative. More than ever the engagement of all is necessary, as this fight depends on a joint social effort at a global level.

Companies and organisations have made a stand regarding the adoption of more sustainable and environmentally friendly options, many did so effectively while others based their position on marketing campaigns and greenwashing. Many such organizations carry out projects that invite and need political, community and organisational involvement, as is the case with Energieavantgarde Anhalt (EAA). The EAA is a non-governmental organisation in the Anhalt region that is dedicated to decentralising the local energy system through the use of renewable energies and in recent years has extended its activity to other issues relevant to regional sustainability such as CO2 reduction and climate protection. Despite the portfolio of projects already completed and under development, the EAA faces, like several other organisations and

companies, the challenge of engaging the community to participate in the activity of the organisation and to collaborate with its mission.

Can information design, when used as a communication medium, help to influence community engagement in these sustainable projects?

1.2. Problem definition and Goal of the thesis

Information design, an area still unknown to many, is subconsciously present in our daily lives. Even if many say they are unfamiliar with the term or discipline, they have certainly come across elements of information design in the different types of existing media. But understanding the potential of this discipline is still a challenge for many, either because of the decreased importance of communication directed and managed for the success of projects and initiatives, or because of the discrediting of the area caused by the graphic democratisation and negligent use of information and the media's influence, or by the prioritisation of the budget and directing it to other areas of activity. The truth is that in the age of information, where there is an astronomical amount of messages constantly being exchanged between different audiences and through different channels, the capacity to absorb information is quite compromised. In addition, the credibility of information is always questioned and therefore needs to be substantiated and credible, increasing the need for the reputation of brands, companies and organisations.

The main objective of communication is to clearly convey messages from the sender to the receiver, without noise or external interferences that may compromise the receiver's understanding of the message. This message may differ in content, but when the sender is a company or organisation, the intrinsic objective of the sender is that the receiver understands the message transmitted and feels motivated to engage in the communication which, very often, has the intention of persuading the receiver into taking a certain action.

We have witnessed, in the last few decades, a growing global concern about climate change and it is common knowledge that only when all countries and communities engage in this fight and change their lifestyles by making more sustainable decisions will it be possible to stop the devastating effects of climate change.

Now, if the sender's goal, with their communication, is to engage the receiver and to stop climate change it is necessary to engage the world's entire population, it is obvious that communication is the key to engage communities in this common goal. The problem is that communication is a vast topic and media outlets are numerous and continuously increasing. The (dis)information age has many benefits, such as (almost) the entire world population having access to real-time information quickly and cheaply. However, it also has many drawbacks, such as the reduction in

absorption capacity caused by the sheer volume of information available and the emergence of biased information. Even though information is available on the Internet or in books and accessible by all, this does not guarantee that all people be able to interpret and understand the information transmitted. In the area of sustainability, for example, the last decades have been marked by a huge commitment to research and a great deal of material has been published, but the language and presentation of that information cannot always be understood by the community at large. This is a problem that information design can solve. As Moser (2012) argues "information design as a means of communication makes it possible to filter, to condense and to design the information to be used in the most efficient and effective way."

Efficiency and effectiveness are the pillars of information design and this focus, in an era of enormous communication flow, becomes crucial for the adaptation of the message to the different target audiences and consequent absorption of the message by those same audiences. Information design is a potentiator of social integration and democratisation, used for hundreds of years, albeit under other names, such as cave paintings or later, already in a more integrative perspective, in the 1920s with Otto Neurath, with the creation of ISOTYPE and the use of information design as a tool for social engagement and involvement.

Does information design, used as a communication medium, influence engagement in sustainable projects? This was the question that gave rise to the topic of this master’s thesis and arose based on the need for community engagement in the sustainable projects of Energieavantgarde Anhalt e. V.. In general, we recognise the appealing character of images and icons, video, photography and animations, social media pages and websites, but we do not know to what extent the different presentations of the same or similar messages motivate the receivers or target audience to actively participate in the activities or projects in question. Although there are tools to measure user engagement on websites and social networks, based on standard parameters and metrics and clicks, visits, shares and likes. The truth is that understanding why a person feels more or less engaged to participate in a project after receiving information about that project is very important for the purpose of adapting the information and consequently increase the chances of engaging more people.

Usability tests are excellent methods for testing the usability of a product or service, but can they also measure the impact of different designs or Variants on user engagement?

2. Information Design as a Means of Communication

2.1 The emergence and development of information design

"Information is the result of processing, manipulating, and organizing data in a way that adds to the knowledge of the person receiving it. Design is the identification of a problem and the intellectual creative effort of an originator, manifesting itself in drawings or plans, which include schemes and specifications. Information Design is the defining, planning, and shaping of the contents of a message and the environments in which it is presented, with the intention of satisfying the information needs of the intended recipients." (IIID Public Library, 2007)

Before humans communicated through texts, communication was done through images carved in stone. There are still several examples of such engravings today which represent the beginning of the use of design to convey information. "Images were used as a means of communication 30,000 years before early writing first appeared in Mesopotamia" (O'Grady & O'Grady, 2008). Later, inspired by the phonetic of words, the first writing pictograms were developed. In Egypt, letters, reports, memos, and proposals began to be written and shared publicly on a daily basis. Jacobson (1999) considers that this is how the profession of information designer came about, since the aim of these people in Egypt was to help others make their communication more effective and efficient. According with Baer (2009), "effective communication is the very essence of information design."

In 1790, the 18th Century English economy was represented through a chart and this was the first time such a device was used as means of communication and led to the creation of different types of graphs such as area, pie, line and bar. Around 30 years later, Alexander von Humboldt and Carl Ritter created modern geography, including symbols and keys. In 1857 Florence Nightingale represented the causes of mortality during the Crimean War through the invention of the polar area diagram. In 1861 Charles Joseph Minard created a two-dimensional chart with four changing variables. But the biggest impact of visual communication on the international scene happened in 1920, when Otto Neurath created the first pictorial statistics, a new "sign language" that revolutionized communication in the 20s. This language was firstly called "Viennese Method of Picture Statistics" and used to enable workers to recognise economic and social relations and in 1934 it was known worldwide as ISOTYPE, meaning International System of Typographic Picture Education. It started in 1918, after World War I, when Neurath, inspired by his childhood fascination with hieroglyphics, used visual language to explain to people what was going on with the government. He wanted to transmit information in an efficient way, but his goal was not just to help people understand his lessons, he wanted to break down barriers in understanding between cultures. Before him, others had tried to create a universal language, but

"only Neurath was willing to break free of the chains of language's verbal structures and attempt something different. As he declared, "Words separate. Pictures unite" (Hammond, 2013).

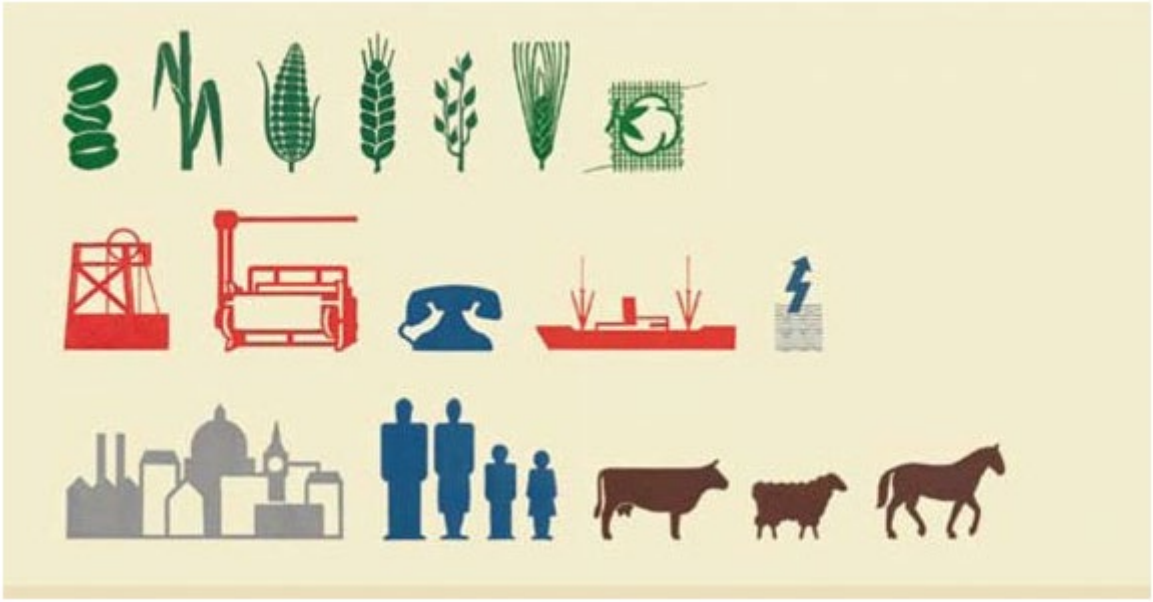


Figure 1: ISOTYPE from Otto Neurath (Hammond, 2013)

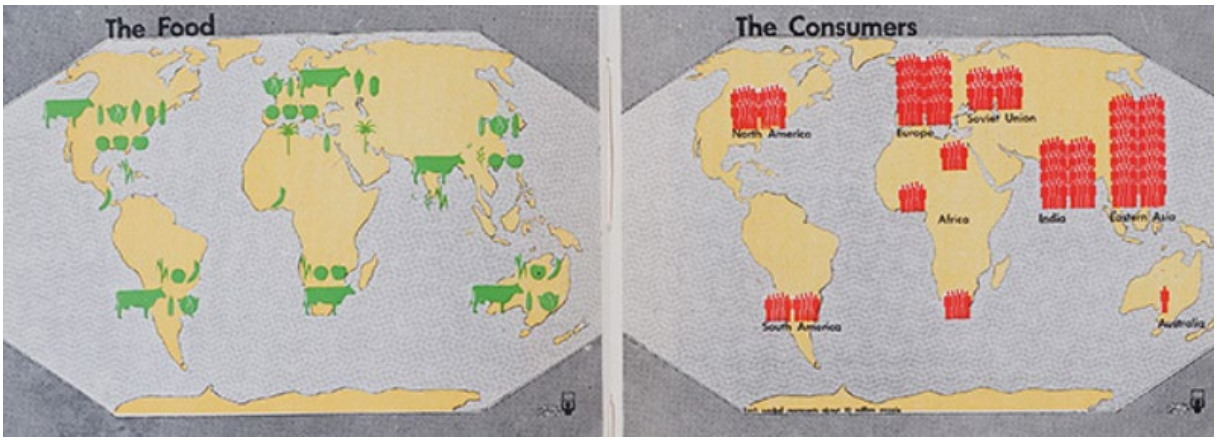


Figure 2: Sample from the Otto and Marie Neurath isotype collection, University of Reading (Sandner, 2016)

Figure 3: Example of current use of pictograms

With the development of the ability to write, typography was created and the need to organize the information, to help the reader filter and segment the information and data visually. Ladislav Sutnar, a professor, and later director of the Prague State School of Graphic Arts is considered one of the pioneers of information design, in the 40s and 50s, especially in terms of typography and organization of information.

Sutnar and Lönberg-Holm have composed the Catalog Design (1944) and the Catalog Design Progress (1950), which focuses on the organization of the information. More than four decades after its publication, Catalog Design Progress is still a functional design archetype.

In 1979, Rob Waller created the Information Design Journal (IDJ). The Journal was created as a need for a body of work created from the collaboration of designers, teachers and researchers emerging in the 70s. The main goal of the IDJ was, in the words of its creator Rob Waller, "to get specialists in language and design talking to each other, and to make research more accessible to designers" (Waller, 1996).

Waller (1996) and Bryan Smith (co-editor) defend that Information Design means "to apply processes of design (that is, planning) to the communication of information (its content and language as well as its form)." In 1991, after a meeting at the Information Design Conference between Rob Waller and other interested people and organizations, the Information Design Association (IDA) was created. One of the main goals and ambitions of the IDA was to serve the public interest by working closely with the British Standards committees along with other similar organizations and the media, to reach the public with information design content. (Waller, 1996)

In 1986 Peter Simlinger created the International Institute of Information Design (IIID) and was director until 2014. According with Simlinger, the main purpose of IIID is "to promote awareness of and the need for good information design internationally" (International Institute for Information Design , 2016).

From the 1980s onwards, information design gained greater prominence worldwide. Redish (2000) refers to the substantial growth in members of the Special Interest Group on Information Design that was founded in 1997 and three years later had over 2,700 members. According to Redish (2000) "that astonishing and rapid growth is testimony to the widespread interest in the topic and is deeply gratifying to those of us who have thought of ourselves as information designers for many years." Since then, different definitions of information design have been published over the last decades, however, common factors are transversal, such as the organisation of information, the more effective and efficient visualisation of the date and the simple communication of complex messages. In 1981 Hurlburt said that "terms like information design, visual communication, and even graphic design are so broad in their connotations that it

is impossible to use them accurately to describe specific functions.". In 1990 Tufte classified the principals of information design as universals, independent of culture or language and in 1997 affirmed that the "heart of information design" is "to document and explain a process, to make verbs visible". In 1996 Mok wrote "Information design is the arrangement of organization models to provide context and meaning for the information.". According with Wildbur & Burcke (1998) "Information design can be described as the selection, organization and presentation of information to a given audience". Horn (1999) affirmed that "information design is the art and science of preparing information so human beings can use it with efficiency and effectiveness. The values that distinguish information design from other kinds of design are efficiency and effectiveness at accomplishing the communicative purpose. In the same year Passini wrote "information design means communication by words, pictures, charts, graphs, maps, pictograms, and cartoons, whether by conventional or electronic means." More recently, in the 21st century, Redish (2000) defined information design as the art of developing a document or communication that was created for the users and defends that the focus of information design should be the user (or the receiver) and Schriver defended in 2012 that "information design is the art and science of integrating writing and design so that people can use content in ways that suit their personal goals" and a few years earlier, in 2007, an international group of information design faculty members defined "information design is the defining, planning, and shaping of the contents of a message and the environments in which it is presented, with the intention of satisfying the information needs of the intended recipients" (IIID Public Library, 2007). All these definitions that were written over the last decades by different authors follow social needs, mainly the increase in the flow of information received and the diversification of channels and media that have emerged.

This capacity of information design to be clear and effective and to present the information in a way that can be easily understood emphasises the importance of information design as a means of communication.

2.2 The use of Information Design as a means of Communication

The main feature that differentiates information design from other kinds of design is the focus on managing the information to better communicate a message to the intended audience. Jacobson (1999) believes that "the values that distinguish information design from other kinds of design are efficiency and effectiveness at accomplishing the communicative purpose" and Meirelles (2013) affirms that the main objective of information design is to inform. Unlike other types of design, information design does not focus on advertising, but rather on information. However, information design is extensively used to describe communication practices where the

main purpose is to inform, as distinct from the persuasive approaches usually used in practices like advertising.

More than design information, information designers study the target group and find a way to communicate a determinate message in the most effective and efficient way. Pettersson (2016) defends the importance of the study of the communication process as an information designer while he affirms that "information design encompasses studies of the way a representation should be designed in order to achieve optimum communication between the sender and the receiver."

To understand the role that information design plays as a means of communication, it is important to also understand the way that the process of communication works. According with Bühler, et al. (2017) the word communication has its origin in the Latin language: *communicatio* - communication, *communicare* - to participate, *communis* - together. In their words "communication means connection, exchange of information and understanding between people". It is for this reason that communication requires creation, interpretation and negotiation of a meaning, this can be verbal, nonverbal, textual, aural, visual, or even physical. Independently of the way we communicate, communication is something that we learn constantly and that is born with us. Most human beings are born with the abilities of speaking, hearing and seeing, these enable us to learn how to communicate through codes, symbols, and other systems of language. Communication only works as a collective practice and the communication process happens when we create and interpret messages or meaning through the use of the different symbols (Corey, 2019).

The process of communication has been explained in different models. The Linear Model of Communication was developed by Shannon & Weaver in 1948 and describes communication as a linear process. This communication process illustrated in image 2, was the base for all communication processes (Corey, 2019).

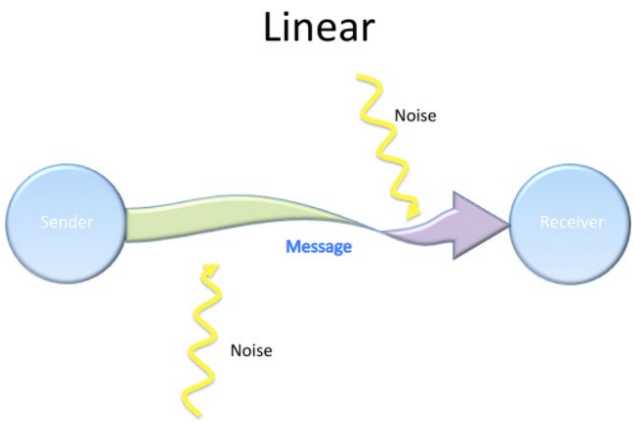


Figure 4: Linear Model of Communication from Shannon and Weaver (Corey, 2019)

In this model of communication, the receiver is the target of the communication and the message is not specified nor the focus of the model. The sender communicates a message to the receiver. The path of the message is susceptible to being disturbed by some noises, meaning some interferences that are external to the channel, which can influence the path of the message and consequently the success of the communication process.

This model of communication is too simple and has some limitation, namely the one-directional communication that makes it impossible for the sender or receiver to exchange roles in the communication process. There is no dynamic interaction between the two agents of communication, which compromises the communication process. True communication is represented as a bidirectional interaction between two or more people where the roles of sender and receiver can be exchanged between the sender and receiver roles. Furthermore, this model needs that the communication the beginning and the end of the communication is clearly defined, with a clear-cut of the message, and this is a reality that difficultly happens in a communication process (Corey, 2019).

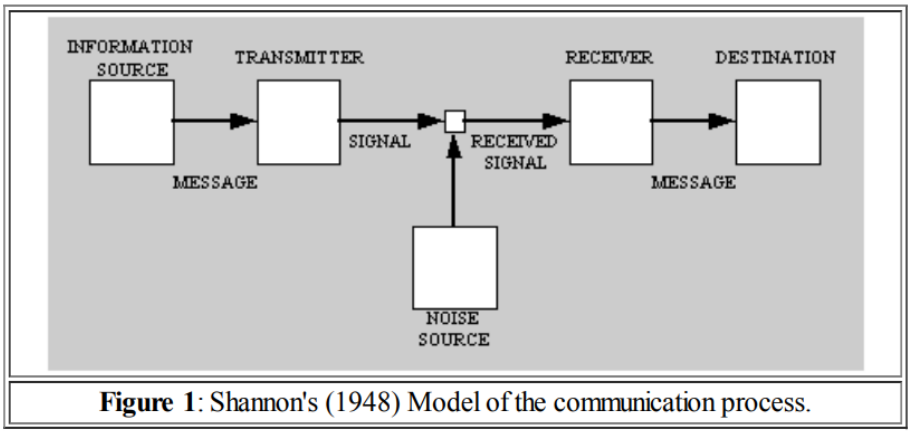


Figure 5: Shannon´s (1948) model of communication process

In the representation of the linear model of communication from Shannon & Weaver created by Foulger (2004) the sender is called "transmitter" and the message is called "signal", but it means the same. The presence of a source for this information emphasizes the single direction of the communication process.

Bühler, et al. (2017) identifies the main reason for the development of other communication models, the fact that the linear model did not account for human relations. This model was good for illustrating technical transmission of information between sender and receiver, but interpersonal communication is more than that.

Other models of communication have been developed, these place human relationships above all other factors in communication. Paul Watzlawick (1969) created another communication model, with pragmatic rules of communication, which were divided into three areas: syntactics, semantics and pragmatics. Syntactics refer to the potential problems that happen during the communication process and affect it, namely noises as seen in the linear model. Semantics deal with the meaning of the signs and symbols and the pragmatics are related to the behaviour of the sender and receiver. In this model of communication, feedback gains importance, creating a bidirectional communication (Bühler, et al., 2017).

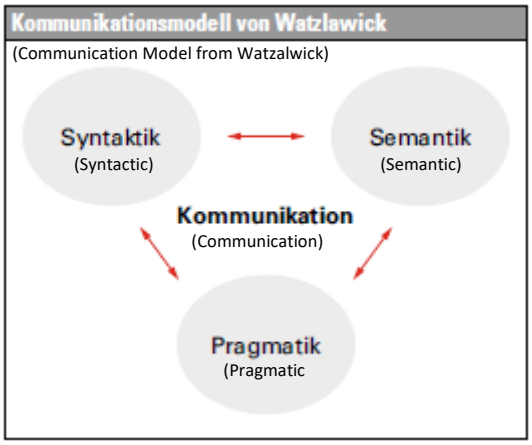


Figure 6: Communication Model from Watzalwick (Bühler, et al., 2017)

The beginning of the 1970s saw the start of modern convergence of communication technologies. Oettinger (1971), a professor of Information Resources Policy at Harvard, and frequent participant in congressional hearings about new communication technologies in the U. S. A., coined a new term to describe Communication technologies: "Compunications." The use of computers to create information and to communicate it required changes in society, focused in information (Schulz & Cobley, 2015).

According with Bühler, et al. (2017), in 1981 Friedemann Schulz von Thun created the Four-Sides Model, where he describes the four sides of the message: the fact (What I inform), the self-revealing (What I reveal about myself), the relationship (What I think about you and how we get along), and the appeal (What I want to make you do).

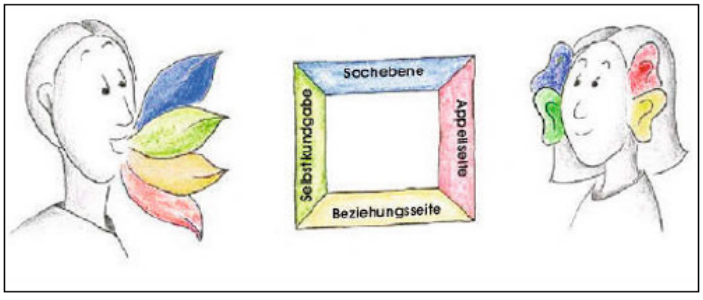


Figure 7: Four-Sides Model of Communication von Friedmann Schulz (Bühler, et al., 2017)

Although several models are used to describe the communication process, AIDA is one of the best known and still currently used. It is primarily, a sales and marketing model, but AIDA is also a valuable tool for information design, especially for content organisation. Created in 1898, the

AIDA model stands for Attention, Interest, Desire and Action and is used to encourage the receiver of the message to act on what is communicated in the message. This is a communication and marketing model that has the customer and the message as its focus (Prathapan, et al., 2018).

After understanding some of the most well known models of communication, it is important to also comprehend the difference between the different means of communication. The primary means includes direct communication between people. Without the need for technical assistance in order to transmit or receive information, this type of communication can involve all the senses. The secondary means makes use of technical means of communication, but these are only employed by the sender. The recipient must be able to read and understand the symbolic message of a picture or graphic. All print media belongs to this category. The tertiary means takes both sides into account, the sender and the receiver. All electronic media such as radio, television, the Internet with its diverse services and mobile devices such as tablets and smartphones belong to this means of communication (Bühler, et al., 2017). Information Design can integrate the secondary or the tertiary means of communication, depending on the medium that is used to support the transmission of information.

Redish (2000) developed a model called "document design process" in 1978, this was at the beginning of the big "boom" of information design development and its recognition. This model would adapt the "information design process" to the new reality (Figure 8) and has been updated many times, when new information is received or to adapt it to different mediums. However, the base of the process remains unchanged, namely: "the importance of the planning questions and of the front-end analysis, the role of iterative evaluation, the interaction and equal importance of writing and presentation and the fact that the specific guidelines that one uses depend on the answers to the planning questions" (Redish, 2000).

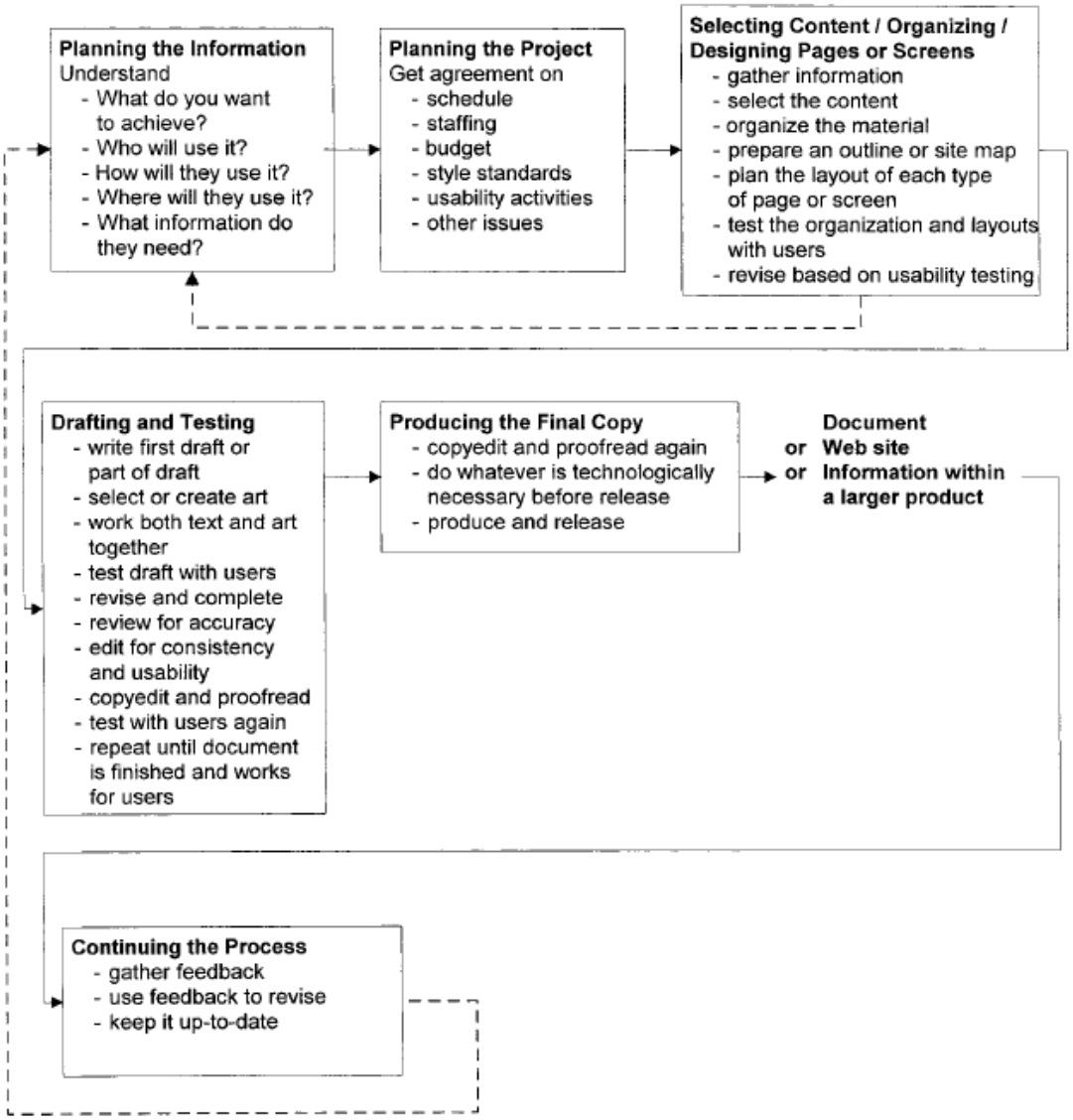


Figure 8: Model © 1999, Janice C. Redish, based on versions of a similar model developed between 1978 and 1999 at the American (Redish, 2000)

Redish (2000) considered that the use of information design would increase in the future. This was made possible by the web, which requires more visual information than any other media ever did and the need to use the same information in different formats. Furthermore, he defended that this model is also applied to web information design, starting with the planning of the process, the identification of the important information and its categorisation in an appropriate hierarchy to facilitate the user's navigation. Another important aspect referred by Redish (2000) is the combination of image and text and the presentation on the screen.

According to IIID Public Library (2007) "in the context of information design, the "user" is someone who uses an (information) object, a service, or a system in the framework of an activity in order to carry out a task. Carrying out an unfamiliar task to achieve objectives can be

facilitated by the acquisition of task-specific information". There are various conditions which the success of communication through information design depends on, if the users find what they need, if they can understand it and if they make use of the information that they found and understand it correctly. Additionally, it is important, during the design process, to consider that the users are looking for information that they need in order to complete a task or answer a question and the time and effort that each user spends to find and understand the information varies (Redish, 2000).

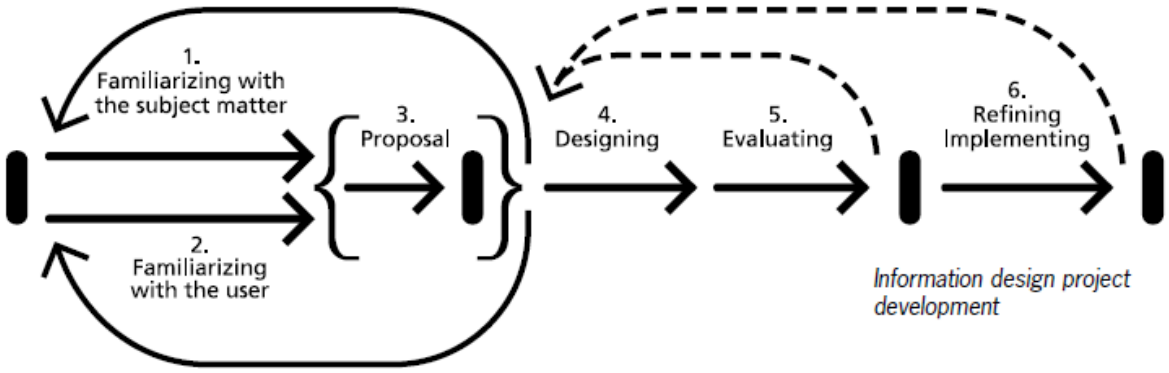


Figure 9: Information design project (IIID Public Library, 2007)

Regardless of the vehicle or method used to communicate, the primary goal of information design is the receiver's understanding of the message or information. It was in fact this need for the receiver to understand the message that gave rise to information design, according to Petterson (2006) "with origins in graphic design, education and teaching, instruction, architecture and engineering. Petterson (2006) affirms that "in these areas people have recognised the need for clear and distinct presentation and interpretation of verb-visual information.".

Pettersson (2014) also wrote about the contribution of communication theory for information design. He defines communication theory as "an attempt to explain how and why humans communicate with each other." According to the same author, communication theory contributes to information design with "valuable facts, practices, principles, and theoretical approaches. Some examples of important concepts are: advertising, communication technologies, computer-based training environments, educational technology, gender studies, graphical user interfaces, human factors engineering, information technologies, instructional technology, interaction design, interface design, media literacy, popular culture, propaganda,

social demands, social information processing theory, successful communication, television production, user-unfriendly training environments, and video production" (Pettersson, 2014).

According to Pettersson (2014), the communication theory of information design defends that

- the information designer can use insights from advertising research for applications in information design,
- people will develop strategies to deal with the apparent lack of non-verbal references that typically occurs in Internet-based communication,
- incorrect and unfair gender representation and gender stereotyping affect the credibility of information resources and learning materials such as textbooks,
- all graphical user interfaces are communication systems,
- the information designer can use findings from research on user interfaces and computer-based learning environments in information design applications,
- mass media shape public opinion by bringing certain issues and topics to the public's attention,
- the information designer can use evidence from media research in information design applications,
- there are many ways to present and interpret a message,
- media compete with other sources of fulfilment.

Translated with www.DeepL.com/Translator (free version)Since 2021 we have seen that these facts, hypotheses and postulates of communication theory for information design were right and are proof of the growing importance that the discipline has achieved, especially in the digital environment.

2.3. The effect of the technological development in information design as a means of communication

"The industrial age gave rise to industrial design. The information age gives rise to information design." (IIID Public Library, 2007)

We live in the era of information. Never in the history of humanity has there been so much access to information, but also never has there been so much difficulty in filtering and obtaining veracity from information. This fact reduces the capacity to absorb and understand information and consequently to achieve goals. Moser (2012) defends that "information design as a means of

communication makes it possible to filter, to condense and to design the information to be used in the most efficient and effective way."

How many times are we faced with such a flow of information that it is difficult to remember the essentials? How many times does information reach us in such a scientific way that it is impossible to understand? How many times do we need to decipher messages? Information design is the art and science of solving this type of problem, working and adapting the message to the environment and the target audience in order to communicate. Nowadays we do not have any problem with finding information, but we must be concerned about the way in which information is communicated. This current social need is defended by Horn (1999), while he affirms that "what we need is not more information but the ability to present the right information to the right people at the right time, in the most effective and efficient form." This is the only way in which it is possible to achieve the objective that our target audience understand what we want to communicate. Furthermore, the geographic, cultural and language differences, the conflicting messages, the different media channels and the growing power of consumer choice create barriers and give rise to the necessity of transmitting clear messages that overcome them. In this aspect, information design plays an important role. According to Fox (2019) "Information design has become increasingly widespread since the 1800s, when statistical graphics and data visualization developed alongside systematic data collection by governments. Communication design evolved during the twentieth century as many new communication media with different functions were introduced. Then, communication design became an increasingly important consideration for organisations wanting to reach audiences in multiple different ways. During the twenty-first century, concurrent information and communication design is commonplace. This happens as millions of people create information to suit the different functionalities and constraints of the many different communication media that they use".

The rapid technological growth and, mainly, the emergence of the Internet and easy reach to the entire population of developed countries had a huge impact at the social level. The flow of information has increased immensely and, mainly with the growing use of social networks, the exchange of information has become accessible to anyone with Internet access. This fact explains the immense growth of creation and sharing of unreliable information and the control of this information is, again due to the huge flow of content creation, impossible. Nowadays, barriers and message filters are created with regards to subjects that impact social opinion at a global level and that are publicly refutable. Examples of these include information regarding the world pandemic of Covid-19 or political issues in the USA.

Sneddon (2021) presents some examples of manipulated media content, which can be consulted on Figure 10. Manipulated media content is content that is published in the digital environment, usually on social media, that has been altered or presented in a misleading way. The content of unverified information may be have been manipulated or fabricated and is usually used to achieve an objective of manipulation or influence.

Figure 10: Examples of Manipulated Media Conten. (Sneddon, 2021)

The truth is that nowadays the exchange of information has become democratic, the so-called graphic democratisation. This exchange of information is increasingly appealing and professional looking, which represents a huge challenge for information design from the point of view of the veracity of information sharing. Ensuring this veracity is one of the biggest challenges faced today and engaging the target audience to the point of gaining their trust and converting mind-sets has become an obvious and urgent goal of information design. O´Grady (2008) defends that we live "in an age of information and global connectivity, governments, corporations, educational institutions, and individuals, alike struggle to find better ways to communicate." In 2017 the IIID Public Library published that "the process of rapid change, enhanced through evolving technologies, including those in the realm of information and communication, leads up to societal transformations." These societal transformations reflect the growth of the technological development and are also reflected in the technology.

The adaptation of information design to digital communication, through websites, applications, and social media was a result of this social and technological development and boosted the emergence of the UX-Design (User Experience Design) and UI-Design (User Interface Design). UX design deals with the analysis, creation and optimisation of the user experience when interacting with a digital product or service. It includes the complete experience of the user, namely their thoughts, emotions and needs. The main goal of UX design is to improve the user's experience by presenting the information in a simple, appealing, and structured manner, enabling the user to find the information they are looking for quickly and easily. UI design deals with the building process of the interfaces in digital devices, focusing on style. The main goal is to create easy and appealing interfaces.

There are some aspects to consider in the design of a website, such as the target audience and the adaptation of communication and the presentation of that communication in order to be suitable for this audience. This adaptation and design of information should include layout, typography, choice of colours, interactivity, information structure and organisation. Furthermore, it is important to consider the adaptation of design from a digital product to different devices, the responsiveness. There is a huge variety of mobile devices and computers, these differ significantly in size but also in brands and operating systems, it is therefore essential to develop responsive designs that adapt to the needs of all devices.

In addition to websites, social networks have also become increasingly important in recent years, transforming digital communication. The emergence and increasing use of digital spaces such as Instagram or Facebook, where brands and users can share and publish their information, is a huge challenge for information design. This challenge arises due to the need for communicating

truthful and reliable information and adapting the information to the most used medium. According to the information from January 2021 from Sneddon (2021), the most used social platform worldwide was Facebook, followed by Youtube, followed by Instagram, followed by TikTok and lastly Twitter.

Platform	Number of Users Worldwide in January 2021[22]
Facebook	2.7 billion
YouTube	2.2 billion
Instagram	1.2 billion
TikTok	689 million
Twitter	353 million

Figure 11: Number of users of social media worldwide in January 2021 (Sneddon, 2021)

Figure 11 shows the growth in video and image content in recent years, with social networks YouTube, Instagram and TikTok, platforms for the exclusive use of video or image, occupying the top places in number of users worldwide. Facebook is in first place and, although it allows text sharing, it has also seen a huge increase in video and image sharing.

In 2021 the technological development continued, and numerous information design media have emerged, mainly in the digital environment: Infographics, animations, presentations, video games, social media layout, video, e-books, magazines, journals, website, e-commerce stores, mobile Apps, etc. There is a huge variety of content that can be produced through information design, depending on the environment, the medium and the target audience. The most important thing is that regardless of the type or medium of communication used, the information design process remains. According with Pettersson (2006), "information design includes text design, image design, shape design, sound design, light design, spatial design and time design". Information design also includes different types of content domains, namely: informative, entertainment, brief messages, administrative documentation, actual information, and instructions.

Media	Pros	Cons
Text	Can explain specific topics in detail.	Difficulty in reading on mobile devices or devices with small dimensions.
	Less need for technology and resources.	Need for language translation.
	It can be displayed in any type of browser or support.	People have less and less ability to concentrate and time to read.
	Does not require fast internet connection to download content.	A good knowledge of the language is required.
	Easy to print for later reading and offline.	It can lead to misinterpretation, as it is not possible to see the facial and body expressions, nor hear the intonation of the voice, of the sender.
	It is well indexed in search engines (SEO).	
	It is easy to edit if needed.	
Infographics	Visually appealing.	It has little space to explain more specific issues in detail.
	Hooks and engages the user through colours, shapes, images, and keywords.	It requires technology and resources to produce.
	When it does not include any text, it is accessible to everyone, regardless of language or reading literacy.	It requires many hours to produce.
	Complex content can be presented in a simplified way.	It has limited and difficult indexing in search engines (SEO).
	Possibility of greater reach on social networks through the use of images rather than massive text.	
	Increased capacity to engage the receiver's attention and engagement.	
Videos	Catches and holds the receiver's attention.	Need to spend some time to view all the content, depending on the size of the video in question.

Media	Pros	Cons
	Possibility of connecting various communication media, such as text, audio, graphics, photos, etc.	Requires technology and a considerable amount of time for production and edit.
	Dynamic and versatile.	Difficult to edit if necessary.
	Possibility of transmitting a large amount of information in a short period of time, including more specific or complex topics.	It requires time to produce and to edit.
	It has a greater chance of engaging the audience because the receiver can see and/or hear the sender.	Requires good internet connection for upload and/or download.
	When published on a website, it allows the user's presence on the website to be increased.	It has limited and difficult indexing in search engines (SEO).
		It requires higher investment not only in production and editing equipment, but also disk storage.
		Impossible to print and access offline, if not downloaded.
Photos	Increased capacity to engage the receiver's attention and engagement.	Static.
	Visually appealing.	Requires technology and a considerable amount of time for production and edit.
	It can transmit emotions and sensations and, through the image, convey important messages.	It requires higher investment not only in production and editing equipment, but also disk storage.
	It is well indexed in search engines (SEO).	Need to pay attention to codes of conduct and copyright.
	Easy to print for see later and offline.	
	It is accessible to everyone, regardless of language or reading literacy.	

Media	Pros	Cons
	Possibility of greater reach on social networks, with photos rather than massive text.	
Animations	Ability to hold attention in a didactic and original way.	It requires a great deal of design and drafting time and different professionals.
	Possibility of greater reach on social networks, with images rather than massive text.	It requires specific tools that are not always easy or common to acquire.
	When it does not include any text, it is accessible to everyone, regardless of language or reading literacy.	It requires higher investment not only in production and editing equipment, but also disk storage.
	Visually appealing.	Requires technology and a considerable amount of time for production and edit.
	Hooks and engages the user, through colours, shapes, images, and keywords.	Difficult to edit if necessary.
	Complex content can be presented in a simplified way.	Requires good internet connection for upload and/or download.
	Increased capacity to engage the receiver's attention and engagement.	It requires higher investment not only in production and editing equipment but also disk storage.
	Catches and holds the receiver's attention.	Impossible to print and access offline if not downloaded.
	Dynamic and versatile.	
	Possibility of transmitting a large amount of information in a short period of time, including more specific or complex topics.	
	When published on a website, it allows the user's presence on the website to be increased.	

Media	Pros	Cons
Serious Games	When published on a website, it allows the user's presence on the website to be increased.	Requires technology and a considerable amount of time for production and edit.
	Dynamic and versatile.	It requires a lot of time to create, to produce and to edit.
	Ability to hold attention in a didactic and original way.	Requires good internet connection for upload and/or download.
	Catches and holds the receiver's attention.	Difficult to edit if necessary.
	Opportunity to reach new target audiences.	Impossible to print and access offline, depending on the download settings.
	Hooks and engages the user through the competition and fun factor while learning or absorbing information.	It requires higher investment not only in production and editing equipment, but also disk storage.
	Increased capacity to engage the receiver's attention and engagement.	It has limited and difficult indexing in search engines (SEO).
	Visually appealing.	
	Innovative media.	
APP	Dynamic and versatile.	Only mobile access.
	Innovative media.	It has limited and difficult indexing in search engines (SEO).
	Visually appealing.	It requires higher investment not only in production and editing equipment, but also disk storage.
	Increased capacity to engage the receiver's attention and engagement.	Impossible to print and access offline, depending on the download settings.
	Once it is downloaded to a mobile device, the possibility of frequent use is quite high.	Requires good internet connection for upload and/or download.
	Opportunity to reach new target audiences.	Requires technology and a considerable amount of time for production and edit.

Table 1: Media Pros and Cons

2.4. Information Design as an academic field and research

Information design can make a positive contribution as an academic and research field, due to its multi-purpose characteristics, information design can be used by different disciplines to convey information effectively and efficiently, although it is influenced by several other areas. Furthermore, it is essential to make the "translation" between scientific language and the community at large so that the message is absorbed and understood by all.

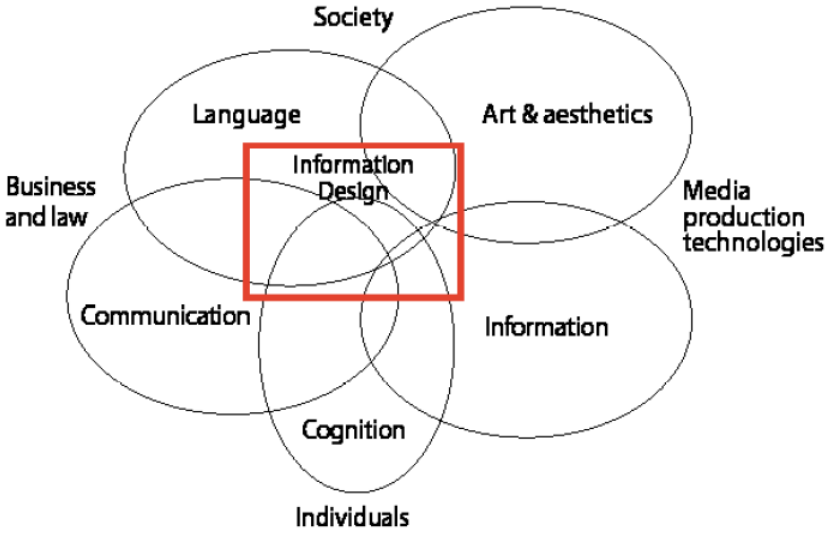


Figure 12: The information design model. (Pettersson, 2006)

In Figure 12 we see a representation of the main areas of the information design theoretical model, namely language disciplines, art and aesthetic disciplines, information disciplines, communication disciplines, behaviour and cognition disciplines, business and law, and media production technologies. However, "information design is interdisciplinary and encompasses influences and facts from more than fifty established areas of research" (Pettersson, 2006).

Pettersson (2006) defines infography and infology as the two main parts of information design and the three main areas of knowledge, as an academic subject, are infography, infology, and infodidactics.

Pettersson (2006) defends that "Infology is the science of verbo-visual presentation and interpretation of information" and the theoretical part of information design. According to Pettersson (2014), Infology is the field of study that assesses the best way to design verbo-visual information and how to optimize the communication of it between sender and receiver. The making of an understandable message falls under the responsibility of the information designer

and infology models contain theoretical and normative elements which aid in this objective. According with Pettersson (2006), "active voice, clarity, comprehensibility, consistency, legibility, precision, readability, reading value, simplicity, and structure are the key concepts in information design." The main aim of an information designer should always be "clarity of communication", not forgetting that the graphic presentation has to be "exciting, aesthetically pleasing and visually rewarding" (Pettersson, 2006).

"Infography is the actual, practical formation and execution of structured combinations of text, pictures, and graphic design" (Pettersson, 2006). Infography was initially only used to represent graphic information in newspapers and television, but it is nowadays used in all types of verbo-visual communication of information in all media. According to Pettersson (2006), the clarity of the design of the text and pictures determines the legibility of the graphic design and message.

The creative process for verbo-visual information includes "analysis and synopsis, production of draft, production of script, and production of original and master" (Pettersson, 2006).

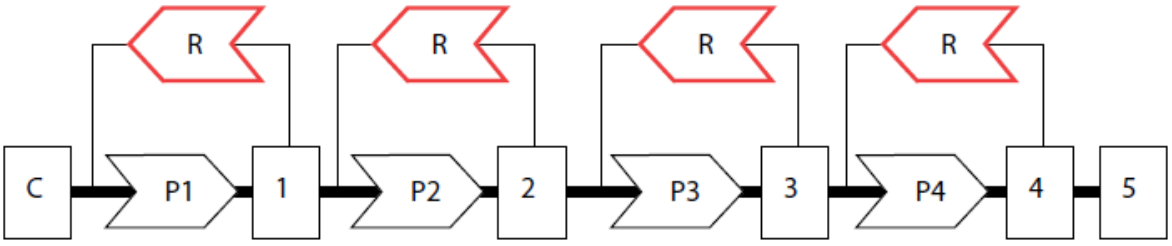


Figure 13: "Creative processes include four different productions (P) and review activities (R). The production activities are analysis and synopsis (P1) and synopsis (1), production (P2) of draft (2), production (P3) of script (3), and production (P4) of original (4) and master (5). C = commission." (Pettersson, 2006)

Meirelles (2013) defines Infographics as a way of visual presentation where graphics together with verbal language provide information that would normally not be possible.

Dur (2014) defends that Infographics design is always about storytelling and the choice of how the Infographic is designed (through writings, image, illustration, map, and data visualization) depends on the content. He categorizes Infographics into three objectives: to inform, entertain or persuade the audience and they can have different formats: static (for print versions), motion and interactive (both used extensively in digital context).

Interactive data visualization and infographics can simply provide information through pop-ups or do complex applications.

Infodidactics are "the methods used for teaching the various aspects of information design" (Pettersson, 2006).

Figure 14: Information design (ID) receives contributions from more than fifty established disciplines and professions (here represented by D1 and D2). (Pettersson, 2014)

In Pettersson's (2014) scheme it is possible to understand that the discipline of information design receives various influences from other disciplines as well as from different professions. According to Pettersson (2014) these influences can be "facts, influences, methods, practices, principles, processes, strategies, theoretical approaches, and tools" (Pettersson, 2014).

Figure 15: New applications develop within new academic disciplines and professions academic disciplines and professions. (Pettersson, 2014)

Figure 15 shows how "a number of new applications (here represented by A1) develop between information design (ID) and existing disciplines and professions (here represented by D1). New applications (A2) also develop within other disciplines and professions (D2). In addition, new applications develop within information design (ID). Every new application includes new knowledge" (Pettersson, 2014). Some examples of important applications are, according to Pettersson (2014) "administrative documentation, care and health care, crisis information, cultural information, economic and financial information, geographical information, military information, social information, technical information, tourist information, way finding, way showing, and many public information systems".

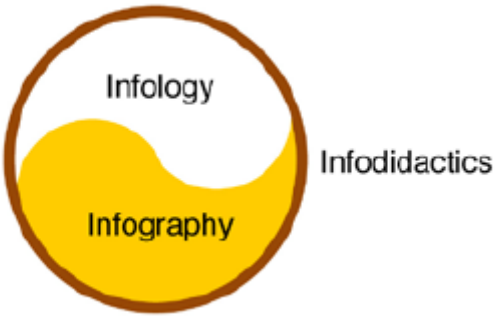


Figure 16: Relationships between infology (theory), infography (practice), and infodidactics. (Pettersson, 2014)

Pettersson (2014) added a new area to the theory of information design, the combined disciplines. He defends that all disciplines need a theoretical and practical part and that information design is no exception. "We may view an applied science, as a "combined discipline," as a "practical theory," or as a "theoretical practice." Information design is complementary to information technology in the same way as architecture or "architectural design" is complementary to building technology and "engineering" is complementary to "technology." Also dance, design, economics, education, fine arts, journalism, medicine, music, and theatre, are examples of areas and disciplines that have a practical as well as a theoretical part." (Pettersson, 2014)

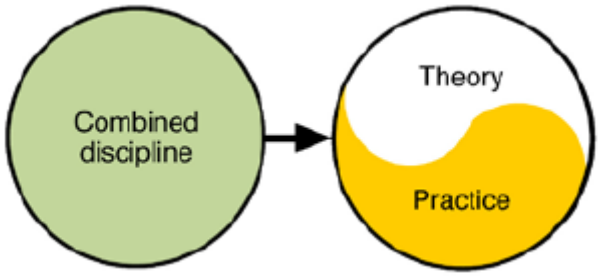


Figure 17: Relationships between theory and practice in information design. (Pettersson, 2014)

In the last year, a lot of applied research has been done in this area. According to Pettersson (2006), "critically selected results from other research may often be used as a starting point. It is possible to create guidelines to produce effective information and learning materials. Evaluation of the use of these materials provides useful information for further studies."

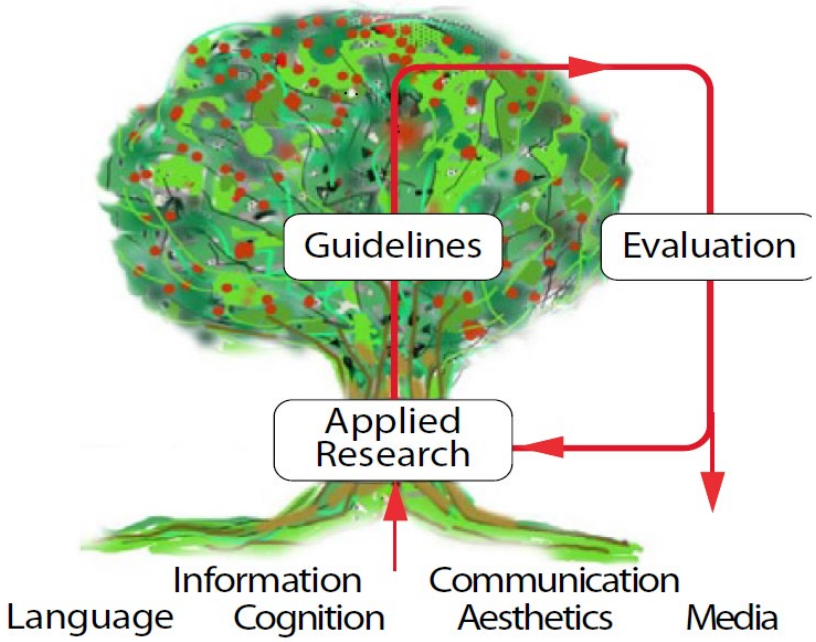


Figure 18: "Applied research. To a large extent, research in information design consists of applied research. "
(Pettersson, 2006)

Moser (2012) defended the separation of information design in two important areas of application: information visualisation and technical writing. According to the author, information visualisation works with data and the aim of the designer should be that the user/receiver interpret and understand this data or information as easily as possible. In this area of information design, a lot of interaction techniques are used, aiming to emphasize the most important information.

According to Moser (2012), the area of technical writing is the art of translating technical texts into a language more accessible to the average user/receiver. This translation of the research is important for facilitating access to the information and conclusions drawn from science. This information should be intelligible by the majority of people regardless of their degree or prior knowledge of a particular discipline or topic or their academic level. Also, in this aspect, information design is area of study and an integrative tool of great social value, by adapting the message to the public it has the potential to break the barriers that limit ability to understand and retain the message/information. Jacobson (1999) defends that "research on communication, education, learning, human factors in technology, computer interface design, and perception all bear on the use of information design. However, most of the research does not use that term, even as an indexing category".

3. Engagement in Sustainable Projects

3.1. Information Design as a align to engage

According with the IIID Public Library (2007) "the demands on the design of information are content based (specific to the circumstance about which the person wishes to gain knowledge in order to make decisions), cognitive (specific to the perception, learning and recall abilities of the person who wishes to use the information), technical (specific to the information system which makes the information available)". In a society with a high flow of information, the capacity to engage the target audience develops a determinant role in the success of communication and in the involvement of the public in an organisation's activity or cause. Engagement means being involved and committed to something willingly and by identifying with the values and activities. Information design can contribute to audience engagement through the ability to communicate information in a way that is appealing, truthful, trustworthy and creates value and a sense of involvement and belonging.

Since the function of information design is to communicate information effectively and efficiently, it can be adapted to the different target audiences to optimise understanding. It plays a very important role in terms of engagement by creating appealing content that is easy to absorb and understand. This content transmits the message clearly, in a way that creates a desire for interaction and participation in a cause, to sell something or to adopt some habits or ideas. We have seen the potential of information design to involve and engage the community with the example of Otto Neurath some decades ago. The development of technology created the opportunity to increase the influence of communication and the capacity to create content in a way that is accessible to everyone. Just like that, when everyone gets truthful and organised information expressed in a way that the general population understands, a lot of progress in important causes can be made, such as in climate and environmental protection.

In terms of engagement, technological development and new means of communication in a web environment also represent an enormous opportunity and at the same time, a potential risk. Since, thanks to the Internet, we now live in an era of enormous flow of information, the truth is that we have more information about the causes, organisations, values, and ideas with which we want to engage. The democratisation of information, enhanced by social networks, brings both responsibility and opportunity. On one hand, the need to verify the veracity and reliability of the source becomes essential. On the other hand, it creates a real opportunity to reach a huge number of people and change and influence mentalities. Information design is a powerful tool to change mentalities and behaviours. When "used by organizations can work directly in the change of the mentality and influence of choice of the people and with it, to influence their behaviour

and direction. The information design works the message that is transmitted from the sender to the receiver" (Fox, 2019). This influence can be positive or negative depending on the aim of the communication and the transmitter and the content that is communicated. The potential of the Internet of things and the possibility of reaching a huge number of people in real time is a tremendous opportunity to engage the community and an enormous responsibility for each communicator. It increases the importance and need of information design in order to boost the capacity to focus on proven information in many areas and the aim to transmit and adapt this information to the target group.

3.2. The importance of Information Design in the engagement of the community in sustainable projects

Dawood (2019) defends that "designers of all fields have a responsibility to contribute to helping the climate change crisis in some way – whether through upcycling new mobile phones through old components, sourcing biodegradable materials for furniture and packaging, or helping to spread a message through effective graphics". The truth is that the fight against climate change will only be won, when all people engage in sustainable causes, activities, and habits. This engagement needs reliable information created by experts and adapted or translated in such a way that anyone, regardless of age, education or language, can understand it. Furthermore, this information needs to be adapted and transmitted through different media, which requires working with information in different formats. This is the job and responsibility of the information designer. Using information design as an engagement tool for environmental and climate protection is a huge asset worldwide.

Fischera, et al. (2021) defends that communication "coordinates human actions to create social meaning, significance, and shared reality" and not just to transmit information. It works with any topic, area or information that must be communicated. Using it in the context of sustainability means that we can use information design to communicate information about sustainability in a better way making it understandable to the target audience. This is done by giving them all the information that enables them to take conscientious decisions and to engage in projects with which they identify themselves. Kosara, et al. (2009) affirms: "Coming from a governmental organization (Organisation for Economic Cooperation and Development, OECD), the most obvious way I see in which data visualization can change the world is through transmission of knowledge Data Visualization and Infographics in Visual Communication Design Education at the Age of Information from experts to the people. If all citizens had perfect information each time they decided, our economy and society would be stronger. People could have access to the same quality of information that their elected officials use when making policies".

According to the Environmental and Energy Study Institute (EESI), one of the six most important framework aspects for effective climate change communication is the use of the most effective visual communication (Laporte, 2019). In the context of sustainability, due to the undeniable urgency of changing mentality and attitudes towards the lifestyle we have been living in the last few decades, information design gains paramount importance. "As societies around the world grapple with increasing challenges to environmental sustainability, questions about what makes knowledge actionable, how we design and fund programs to incentivize it, and how we evaluate the outcomes of its use and societal impact are more relevant than ever" (Mach, et al., 2020).

There are different areas that have a greater need for information design, either because of urgency, because of the complexity of the message or because of the difficulty in reaching the target audience. Climate and environmental protection have now three big realities that have to be considered: it is urgent to act, the message is not easily understood by society in general and the target audience is too diverse, which means that not everyone is willing or able to retain the message.

Environmental and climate protection have in recent years gained a prominent place in the media and are much more present in the lives and consciousness of most people worldwide. However, as in practically all areas that question our way of life and standards of living, this great awareness has also generated many doubts, insecurities, fears, and conspiracies. This fact, combined with the age of information and technology in which we live, increases the potential for the emergence of a great deal of information without scientific basis or truthfulness, and generates a lot of social confusion.

The next point is the complexity of the message. Many citizens do not have the necessary conditions to assimilate messages as complex as CO_2 emission values, energy expenditure calculations, the possibility of implementing car-free cities, the necessary compensation in terms of oxygen, etc. These messages are often conveyed by experts, who use technical terms and uncommon language or by means that are not very visual such as texts and books. The creation of visual content, with simpler language, with Infographics and icons, videos, animations and so many other options, enhances the understanding and retention of complex messages, as is the case of climate and environmental protection. "We talk to graphic, product and industrial experts about the responsibilities the industry has in helping to save the planet, from designing persuasive visual campaigns through to better public transport and car-sharing schemes " (Dawood, 2019).

Information design is increasingly used in areas that present this complexity of translating technical and/or scientific information into general knowledge. An example of this is the use of Infographics in medicine: "Had there been no Infographics, interpreting and conveying complex

data and information would not have been so easy. Infographics are such a powerful communication medium that, not only the IT sector, but also unusual sectors like the medical sector have adopted Infographics. And why is that? Because it can magically transform intricate information for doctors or patients into interesting graphics that are engaging and easy to comprehend. As we all know, medical information can often be difficult for a layperson to understand, and doctors can easily explain this complex information to them through engaging Infographics" (Chokshi, 2021).

According to Vestberg, President and CEO of Ericsson, in the Report "How Information and Communication Technology can Accelerate Action on the Sustainable Development Goals (SDGs)" and "Information Communication Technology (ICT) offers an incredible platform for achieving the SDGs. Every goal—from ending poverty and halting climate change to fighting injustice and inequality—can be positively impacted by ICT. As we suggest in this report, the digital revolution currently underway is paving the way for an Age of Sustainable Development—a profound transformation of society where technology is a key contributor to human and planetary wellbeing" (Ericsson and Earth Institute at Columbia University, 2016).

When stakeholders are engaged, there is a greater likelihood of collaboration, activity support and cooperation (Stocker, et al., 2020). The need for environmental and climate protection has been the subject of much scientific research worldwide, which represents a huge volume of information related to a subject that is not known by everyone. Technical terms, complex language, huge volumes of information, calculations and statistics are some examples of data resulting from research that should be communicated to the community at large. This communication between scientific researchers and society and community is an issue that information design can solve, transforming this information into graphics, Infographics, videos, animations, or equivalent communication methods, so that it is accessible and understood by the community at large and often in an international context. A sign of this importance of cooperation and engagement by society and the international community is the adoption of the 17 Sustainable Development Goals by the United Nations (UN) in 2015. The SDGs have as their main objective the involvement of international entities "eradicating poverty, improving living conditions and promoting peace". (Nos-Aldás, et al., 2021) This is a huge challenge from a communication's point of view since factors such as language, culture, history, knowledge, age, environment, and access to information must be considered in the information design and structuring process. The SDGs have enormous potential and importance from the point of view of social protection and development and environmental defence, as both areas are inevitably interconnected, as advocated in the 2030 Agenda for Sustainable Development "there can be no

sustainable development without peace and no peace without sustainable development" (Zuber, 2016).

In the 70s UNESCO embraced the reflection of a lot of countries about a *New World Information and Communication Order*, this was articulated in the MacBride report in 1980, on the importance of communication and media for global development. It was one more proof of the importance of communication for the development of the society and to the society itself (Nos-Aldás, et al., 2021). After that, the role of communication in promoting development started to be discussed and studied. In 1990, because of two World Wars, more people-centred politics were introduced by the United Nations Development Report and at the same time the United Nations considered the need for sustainable development in 1992 at the Conference on Environment and Development, from United Nations (Nos-Aldás, et al., 2021).

Nathan Shedroff affirms that "Insight is what is created as we add context and give care to both the presentation and organization of data, as well as the particular need of our audience." The focus is again on the target audience and on processing and organising the information to be communicated, with the aim of meeting the audience's needs. This is the key to engagement, producing content based on the expectations and needs of the audience, adding value in a direct, simple, and transparent way (Baer, 2009).

According to Baer (2009), to understand the audience and engage people through information design it is important to ask: "What does the audience need to know and why do they need to know it?" Based on these questions, the information designer can develop the information focused on emotional and physical requirements. How can the information designer persuade the audience to respond emotionally to the information? Does he/she aim to influence, inspire, or motivate the audience? These are some important questions in the process of defining the emotional requirements of the audience. As for physical requirements, the designer should try to anticipate the physical context and reality of how the audience will receive the information. The creation and development of personas is of huge help to this process of engagement. The study and creation of characters or personas and the scenario or environment in which each one of them lives, helps the information designer to work on information and communication focused on reaching a certain person or audience and consequent engagement.

Technological development, especially since the 90s, and the massive use of the Internet has also created opportunities for participation and engagement of society in general. Nowadays, information design has at its disposal numerous digital tools and channels where it can communicate directly with the audience or target audience and receive immediate feedback. This direct and close communication with the audience and the opportunity to receive feedback greatly enhances the opportunity to engage the target audience and develop more appealing and

dynamic designs. Websites, Apps, videos, animations, and computer games are some examples of information and message delivery mediums and at the same time engagement opportunities and platforms. Computer games are an example of the opportunities that digital development provides in terms of engagement and e-participation (Hassan & Hamari, 2020). Websites, today often substitutes for physical spaces for companies, associations and organizations, have been around for several decades, but remain current and essential for the structuring and transmission of institutional and business information. The social dependence on the Internet and digital in general gives information design the task and importance of developing, creating, and organising content for websites, communication and target audience engagement. The transmission and communication of information in a web environment also represents an important factor from the point of view of social inclusion (Hassan & Hamari, 2020).

Advances in technological development are very favourable to information design and communication because they make it possible to reach an enormous number of people worldwide. It is a major advantage for every area of information, but for sustainability in particular it is a very important step towards the necessary changes. In the Report "How Information and Communications Technology can Accelerate Action on the Sustainable Development Goals" of 2016, it was argued that "the key accelerator technology that can get us off the BAU path is Information and Communications Technology (ICT)— notably mobile broadband—which has demonstrated the fastest, most global technology uptake in human history. In future rapid innovation around the Internet of Things, advanced robotics, artificial intelligence and big data promise further substantial gains across the entire global economy" (Ericsson and Earth Institute at Columbia University, 2016). This opportunity also represents a challenge and several issues were identified, the solution of which relies on the collaborative work of governments, industry and other stakeholders. These issues can compromise the communication and transmission of information in the digital context and they include: "Privacy and surveillance, Cybersecurity, Loss of human skills, Possible public concern about health effects, electronic waste and carbon emissions, Digital exclusion and Child protection and the Internet." (Ericsson and Earth Institute at Columbia University, 2016). According to the same source "the 2030 Agenda for Sustainable Development" fundamentally recognizes that "the spread of information and communication technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies"

This growing attention given to the importance of adopting more sustainable measures by the community and, mainly, by companies and governments, has developed a movement called "Greenwashing". Greenwashing happens when a company or organisation invests time and

money in presenting a sustainable image that does not correspond to reality. In essence, it is when the budget could be invested to achieve sustainable results but the focus is on the associated image and sales. According to Corporate Climate Action | Net Zero (2022) it is nowadays important to "embark on a carefully planned, science-based climate journey". For that it is necessary to measure the footprint and risks, to set roadmap and create targets, to reduce the footprint, to finance climate action and to communicate and lead, how is this possible, see in Figure 19.

Figure 19: The reason why embarking on a carefully planned, science-based climate journey is so important today. (Zero, 2022)

By measuring, it is possible to understand how big the carbon footprint is and the possible climate change risks. It is therefore important to develop sustainable strategies and targets in order to know which direction should be taken and consequently define a budget to reach this target. The focus should be to identify and define the short and long-term steps to be taken in order to reduce the footprint and reach the main goal. The finance of climate action is important to compensate eventual emissions that cannot be addressed at this time. Finally, communication is important in order to transmit clear messages and manage the reputation so that it matches with the action of a company or organization and to report this feedback to the stakeholders (Zero, 2022).

3.3. Usability Test as a tool to measure engagement

There are several ways to measure web engagement: recording the number of visits to websites and social media pages, evaluating the conversion of these visitors into sales, the loyalty of these visitors by recording the channels and newsletter subscription rates and through interactions such as shares, "likes" and comments. There are, however, several factors that contribute to the web engagement rate, namely the design, the periodicity and timing of shares, the shared

content, the design of that content, the channels used and the budget, among several others. To evaluate the effectiveness and efficiency of information design in terms of engagement there are usability tests. Adams (1999) defends that usability testing can highly improve the quality of the information because this method gives the information designers the chance to invite different members of the specific target groups or audience, who can carry out a preliminary evaluation of the information design elements.

User engagement means getting the user's attention and keeping this attention in order to present all the information in a way which the user finds interesting to read, see, or listen. To reach this goal, it is crucial to keep the user focused on a page, screen, button, or any other element used to communicate a message and that helps to identify the target of the organization or communication. Focusing the user´s attention on the task and keeping the user emotionally connected with the information is crucial, nowadays this is called "user engagement". The word "engagement" gains more importance when it is used in social media contexts to evaluate or when the users are responding to our communication (through likes, views, shares or posts). The design of a website should be done in a way that allows the user to easily find what they are looking for. This is called desirability and it is gaining more importance, this is due to the increase of information received every minute which reduces the patience and time the user is willing to spend looking for something on a website. Furthermore, the reality is that if the user does not find the information they are looking for on a website in 2 or 3 seconds, they will use another source to find this information. Fulfilling the needs and desires of the users is an indirect way to give them tasks and keep them engaged in the information or website. To engage a user in a piece of information, message, organization or cause, it is essential to deliver emotional value. Emotional value is what a user gets from an experience and focusing on this point is crucial in order to design the information in a way that will engage the user. Adding emotional value to a message and answering the needs of the user through indirect tasks, the designer can create motivation. The motivation of the user is key to the engagement of the user in a web context and of the community or target group in a general environment (Spillers, 2014).

The ISO 9241-11:2018 describes that the "extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" and explains that "usability is a more comprehensive concept than is commonly understood by "ease-of-use" or "user friendliness" (ISO, 2018).

Not only does usability evaluate if users can perform tasks easily, but also measures their satisfaction in the use of the website. Because of that, the website also needs to be engaging and aesthetically pleasing (Interaction Design Foundation, 2018).

According to Whitney Quesenberry, the UX and Usability Expert and former President of the Usability Professional's Association (UXPA), for a product to be usable there are five important criteria: effectiveness, efficiency, error tolerance, ease of learning and engagement (Interaction Design Foundation, 2018).

As is possible to see on Figure 20, effectiveness refers to the fact that the user manages to complete his objective with a high degree of accuracy. Efficiency refers to the time that a user needs to find what they are looking for or to complete a task. Error tolerance is about minimizing errors and ensuring that the user can simply restore from an error and continue the task. Ease of learning is about how easily the user can learn about the website or eventual changes. Engagement is about the feeling that the experience in a website evokes in a user. It should be pleasant and gratifying to use and aesthetics is just one of the factors that can influence the engagement of the user. Engagement is about looking nice but also right. According to the Interaction Design Foundation (2018) "proper layouts, readable typography and ease of navigation all come together to deliver the right interaction for the user and make it engaging" (Interaction Design Foundation, 2018).

Dimension	Definition
Effective	How completely and accurately the work or experience is completed or goals reached
Efficient	How quickly this work can be completed
Engaging	How well the interface draws the user into the interaction and how pleasant and satisfying it is to use
Error tolerant	How well the product prevents errors and can help the user recover from mistakes that do occur
Easy to learn	How well the product supports both the initial orientation and continued learning throughout the complete lifetime of use

Figure 20: Dimensions of usability, according with Whitney Quesenbery. (Barnum, 2011)

There is a difference between "usability" and "Usability". According with Redish (2004) "big U usability is everything that goes into creating a product that works for people. It encompasses the entire process and includes all the techniques in the usability specialist's toolkit. Little u usability is associated with usability testing" (Barnum, 2011).

Usability testing is a method that allows the designer to understand how a website stands in relation to all these criteria. Barnum (2011) defines Usability Testing as "the activity that focuses on observing users working with a product, performing tasks that are real and meaningful to them." According to him, the fact is that some things have changed in the way usability testing is done, for example, the opportunity to do a test without observation, however, the definition

remains unchanged. He subdivides usability testing in two groups: formative and summative testing. Formative testing is usually done when the product is in development, to diagnose or fix problems and is typically based on small studies and interactive tests. Summative testing is usually done after the product is finished, to establish metrics or to validate that the product satisfies the demands, and generally requires higher numbers for statistical validity.

The number of tests that need be done for the usability testing to be successful is the subject of substantial research. Until the 1990s, the cost and the time necessary in conducting a usability test, testing between 30 and 50 people, started to be impossible to maintain. However, at the beginning of the 1990s, a lot of research started to be done about this topic and Nielsen and Landauer proved that effective testing could be done with a smaller number of users (Barnum, 2011). According to Nielsen and Landauer (1993) "the maximum cost-benefit ratio, considering the costs of testing and the benefits from this testing, is achieved between the third and fifth participant", how this is possible, see Figure 21 and Figure 22. Later Nielsen (2000) reaffirmed this study and wrote in an article on the website Nielsen Norman Group that "elaborate usability tests are a waste of resources. The best results come from testing no more than 5 users and running as many small tests as you can afford."

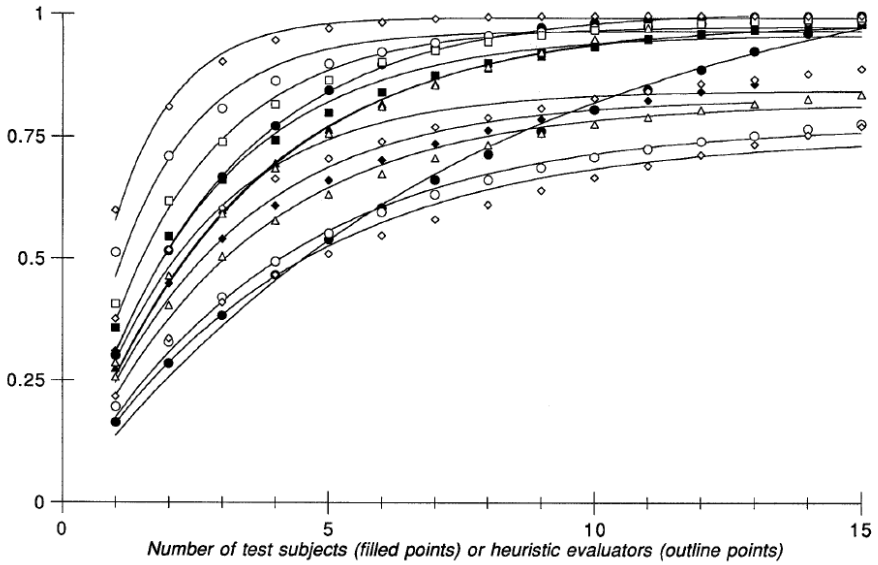


Figure 21: The curve of usability testing from Nielsen und Landauer (1993)

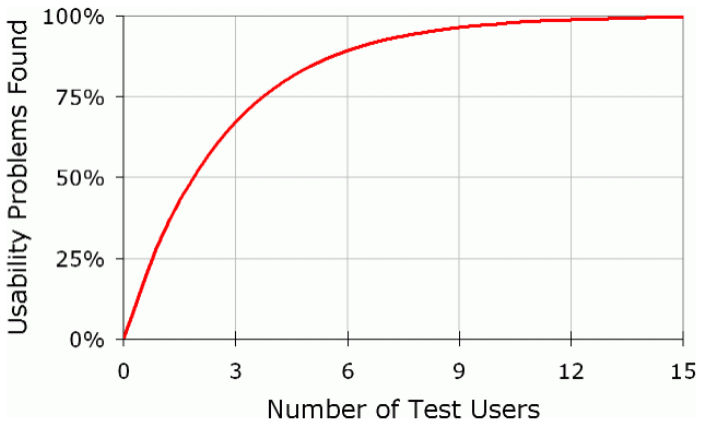


Figure 22: A representation of the curve of usability testing from Nielsen (2000)

According with Nielsen (2000), the curve shows that "zero users give zero insights" but after the first usability test almost a third of the knowledge about the usability of the design is already identified. According to Nielsen (1993), with five results, 85% of the information that it is possible to get from a usability test is already identified. For this reason, Nielsen (1993) defends that after the fifth test all the information will be repeated and will not represent a considerable impact on the study.

This study from Nielsen and Landauer (1933) became very famous and even though it was carried out almost thirty years ago, some authors still write about their conclusion. Barnum (2011) in the book Usability Testing Essentials considers it essential to explain this study at the beginning of the book because, in her words "I find that I frequently need to explain how — and why — usability testing works when you see only a few users." Barnum (2011) defends that small studies should be done for formative testing and larger studies for summative testing. Large studies can be important when the product is finished because "the results are generally used to produce metrics, such as success or failure on tasks, average time on task, completion rates, error rates, optimal navigation, search results, and other measures" (Barnum, 2011). Large testing implies a higher budget, human resources and time available for their elaboration, so in each situation the number of tests to be performed should be considered by also taking into account the result to be achieved and the associated cost-benefit.

Nielsen (1993) considers reliability and validity to be essential points for usability testing. Reliability is about the number of users or tests and the validity is about the method and the environment where the test is conducted.

In 1993 Nielsen defended that a usability testing could be done in different environments and not just in the traditional usability laboratory.

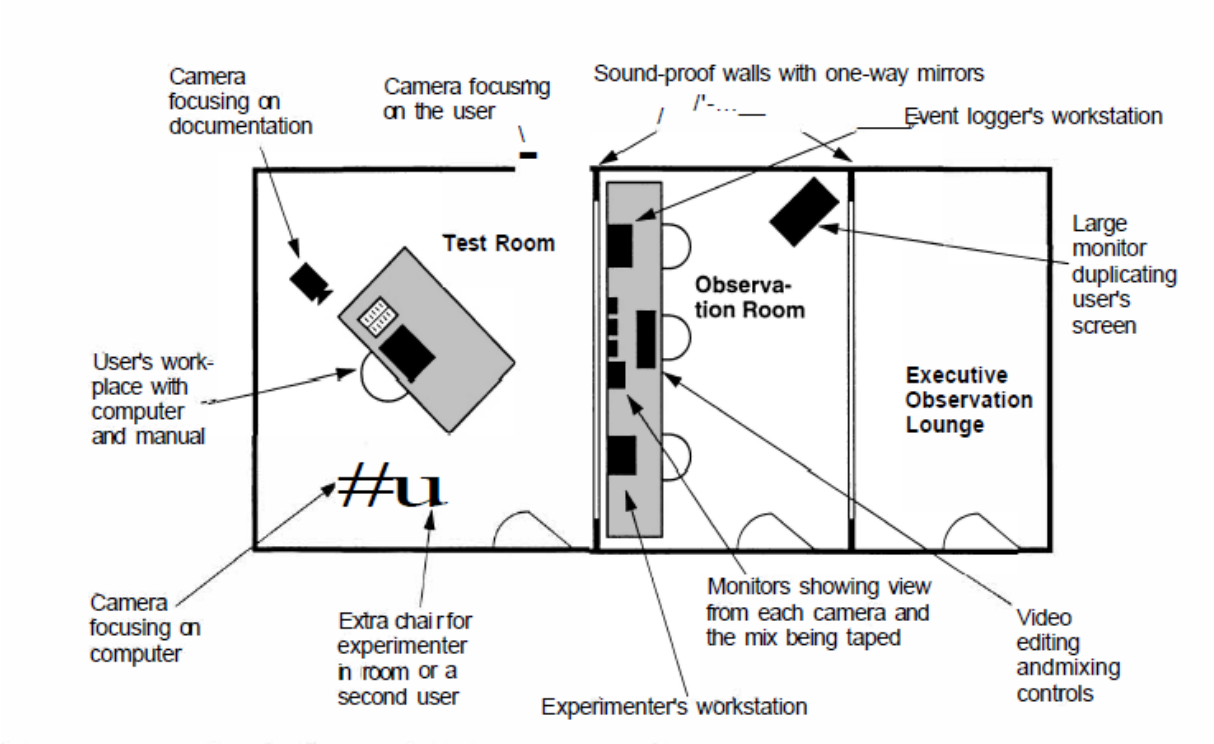


Figure 23: A typical usability laboratory. (Nielsen, 1993)

Nielsen (1993) considers it possible to transform a normal office into a usability laboratory, this is achieved by transporting the material (portable usability laboratory) and even the automatic usability testing method, like the usability kiosks. Barnum (2011) considered the possibility of conducting usability testing remotely, thanks to the development of Internet and technology, which can be carried out synchronously or asynchronously. Remote usability testing permits the reaching of users and target public that would otherwise not be considered in the traditional usability testing laboratory. It also reduces the costs of usability testing, however it also makes substantial changes to the environment and contact. The choice of the usability test environment and methodology must be decided considering the differences between the different environments and the impact that the characteristics of each one will have on the development of the test and consequently on the results (Barnum, 2011). On the other hand, according to the same author there are some benefits in conducting a test in a Lab, namely the fact that it is always ready to use, saving preparation time and transportation of materials; a Lab gives a superior impression of professionalism; it can be physically improved; and can be created in such a way that an ideal test environment is created, leading to fewer external influences in the usability tests.

When testing in a lab, there are basic requirements like a suitable room, a desk and a computer. Furthermore, it is useful to have a camera to record the entire session, a microphone to improve audio quality, eventually another camera to get different views of the session and a second computer or a notebook to take notes. If the test is done in a two-room lab, it is necessary to have headsets, telephone or intercom and white-noise generator. In addition to these basics, there are some other types of equipment that would improve the quality of the usability tests, for example eye-tracking equipment (registers where each user was looking and for how long), equipment for testing mobile devices and equipment for testing Interactive Voice Response systems (lets the expert hear what the system says) (Barnum, 2011).

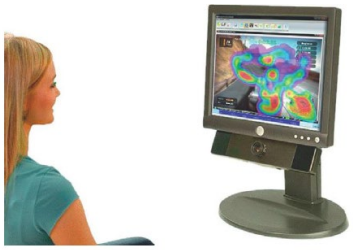


Figure 24: Eye-tracking device (Barnum, 2011)

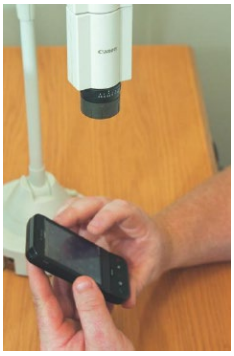


Figure 25: Equipment for testing mobile devices (Barnum, 2011)

Figure 26: Equipment for testing IVR systems (Barnum, 2011)

For a remote usability test there are certain requirements, such as a virtual room (and a platform that allows it), Internet connection and microphone. These requirements apply to both the expert and the user. It is also possible to make use of other devices to carry out remote usability tests, such as a web camera or cursor detector.

3.3.1. Procedure of a usability test

To ensure that the greatest number of conclusions are drawn from a usability test, it needs the appropriate preparation. The objectives to be achieved by the usability test must be clearly specified, the methods must be chosen according to the characteristics of each product or service to be tested as well as its target audience. The tasks to be performed by the test subjects must be adequate and clearly communicated, and the evaluation of the results must be clear, impartial and relevant to each case.

According with Moser (2012) the most important steps in preparing a usability test are:

1. Determination of the aim and purpose of the Usability Test: Defining the goal you want to achieve from the usability test and the purpose of the usability test is the starting point for preparation. Defining the objective consists of having a clear understanding of what you want to achieve. The Usability Test should be planned with consideration of the results you want to achieve and the main points you want to focus on. Normally, the target functions of the test are developed with the intention of, through the usability test, testing their efficiency and effectiveness in terms of user interaction. Moser (2012) gives the example of checking whether a newly implemented search function is understood by the user and whether the user can perform the task quickly.
2. Research design: Focusing on the study so that it fits the problem, the project, the time and the available resources is part of usability test planning, more specifically regarding the interaction with participants. This would involve the following: defining the schedule, defining the location and defining the target audience that will be invited to participate in the study. Moser (2012) gives the example that, after the implementation of the new search function through a usability tour with five to ten usability tests, this study can be conducted with five to ten users/participants.
3. Recruitment of participants: The participants in a usability test should be chosen in such a way that all target audiences of interest are represented. For qualitative studies, five to ten participants are usually sufficient, although for quantitative studies as large a sample as possible is recommended. After each participant test, a break should be planned for reflection, analysis and evaluation of the observations made. You should also invite about a third more participants than the intended number, in case there are last minute cancellations.
4. Preparation of the evaluation: A prototype, a set of tasks and a scenario where all tasks are considered in context should be carried out. Also, the rules of the test should be defined, as well as the interaction with the participants. Pre-tests should be carried out to test the compliance of the documentation and approach with the pre-established rules. The test documentation should be clearly communicated to each participant, particularly if video, notes, or audio recording are to be made, and participants' permission should be sought.
5. Evaluation: To carry out the evaluation, the whole context of the test must be explained to the participants, as well as the tasks that will be performed. It is observed how they can carry them out, with the help of the prototype. In formative evaluations, discussing possible points of improvement directly with the users is allowed, but in summative tests, influencing or interrupting the participants during the test is absolutely forbidden.

During each test, the participant's interface is examined step by step according to the defined rules and possible usability problems are identified.

6. Evaluation of the results: after carrying out all the tests, the data obtained must be analysed. This analysis should be done as soon as possible after the test to avoid forgetting important details. The first thing to do is to collect the data in a condensed and concise way, free of any redundant information. Quantitative data must be evaluated statistically. The usability problems found should be discussed, evaluated according to their severity and organized in a list, where also the suggestions for improvement should be added. In the end, all the information listed will lead to adapting the design and eventual creation of a new design.

3.3.2. Evaluation methods

There are several evaluation methods, but the main goal of all of them is to assess the effectiveness, efficiency and satisfaction of the user when using a certain website, product, or service. Each method has advantages and disadvantages that make a particular method ideal for specific situations. For this reason, it is important to know and study various evaluation methods in order to understand which method or combination of methods work best for each situation. The choice of method or methods should be made by considering the objectives, the state or phase of the project, the current knowledge of the product or service and the ability to access users or participants.

According with Moser (2012), evaluation methods have different quality criteria, namely: objectivity (results obtained without intervention or influence of the person doing the test), reliability (all tests performed in the same conditions) and validity (results do not contain any unintended influences and can be generated correctly).

The objectives of evaluation also vary according to the aim and purpose of each usability test:

- Formative evaluation: aims to discover as many usability problems as possible and identify points for improvement so mainly qualitative data is collected. The evaluation takes place as early as possible in the development phase and may be repeated several times until the final version of tested product or service is reached.
- Summative evaluation: its main goal is to test whether the established usability objectives have been achieved, which is why it takes place at the end of the development phase. Quantitative data is mainly used, since it is reproducible, measurable, and comparable. Moser (2012) gives some examples, such as the number of errors, the time needed to carry out a task, or level of user satisfaction. For the results to be

representative, a sufficiently large sample should be studied, although no specific number of tests needed is indicated since this need varies according to each case and its specificities.

- Comparative evaluation: compares the usability of different solution Variants. To collect comparable data, the evaluation must be carried out in similar environments and within the same parameters for each Variant and quantitative data is usually collected. This evaluation often makes use of A/B tests, especially for tests carried out on the Internet.
- Competitive assessment: compares the usability of the product itself with one or more competitor products, namely in terms of effectiveness, efficiency, satisfaction, and error rate. Due to the variety of products that can be compared, a standard task list is made and applied.

Moser (2012) distinguishes between two types of usability testing methods, empirical and analytical, performed respectively by users/participants or by experts. Product or service usability tests performed on experts are only indicative of potential usability problems, which are not certain to occur in their intended everyday use. In this type of testing, step-by-step rules are used to examine the user interface. Usability tests performed on users select a realistic sample of participants and the aim is to observe the users' action in carrying out tasks. This type of testing is much more time-consuming but provides results regarding real, not just potential, usability problems. Figure 22 shows the different types of empirical and analytical tests and their efficiency and effectiveness in terms of effort and validity. The pink circles represent tests aimed at users and the grey circles represent tests aimed at experts.

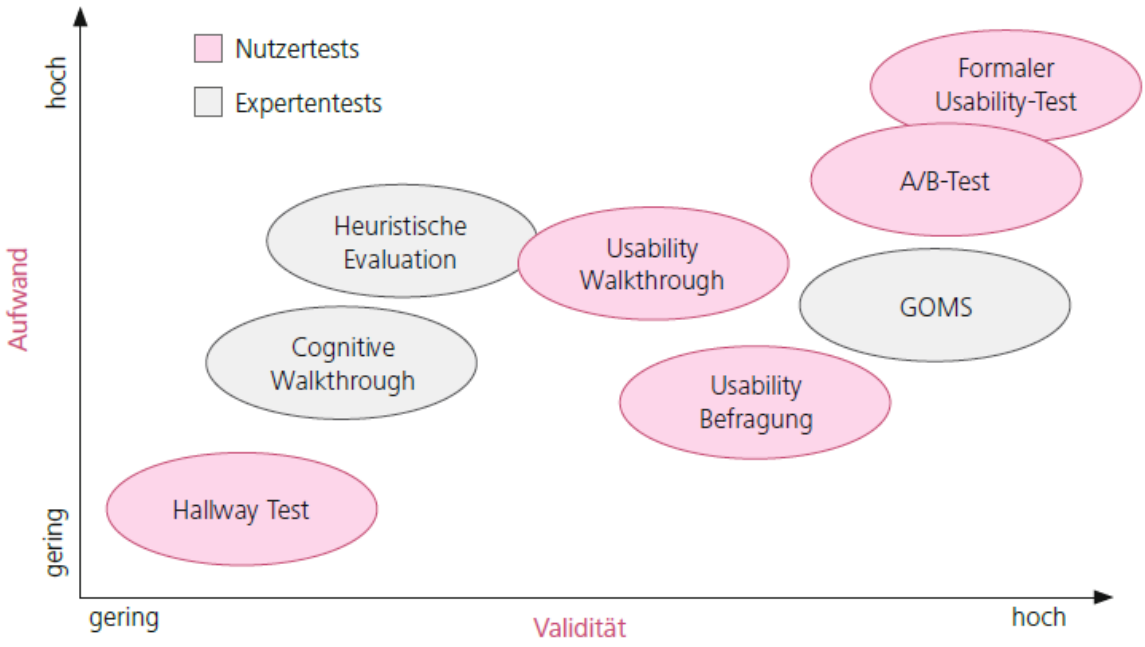


Figure 27: Effort vs Validity of different usability evaluation methods. (Moser, 2012)

In the table below the usability methods used for user testing are explained, according to Moser (2012):

Method	Explanation	Pros	Cons
Hallway-Testing	It is the most informal, simplest, and quickest method of usability. It consists of inviting the next colleague who walks down the corridor or who is in the office next door to look at the product and spontaneously asking them some questions to see if the colleague understands what they see. You can ask your colleague to think aloud, and it is important not to give any help in solving the problem. After the test is repeated with a few people, some of the biggest usability problems can be quickly identified.	Cheap	Disturbing a colleague during working hours
		Easy	Possible unavailability of colleagues
		Fast	Users are not necessarily part of the target audience of the product
		No need of external users	
Pluralistic Walkthrough	This method is carried out on both users and experts together in a workshop environment, where the scenario is created based on the existence of a prototype. Each user performs a certain task, and the result is then discussed in a group. The expert takes on the role of workshop moderator and presents the method. Afterwards, the moderator gives a set of instructions as well as the scenario and tasks to each user. The users must work through the scenario whilst making notes of how they would proceed when faced with a given task. Each user does this run-through alone in order to avoid interfering with other users. If there is any ambiguity, users can ask	Direct awareness of users' needs	Requires interaction and availability of participants
		With different users, from different areas of knowledge, the search for usability problems becomes dynamic	It is a time-consuming method

Method	Explanation	Pros	Cons
	questions at any time. After all users have completed the tasks, the usability expert presents the "sample solution" as initially envisaged by the design team. Afterwards, users can present their solutions and make comments on them. The moderator leads the discussion and asks for clarification and feedback from the users if necessary. The expert bridges the gap between user needs and technical knowledge.	Can be used in the initial phase of a project	Requires the presence of the expert and several participants simultaneously.
Formal Usability-Test	This method is used to test the usability of a product or service in an objective and understandable way. The most suitable scenario is that the participants are the target audience of that product or service. Participants are asked to perform realistic tasks and the expert observes how each participant solves the tasks. The aim of the test is to discover any possible usability problems with that product or service. The tasks are communicated in writing before each task is performed and there should be no communication between the expert and the participant during the test. Only in this way can comparable results be obtained among the various participants. The observers may be in the same room/laboratory or in a separate room and observe the participants through a camera or glass. It is important that the user interface is developed in such a way that no external help is needed during the process. This type of testing should be carried out at a later stage of the design.	Direct feedback from the target audience.	Necessary to invite external people as participants.
		Direct awareness of users' needs	More expensive.
		Longer preparation time for the test	Can only be carried out when the design of the product or service is at an advanced stage
		Huge potential for usability improvement, due to the direct and detailed feedback obtained from	A considerable investment of several hours to carry out each test individually with each participant.

Method	Explanation	Pros	Cons
		the participants.	
Usability survey	This is a quantitative method in which usability is determined via the use of a questionnaire. As part of the usability test, participants are asked several questions and the answers must be given in a numerical scale, which is the basis for the calculation of statistics. These statistics allow comparison with other tests and questionnaires as well as with normalised data. These questionnaires are usually standardised so that answers can be calculated according to this scale, but they may also contain open questions to obtain more details from the participants.	Evaluation of different aspects of usability by asking the appropriate questions. It can include asynchronous responses, saving specialists hours of work. Possibility of applying open-ended questions that enable quantitative evaluation and a more personalised and in-depth understanding of usability problems or expectations and needs of the target audience. Cheap.	Need for calculation of results after the test or qualitative evaluation of open answers. To obtain quantitative results, the sample should be considerably large (above 100 participants).

Method	Explanation	Pros	Cons
A/B-Tests	This method compares two Variants of a design, Variant A and Variant B. Participants are divided into two groups and each group is given one of the Variants. At the end, a questionnaire is administered, or an interview conducted to assess which of the two Variants was more successful. The Variants are usually shown at a similar time and environment in order to avoid as much external influence as possible. This method began to be used in marketing, through the use of email and advertising campaigns, but with the evolution of the internet, this method has also become widely used to test usability on websites. These tests are conducted in the final phase, when the Variants are already fully developed. The parameters for determining the best Variant must be very well defined and clear so that it is possible to measure the success of the test. This method is often used in combination with other evaluation methods because only a small change can be analysed per test.	Measure of the real behaviour of users without falsification.	High effort invested in developing Variants of ready-made solutions.
		Testing two Variants simultaneously.	Only two Variants can be compared.
			It requires a high number of participants.

Table 2: Usability Methods, according with Moser (2012)

Figure 28 shows a table from Nielsen (1993) with the most relevant usability methods and the main advantage and disadvantage for each one, as well as the ideal number of users needed.

Method Name	*Lifecycle Stage*	*Users Needed*	*Main Advantage*	*Main Disadvantage*
Heuristic evaluation	Early design, "inner cycle" of iterative design	None	Finds individual usability problems. Can address expert user issues.	Does not involve real users, so does not find "surprises" relating to their needs.
Performance measures	Competitive analysis, final testing	At least 10	Hard numbers. Results easy to compare.	Does not find individual usability problems.
Thinking aloud	Iterative design, formative evaluation	3-5	Pinpoints user misconceptions. Cheap test.	Unnatural for users. Hard for expert users to verbalize.
Observation	Task analysis, follow-up studies	3 or more	Ecological validity; reveals users' real tasks. Suggests functions and features.	Appointments hard toset up. No experimenter control.
Questionnaires	Task analysis, follow-up studies	At least 30	Finds subjective user preferences. Easy to repeat.	Pilot work needed (to prevent misunderstandings).
Interviews	Task analysis	5	Flexible, in-depth attitude and experience probing.	Time consuming. Hard to analyze and compare.
Focus groups	Task analysis, user involvement	6-9 per group	Spontaneous reactions and group dynamics.	Hard to analyze. Low validity
Logging actual use	Final testing, follow-up studies	At least 20	Finds highly used (or unused) features. Can run continuously.	Analysis programs needed for huge mass of data. Violation of users' privacy.
User feedback	Follow-up studies	Hundreds	Tracks changes in user requirements and views.	Special organization needed to handle replies.

Figure 28: Usability Methods, according to Nielsen (1993)

Each method of usability test evaluation has pros and cons, and in most cases, when resources and budget allow, the ideal solution is to combine different methods. The focus during the test preparation phase should be on the purpose for which a particular test is being performed. The elaboration of tasks and questions should be done considering what is intended to be tested through the usability test and the choice of methods should also be customized and applied to each case.

4. Case study of Energieavantgarde Anhalt e. V. (EAA)

4.1. Presentation of EAA

The EAA was first conceived in 2012 and it was an initiative of the Bauhaus Dessau Foundation together with Ferropolis GmbH. It quickly became an alliance of people who founded the organisation in January 2015.

EAA is today an alliance of committed citizens, municipalities and districts, companies, and institutions as well as regional and non-regional partners and institutions working in the Anhalt-Bitterfeld-Wittenberg region for a sustainable transformation of the local energy system.

The main goal of the EAA is to find solutions that make it possible to produce and consume the regions' energy in a more sustainable and environmentally friendly way. This goal is achieved by cooperating on various projects funded by national and European institutions. The projects deal with different areas of activity but always have the same goal: environmental and climate protection. For this reason, the EAA has many stakeholders, partners, and audiences, it therefore becomes essential to work on information and adapt it to the different target audiences. One of the biggest challenges during the almost ten years of EAA's work has been precisely the involvement of the different target audiences and the engagement of the community in the proposed activities and changes.

The Anhalt region has the tradition of being at the forefront. Since the times of Reformation, Enlightenment and Modernity, important cultural transformations have paved the way for technical and economic innovations. At the beginning of the 21st century, on the threshold of a post-fossil age, the EAA is the first organization/institution in this region of Germany to launch an attempt to supply itself largely with renewable energy without state subsidies, to actively and self-determinedly help mould the energy transition and to become conscious prosumers as producers and consumers.

EAA is a non-profit organisation, so all projects developed are funded by external entities. The initiative's first steps were possible thanks to the support of the state government of Saxony-Anhalt. Since the foundation of the organization, the work of EAA has been supported by the *Innogy Stiftung für Energie und Gesellschaft GmbH*, which emerged from the *RWE Stiftung für Energie und Gesellschaft GmbH* in 2016, and the Haleakala Foundation, as well as by other project-related partners and sponsors. These include the Federal Ministry of Education and Research of Germany within the framework of the Social-Ecological Research Programme and the European Union. Some support also comes from the EAA membership, about thirty members.

The EAA is run by a management team of six people and a worker's team of seven. The organization is growing and developing its image, digital positioning, and subsequent increment in terms of regional recognition and action.

4.2. The importance of Information Design for EAA

Due to the different projects developed by the EAA, the organisation also has different target audiences to whom it needs to communicate different information. This information is often technical and difficult to translate into the language of the general community. However, this communication between EAA and the community as well as all stakeholders of the different projects and areas, is essential to ensure the implementation of the regional projects to which it is committed.

This awareness of the need for and importance of information design for the EAA arise from the need to engage the community. This engagement is mainly done in the digital environment, which is why communication through the website and social media is currently a major focus but looking at the organisation as a whole and engaging the community through information design goes beyond the digital.

The complexity of adapting scientific messages and other complex topics in an everyday environment to the general population of the Anhalt region is a big challenge for the EAA. Information design emerges as the ideal solution, not only by its ability to design the message but also by studying the target audience and adapting the message accordingly. It can then communicate this message effectively through the different communication media.

The variety of target audiences and the subsequent necessity to diversify the messages and information, most of which include technical and scientific content, effectively turn communication between the organisation and the community a challenge. This challenge becomes even bigger as EAA becomes aware that the effectiveness of its work is closely related to the success of the communication with the target audience and of the engagement of the community. Communicating regional results, obtained by the professionals of the EAA and the stakeholders, and finding solutions to resolve the huge climate and environmental problems is the only way to demonstrate the importance of the engagement and teamwork between EAA, entities and the community. Showing EAA's work, in the change of the regional energy system and the impact that this change, not just in terms of energy but also in terms of mentality, habits, reality, and behaviours of all will have on an environmental and climate level is the main goal and task of information design in EAA.

Nowadays, we live in an undeniable race against time regarding climate and environmental protection, the EAA's mission becomes even more important and decisive not only from an environmental perspective, but also social and economic. The three pillars of sustainability are thus present not only in the EAA logo, but also in the life of the organization, in its actions and consequently in the Anhalt region and all stakeholders involved. EAA's biggest visual communication or media needs are essentially in a digital environment, this is due to the digital work and the variety of stakeholders at a national and international level. Some of the examples for which the EAA needs information design are:

- Graphic translation of scientific texts (Infographics)
- Text and article layout in an appealing and dynamic way
- Transmission of key messages in video
- Creation of content for social media with the main objective of raising awareness in the community of the Anhalt region
- Advertising the EAA's work in a simple and effective way
- Creation of a cohesive and appealing digital images, which encourage visits from different audiences, increasingly attracting the younger population to the life of the organisation (redesign of the website).

4.3. Application of Usability Tests on the Website of EAA

4.3.1. Purpose of the test

Why is community engagement a challenge for the EAA? Does the user of the EAA Website feel engaged with the sustainable projects undertaken by the organisation? Can information design, used as a means of communication, contribute to the engagement of the target audience? Is it possible to assess the impact of information design on the engagement capacity of the EAA through a usability test of the EAA Website? Is the way information is currently communicated on the EAA website the source of the problem of low engagement? These are some of the questions that are intended to be answered through a usability test conducted on the EAA website.

In this master thesis, the impact of information design as a means of communication is being studied. To assess this impact, engagement in sustainable projects must be observed, which is a challenge for the EAA. The evaluation of user behaviour on the EAA Website can be the key to accurately assessing engagement in EAA's community projects. The usability test was the methodology chosen due to its comprehensiveness and flexibility and for the possibility of combining several methodologies that can be adapted according to the objective of each test.

This accomplishes more than simply testing the usability of the EAA website. Taking as an example the webpage of a current project, the combination of methodologies involved in the usability test has the main objective of analysing the behaviour of the user and their sense of engagement and motivation to participate in the project in question.

Asking the right questions in order to get the necessary answers is the key to usability tests. The main goal is to understand how the current website can be worked on so that it meets the expectations of its users and in this way enhance engagement and above all to understand if the engagement problem is related to communication and if information design can solve it or contribute to its resolution.

4.3.2. Defining of the target audience and recruitment of test persons (users)

The target audience of the EAA website is very diverse, from the regional community to public entities, students and educational institutions, associations, organisations and regional and national companies. This is, as mentioned, one of the biggest challenges of the EAA, the communication of information to the various audiences. Still, the greatest current need in terms of engagement is with the region's community, especially with younger target audiences. For this reason, the target audience for the usability test was defined as people aged 18 to 65 with a connection to the Sachsen-Anhalt region (living, working, studying, or actively participating in the region).

An invitation was sent via e-mail to EAA board members, association members and other contacts meeting the requirements of the target audience. A post was also made on the EAA's social networks, Facebook and Instagram. Any person who actively participated in the organising of this usability test and/or the material made for this purpose, namely EAA employees, were not considered to be reliable for this usability test. The first ten positive reactions to the invitation were then considered as test persons and each usability test was scheduled individually.

Pre-tests were conducted with EAA workers and volunteers, but the results were only used for the improvement of the final version of the usability test and are not considered for validation or presentation in this master thesis.

4.3.3 Creation of personas

Persona 1

	Anna, 30, is a young German environmental activist. She lives in Dessau-Roßlau and works in Berlin at a renewable energy start-up. She is an environmental engineer, married and has no children. She has a comfortable life, lives in a two-bedroom flat and enjoys walking in nature. She always tries to get involved in regional activities for climate protection, enjoys volunteering and being around inspiring people. She has two dogs and is vegetarian. She likes animals and is mainly concerned about the protection of endangered species. She does not like technology but uses it to her advantage, spending some of her free time researching new ways to help the environment.

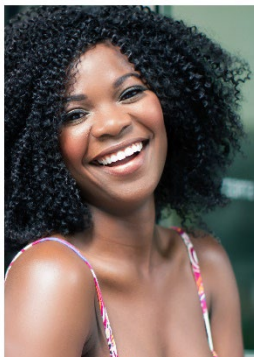
Persona 2

	Pedro is 35 years old, Italian and has lived in Halle (Saale) since he was 18, when he moved to study. He fell in love with the city and decided to continue living and working there. He is a computer engineer and is concerned about climate issues, which is why he founded his start-up developing applications and software for environmental companies. He has worked with several NGOs and has also cooperated with the EAA, with which he now has a close relationship and participates whenever possible in regional projects. He is single and lives in a shared flat, built with sustainable materials. He likes to travel and conduct sustainable construction workshops around the world, experience that he shares on social networks, where he has many followers and where he shares his sustainable lifestyle.

Persona 3

	Paul is 68 years old, retired, married, father of one daughter and grandfather of two grandchildren. He was an engineering professor at the Hochschule Anhalt and worked in the civil service in Dessau. Although he does not live in the region, he is active in various regional projects. His hobby is photography, and he holds a few exhibitions a year, with a special focus on CO2 emissions. This is a voluntary work that he started when he was young and which he sees as increasingly timely and necessary due to global warming. He knows several EAA board members and is a member of the organisation. However, he is not very active in EAA projects, mainly because he is not sure how he could be useful for the work of the organisation.

Persona 4

	Tamara is a student of social education at Hochschule Merseburg, is 21 years old and lives in Leipzig. Despite living far from Dessau-Roßlau, she learned about the EAA through Instagram from a friend who works at the organisation. She is single and lives with two cats. She is finishing her degree and is looking for opportunities to get actively involved in sustainable projects to contribute to the environmental cause. She has done some research online and found several national and international NGOs that caught her attention, but she would like to have a closer relationship with the people working on the project and therefore would prefer a regional NGO. The EAA seems to be a good alternative, but she would like to know more information about the projects carried out by the institution and how she could collaborate.

4.3.4 Choose of the Usability Test methodologies

The main goal of conducting usability tests on the EAA website is to analyse the impact of information design as a means of communication and on the engagement in sustainable projects. To achieve this goal, it is necessary to combine several methodologies so as to better collect data

that allows qualitative evaluation. The choice of qualitative evaluation is related to the number of users that participate in the tests. The qualitative evaluation is done according with the qualitative content analysed by Mayring (2015). Through this assessment method, it is possible to analyse any source of qualitative information, regardless of its support or format and consists in categorising the information. The information must be converted into text and categorised, for example with the help of a table or different colours (called information coding) and then grouped into categories defined by the analyser. In this thesis, the tables can be consulted in the appendices and the categorised information is presented in graphic format throughout this work and it is applied to interviews, thinking aloud and open question from the questionaries. According to Nielsen (1993) the ideal number of usability tests is five. However, in the case of an A/B test, the sample of participants should be divided according to the number of Variants to be tested. In this master thesis, two Variants are compared and therefore, and considering the time and resources available, ten people are tested.

Considering all the parameters presented, the usability test is composed of:

- Questionnaires before the usability test (shown in the Attachments - Figure 32: Questionnaire before the usability testFigure 32)
- Usability test with thinking aloud (A/B Test)
- Questionnaire after the usability test (shown in the Attachments - Figure 32: Questionnaire before the usability testFigure 33)
- Second usability test with thinking aloud (Comparative test)
- Interviews

The usability test is intended to test the two Variants in terms of usability by measuring the time needed to perform eight tasks. Since a comparative test is subsequently carried out with the other Variant, the tasks are defined with the aim of finding the information on the webpage. In this case, more important than the information content is the way it is communicated and presented so that it can be found as quickly as possible. Furthermore, thinking aloud allows us to know what goes on in the head of each user during the performance of each task, namely thoughts, feelings, expectations, etc. In this way, it is possible to understand what can be improved on the website and to evaluate the behaviour of each user. The second usability test aims to compare the two Variants and obtain individual information from each user regarding each of the Variants, text and Infographic. Performing the same tasks in different environments, with the same information, allows us to understand which information is more easily retained, which draws more attention, which is irrelevant and whether the structure of the information communicates the message in the way the sender, in this case the EAA, intends it to be received by the receiver.

The usability test tasks focus mainly on information that enhances engagement and invites participation in the project, namely:

1. Please find the name of the project.
2. Please find the main objective of the INTENSIFY project.
3. Please find the time period of the INTENSIFY project.
4. Please find the funding of the project.
5. Please show the action points that will be implemented by the EAA.
6. Please find the project partners of INTENSIFY.
7. Where would you click if you want to read news from INTENSIFY?
8. Where can you find the concrete implementation of the EAA through this project in Dessau-Roßlau?

Questionnaires are an essential complement to the engagement analysis. Before the usability test is carried out, a questionnaire with personal questions is given for each user to complete. The questionnaire will include questions about their degree of knowledge and involvement with the EAA and the region and their environmental concern in general. The main goal of this questionnaire is to analyse the profile of each user. All users are at the same level of knowledge when it is filled in, a link is then sent to each with Variant A or B, according to the group each user belongs to.

The questionnaire conducted after the usability test aims to assess the degree of user satisfaction regarding the usability test, the Variant of the EAA webpage that was assigned to them, the possible motivation or interest in participating in environmental causes and their preferences as information receiver in a digital environment. At this point, users have already been influenced by the Variant assigned to them and by the usability test, therefore all the information gathered is extremely important for assessing the impact of the structure and design of the information communicated on engagement. In this questionnaire, special focus is given to open response questions, to invite the user to describe their experience in as much detail as possible. This detailed answer is very important for the qualitative evaluation of each user's experience as a user of the EAA website.

Lastly, the interview is conducted after the comparative usability test, i.e. when the user already has knowledge of both Variants. When performing the second test, the user already knows the information to be searched, as well as the tasks assigned to them, so it is interesting to understand the influence that this knowledge of the information has in the search of the same information in the text Variant and in the Infographic Variant. The interview is carried out immediately after the second test, with open response questions carried out orally, this is to

enhance the interaction between the user and the moderator and to collect the information with as little external influence as possible.

This combination of usability testing methodologies has as main objective, the evaluation of the usability and engagement capacity of the page of a sustainable project currently carried out by the EAA.

4.3.5 Explanation of the Method

To test the influence of information design on community engagement with EAA sustainable projects, two Variants of one webpage from EAA´s Website were created. Variant A (shown in Attachment - Figure 29: Variant A (Text)Figure 29) is the published version and is mainly composed of text, whilst Variant B (shown in Attachment - Figure 30) is a new Variant created for this test and is composed of an Infographic. The test will compare text with Infographic to understand if the way information is communicated influences the engagement of the user in a determined topic, in this case, sustainable projects. This comparison was chosen because of the static characteristic of both. It is important to test the speed in finding the information during the usability test with thinking aloud. This can be useful for future communication studies, used not just on websites, but also in other communication channels and to test the impact of the formulation of the sentences and the direct translation of text into image.

A Usability Test is carried out to test the usability of the page and the time needed for each user to complete exactly the same task. During the Usability Test participants are encouraged to think out loud, this is to collect more qualitative information. Additionally, this is an opportunity to understand how the users think when visiting both Variants. The use of two Questionnaires is also be employed, one before the Usability Test and another afterwards. The group of users is divided in two, each group with five elements, with a total of ten tests. The first group tests Variant A and the second group Variant B. After the second questionnaire, each group repeats the usability test on the other Variant and an interview is conducted in order to assess the impact of both Variants on each user and their opinion on the impact of information design on engagement. This way, the first questionnaire is answered by all users on the same footing and with the same knowledge of the Variants since it is carried out before the usability test. The second questionnaire aims to assess the opinion of each user regarding the specific Variant presented to each group. The final interview intends to collect information for comparison, not only between groups, but also for each user after performing exactly the same tasks in both Variants. It is important to highlight that the test tasks each user to find certain information and when performing the second test, the user already knows the content of the questions and some

answers. This way, only the structure and presentation form of the information are evaluated regarding its usability effectiveness. Even so, it cannot be assumed that the information learned in the first test will not facilitate the user in finding the same information in the second test and this should be considered when evaluating the results. Another aspect that may influence the results and that should also be considered is the environment in which each user will do the test and the comfort and familiarity of each user with the use of technology, namely video conferences and websites. The test is carried out remotely, via video conference. Screen sharing is requested, and each user's behaviour is evaluated through the mouse cursor and the comments made throughout the test.

Engagement will be measured through ease of task completion, information retention and responses regarding willingness to participate obtained through the pre and post-test questionnaire. The main purpose of the post-test questionnaire is to assess the comfort and ease that the participant found in carrying out the tasks as well as the design in terms of interactivity, aesthetics, organisation, and presentation of the information, which are important points for engagement. Furthermore, it is also intended to assess the possible change in mentality and awareness regarding the need to participate in sustainable projects, taking the project in question as an example. Ensuring the equal treatment of each user is necessary, therefore a script is created to guarantee the impartiality of the person conducting the test, as well as the clarity and fairness of the communication (shown in Attachment - Figure 31).

4.4 Analysis of the results

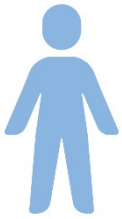
4.4.1 Description of each the user

This description is made based on the questionnaire filled before the realization of the usability test and aims to give an overview of each user.

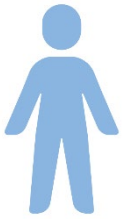
User 1

	• 18-35 years old • Female • She has never visited EAA´s Website and does not know EAA • She has interest in sustainable topics but is not active in the region • She is not sure, if she would like to engage in a regional sustainable project • Her favourite Media are text, image and Infographic

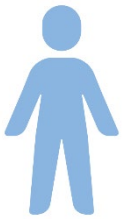
User 2

	• 51-65 years old • Male • He has already visited EAA´s Website and knows EAA • Has interest in sustainable topics and is active in regional projects • His favourite Media are text, image and Infographic

User 3

	• 18-35 years old • Male • He has never visited EAA´s Website and does not know EAA • He has interest in sustainable topics but is not active in the region • He would like to engage in a regional sustainable project • His favourite Media are video and Infographic

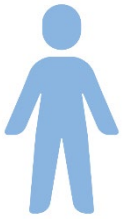
User 4

	• 18-35 years old • Male • He has never visited EAA´s Website and does not know EAA • He has interest in sustainable topics but is not active in the region • He would like to engage in a regional sustainable project • His favourite Media are text, image and Infographic

User 5

	• 36-50 years old • Female • She has already never visited EAA´s Website and knows EAA • She has interest in sustainable topics but is not active in the region because she has no time • She is not sure if she would like to engage in a regional sustainable project • Her favourite Media are text, and video

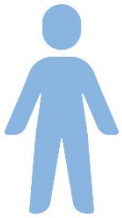
User 6

	• 18-35 years old • Male • He has never visited EAA´s Website and does not know EAA • He has interest in sustainable topics but is not active in the region • He is not sure if he would like to engage in a regional sustainable project • His favourite Media are image, video and Infographic

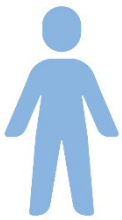
User 7

	• 18-35 years old • Female • She is not sure if she has already never visited EAA´s Website or if she knows EAA • She has interest in sustainable topics and is active in the region • She would like to engage in a regional sustainable project • Her favourite Media are text, image and video

User 8

	• 18-35 years old • Male • He has never visited EAA´s Website and does not know EAA • He has interest in sustainable topics but is not active in the region • He would like to engage in a regional sustainable project • His favourite Media are video, Infographic and audio

User 9

	• 36-50 years old • Male • He is not sure if he has already visited EAA´s Website but he knows EAA because he received advertisement in social media and he knows someone that is a part of EAA • He has interest in sustainable topics but is not active in the region • He is not sure if he would like to engage in a regional sustainable project • His favourite Media are video, Infographic and audio

User 10

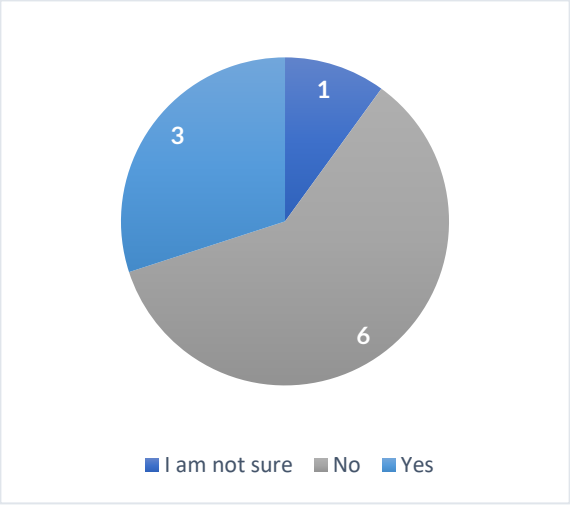
- 36-50 years old
- Female
- She has never visited EAA´s Website and does not know EAA
- She has interest in sustainable topics and is active in the region
- Her favourite Media are text, image, video, Infographic and audio.

4.4.2 Analysis of the results

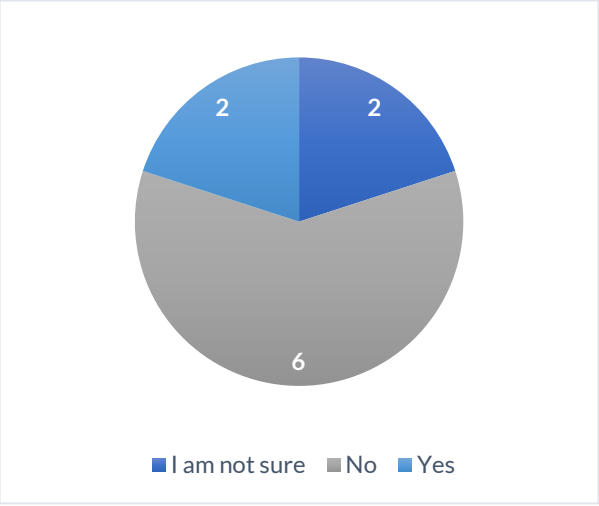
The results are presented in graphs to facilitate the visualisation and understanding of the information. The qualitative analysis is performed according to the Mayring's (2015) method, the codification of the categories is shown in the Attachments (see Table 3, Table 4 and Table 5).

No quantitative analysis is carried out due to an insufficient sample size. Even so, the presentation of quantitative data may be used only as explanatory support for the profile of users and not as analytical or scientific data.

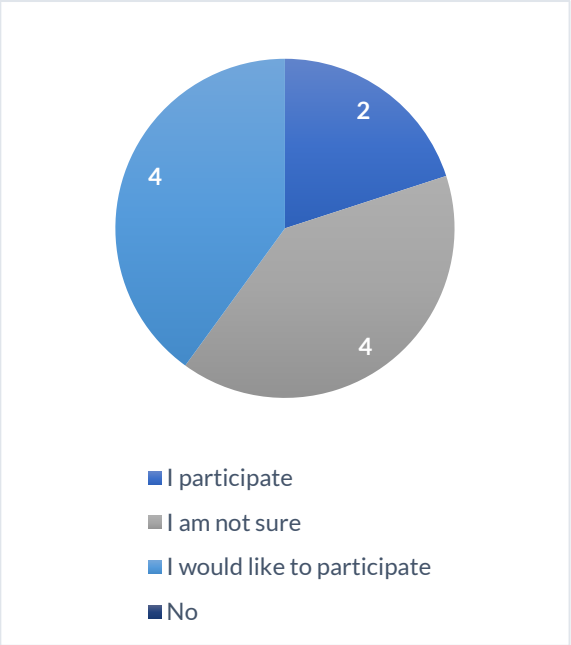
The following results were obtained by filling in the pre-test questionnaire and therefore have no influence from the Variants.



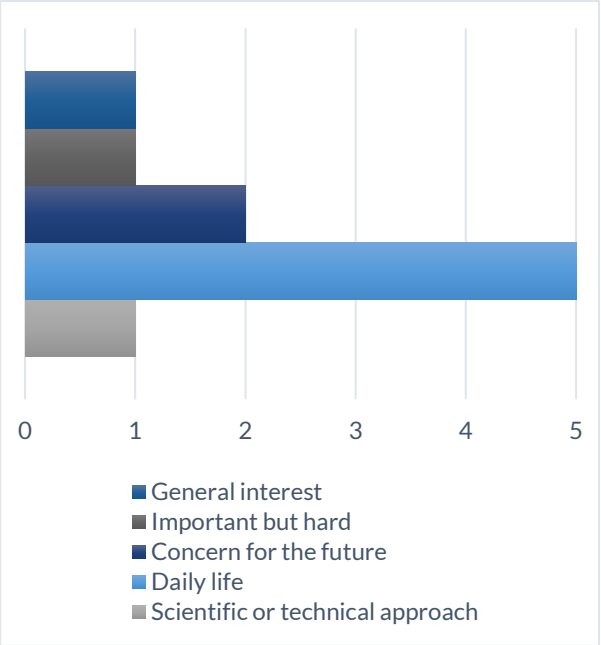
Graph 1: Number of users that know the EAA



Graph 2: Number of users that have visited the Website from EAA



Graph 3: Participation in regional sustainable projects

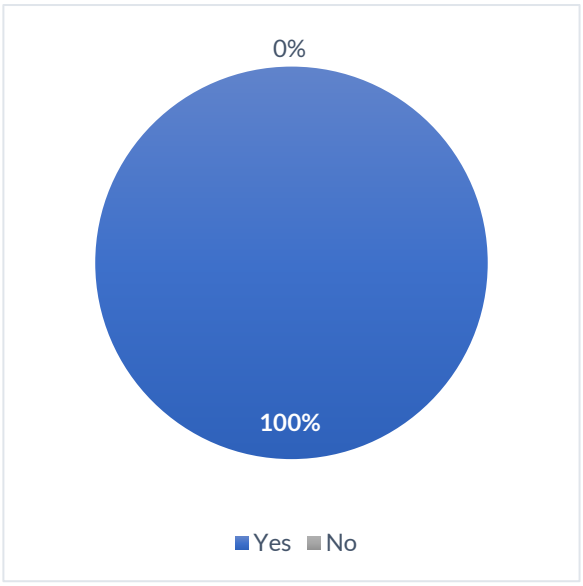


Graph 4: Attitude in terms of sustainability

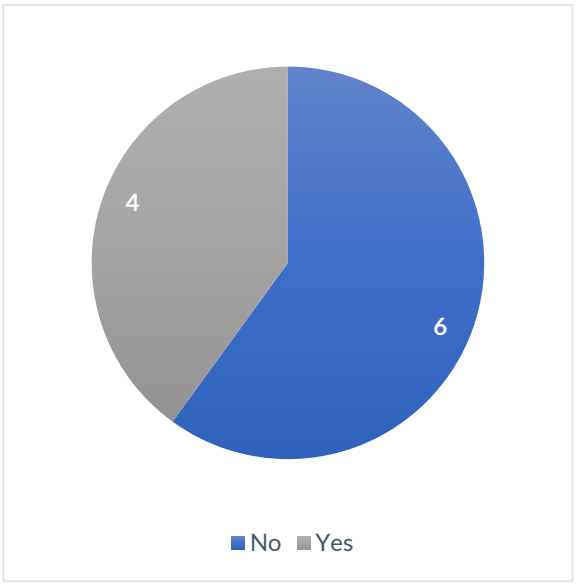
As shown in Graph 1, six out of ten users do not know the EAA nor have visited its website and Graph 2 shows that four out of ten would be interested in participating in regional sustainable projects, four of them are not sure and two do already participate. None indicated to having no interest in participating.

Regarding their attitude towards sustainability, according to Graph 3 and Graph 4, five users claim to show concern in their daily life, two say they are concerned about the future, one claims that it is an important but difficult topic and one has a general interest.

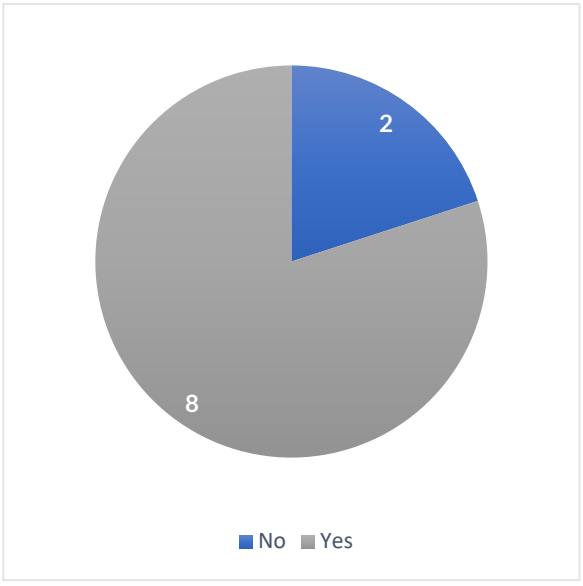
According to Graph 5 all users have already participated in a video conference and four out of five have already participated in a usability test (Graph 6). The majority knows what information design is and this majority considers it important for the engagement and motivation of users, as presented in Graph 7 and Graph 8.



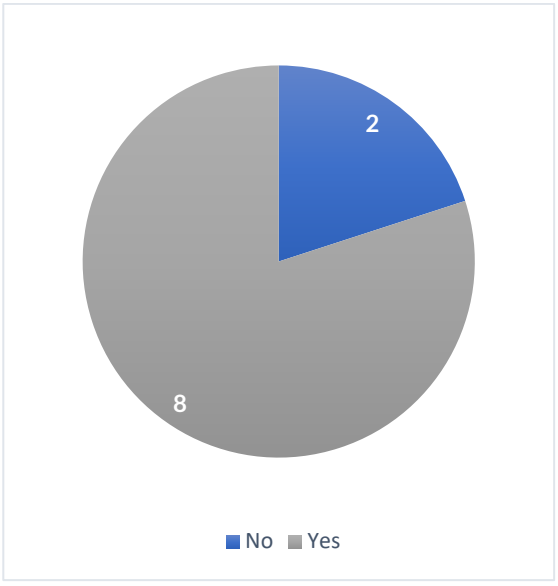
Graph 5: Participation in video conference



Graph 6: Participation in a Usability Test

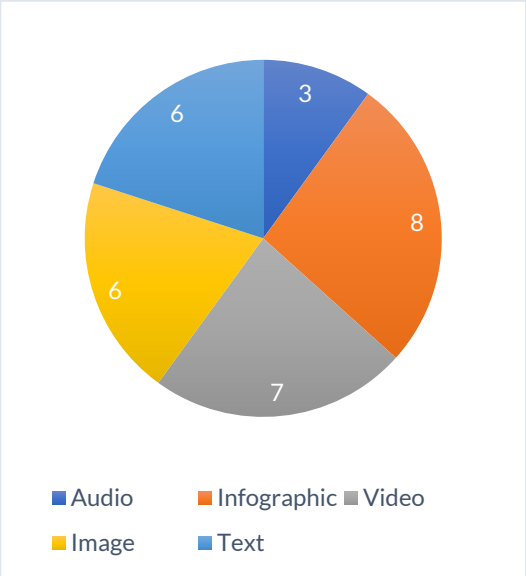


Graph 7: Knowing what information design is

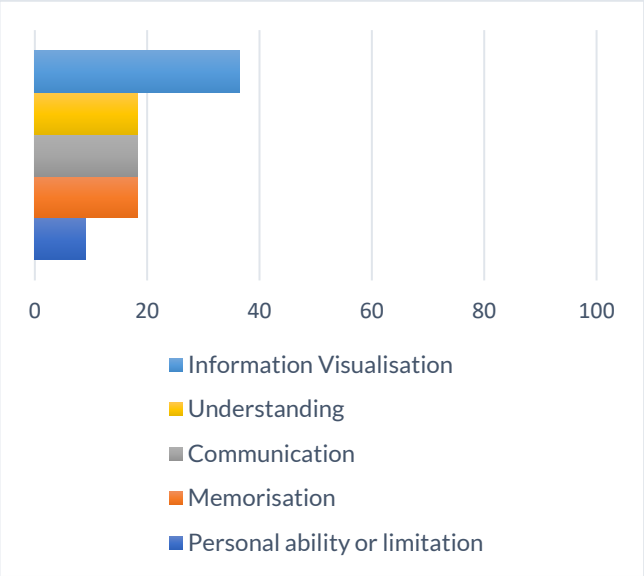


Graph 8: Consideration of Information design as important to engage and motivate

Graph 9 shows that eight out of ten users have Infographic as their favourite media, followed by video. Text and image have the same number of preferences, with 6 votes and lastly audio with just tree users. The reasons for these choices are shown in Graph 10, the main one being the visualisation of the information, followed by the ease of understanding the message, memorisation, the dynamics of communication and lastly by personal ability or limitation.



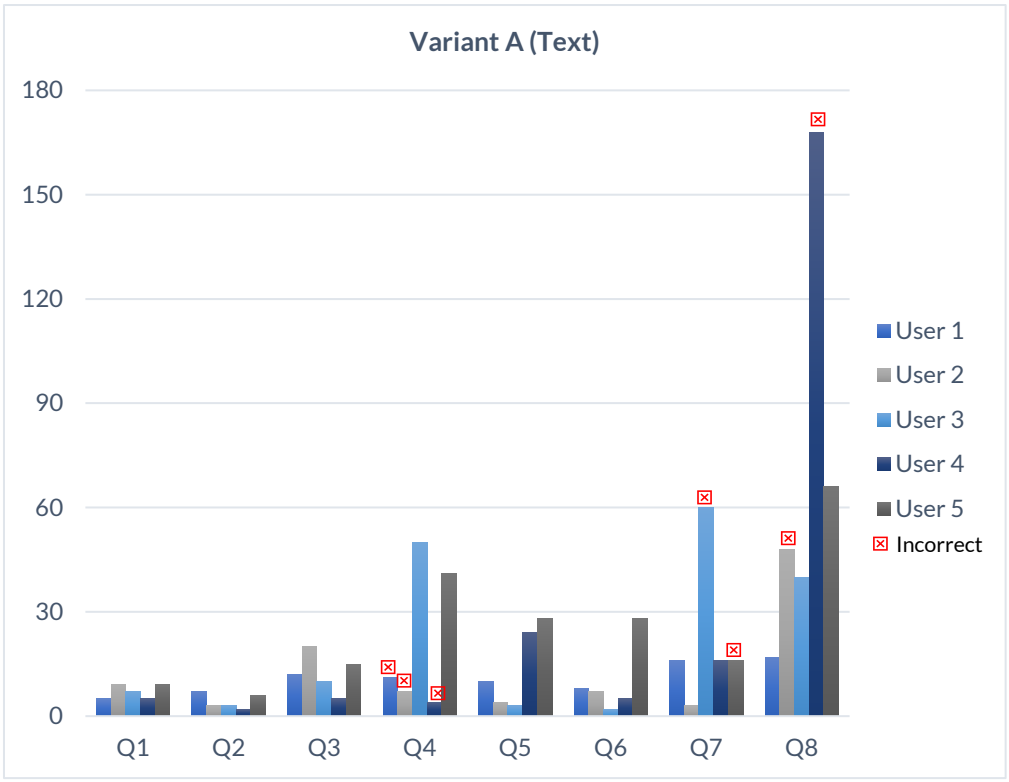
Graph 9: Number of users that prefer a specific media



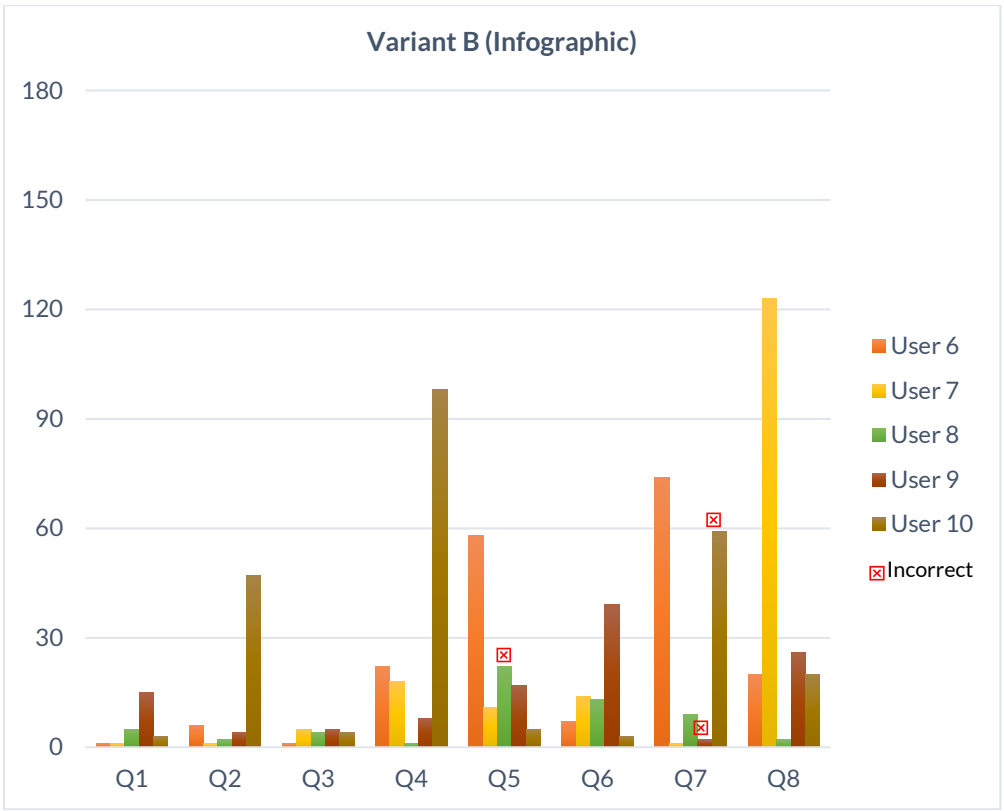
Graph 10: Reasons for the media preferences

The results of the usability test with thinking aloud are presented below. Before moving on to the evaluation of the graphs it is important to recall the questions:

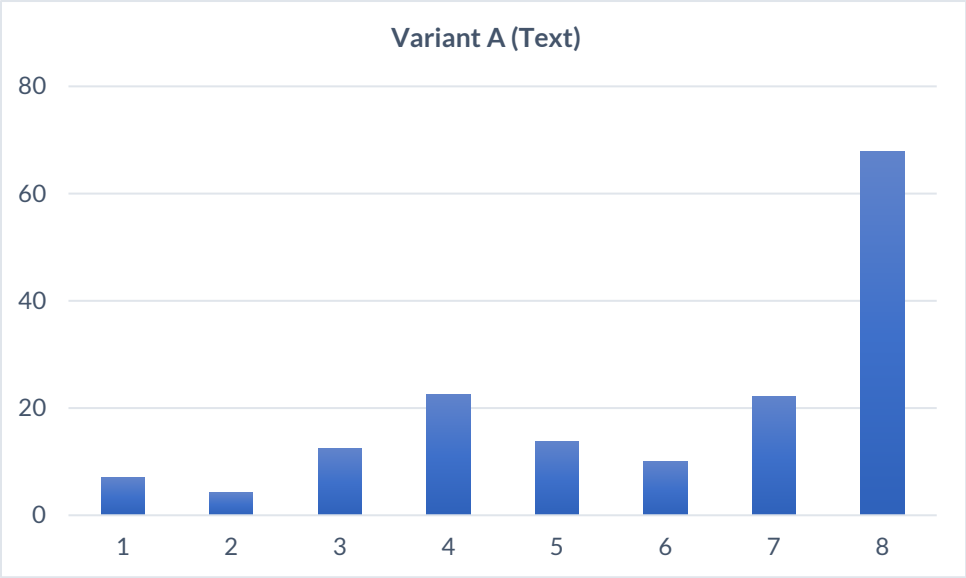
1. Please find the name of the project.
2. Please find the main objective of the INTENSIFY project.
3. Please find the time period of the INTENSIFY project.
4. Please find the funding of the project.
5. Please show the action points that will be implemented by the EAA.
6. Please find the project partners of INTENSIFY.
7. Where would you click if you want to read news from INTENSIFY?
8. Where can you find the concrete implementation of the EAA through this project in Dessau-Roßlau?



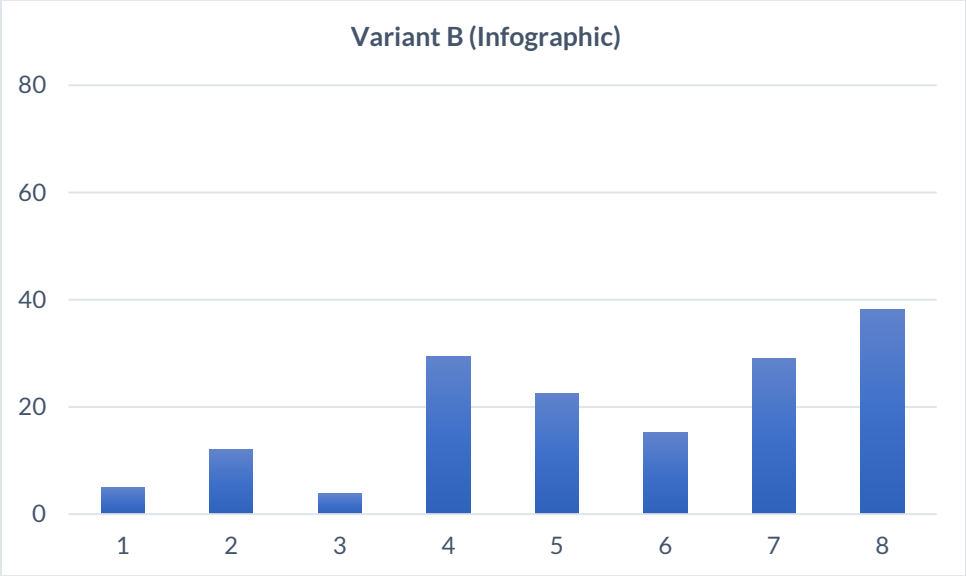
Graph 11: Seconds needed to perform the Usability Test, per user and correctness of the answers (Variant A)



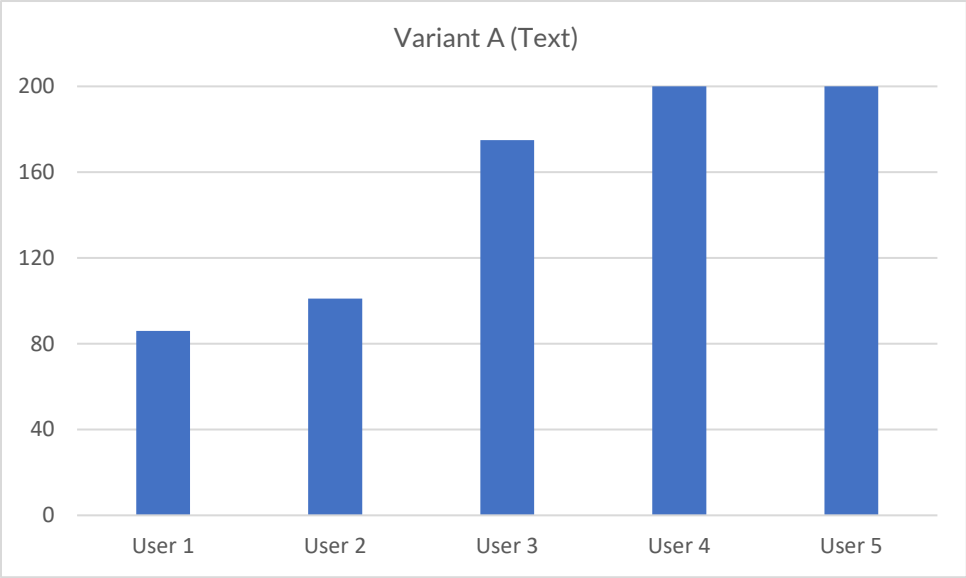
Graph 12: Seconds needed to perform the Usability Test, per user and correctness of the answers (Variant B)



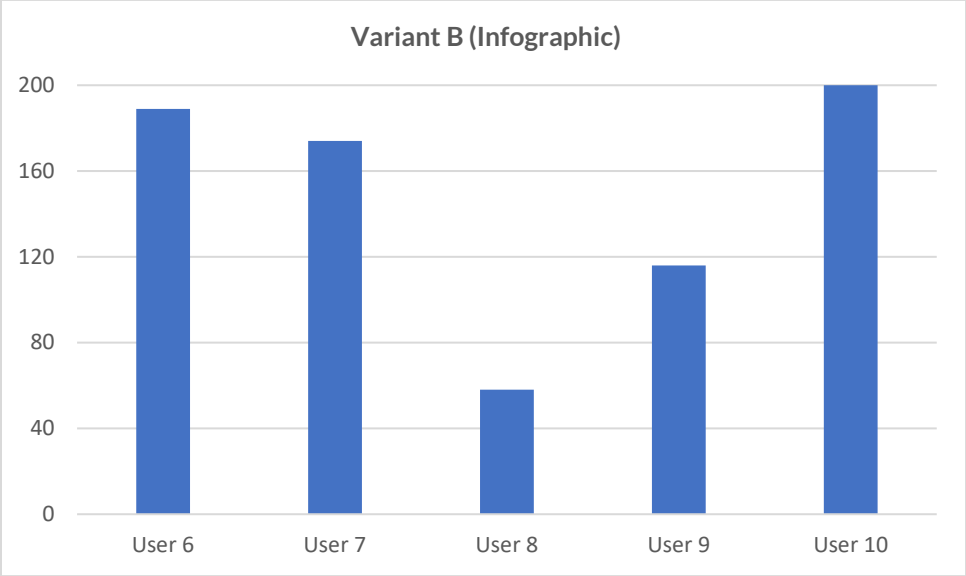
Graph 13: Average number of seconds needed to perform each task (Variant A)



Graph 14: Average number of seconds needed to perform each task (Variant B)



Graph 15: Average number of seconds needed for each user to perform each task (Variant A)



Graph 16: Average number of seconds needed for each user to perform each task (Variant B)

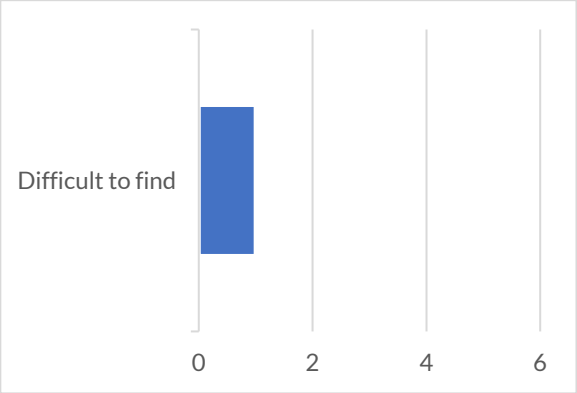
Graph 11 shows that in Variant A (Text) only one user found the correct information regarding the funding of the project (question 4) and just three found the action points (question 5). Two users could not find the right information about the news of INTENSIFY (question 7) and about the concrete implementation in Dessau-Roßlau (question 8).

Graph 12 shows that in Variant B (Infographic) just one user did not find the information about the funding of the project (question 4) and two could not find the information of how to read more news about the project (question 7).

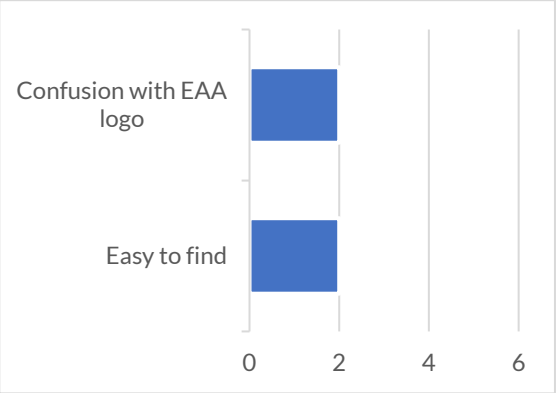
Graph 13 and Graph 14 show the average time needed for completing each task in Variant A and B respectively. In both Variants the task for which the users needed the most time was finding the concrete implementation in Dessau-Roßlau (question 8). However, in the text Variant it took on average about 65 seconds and in the Infographic Variant it took on average about 38 seconds. In the Text Variant, it was faster to complete the main objective of the project, but in Variant B it was faster to find the name and the time period in which the project takes place. These three questions are the ones with the shortest time in both Variants. For tasks 4, 5, 6 and 7 the users of Variant B needed on average more time to complete the task.

Graph 15 and Graph 16 present the average time for each user to complete the usability test. In Variant A, users 4 and 5 were slower in performing the task and user 1 was the fastest. In Variant B, user 10 was the slowest and user 8 was the fastest.

During the usability test, users were invited to express their expectations and thoughts, making it possible to perform a qualitative evaluation through thinking aloud. This evaluation is analysed according to the qualitative content evaluation method by Mayring (shown in Attachment - Table 6). The results are graphically presented below:

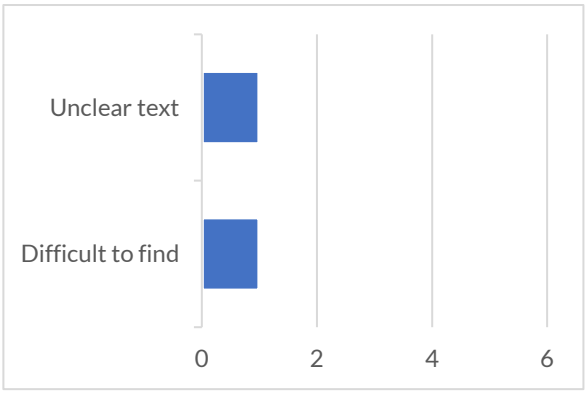


Graph 17: Categories of answers to question 1 (Variant A - Text)

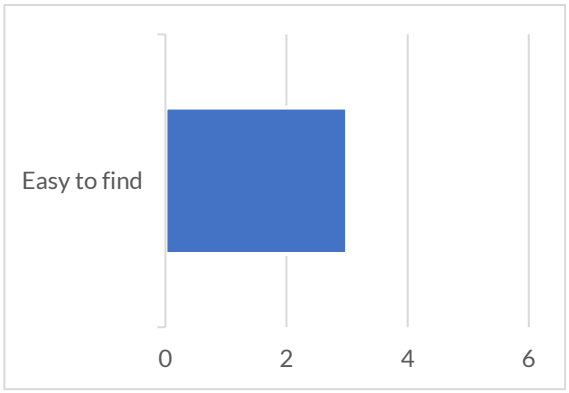


Graph 18: Categories of answers to question 1 (Variant B - Infographic)

Graph 17 shows that one user considered the information about the name of the project difficult to find in Variant A and in Variant B two users were confused with the EAA's Logo and two users consider the information easy to find (Graph 18).

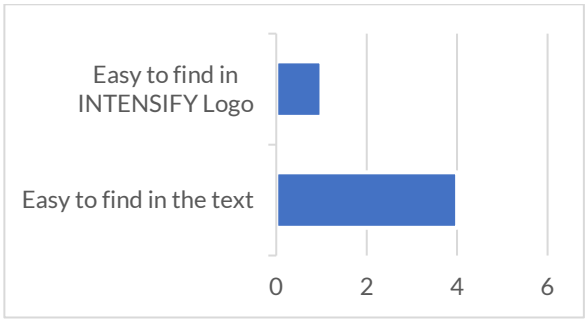


Graph 19: Categories of answers to question 2 (Variant A - Text)



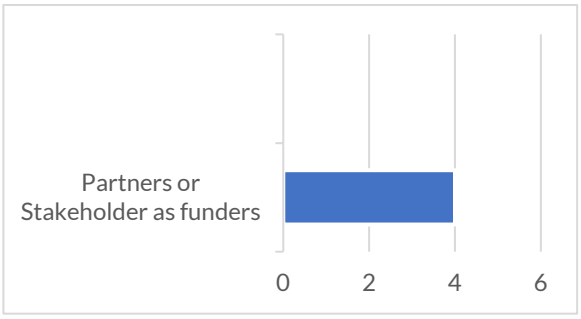
Graph 20: Categories of answers to question 2 (Variant B - Infographic)

According to Graph 19, in Variant A, while looking for the main goal of the project, one user considered the text unclear and one user considered the information difficult to find. Graph 20 shows that in Variant B three users considered the information easy to find.

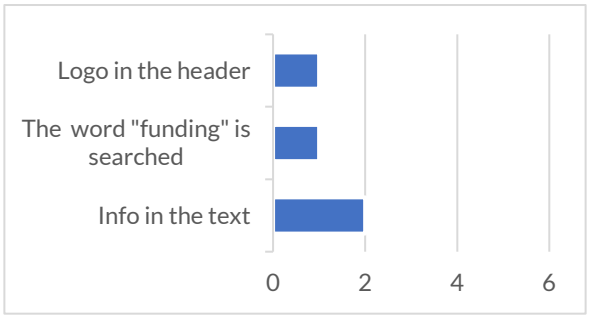


Graph 21: Categories of answers to question 3 (Variant B - Infographic)

Graph 21 shows that in Variant B, one user considers the information about the period of time of the project easy to find, and four users consider it easy to find in the text. In Variant A there is no information collected from thinking aloud.

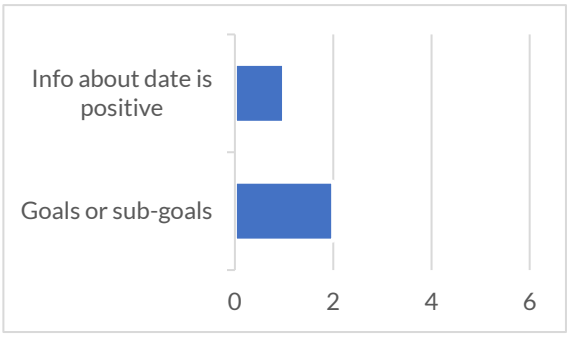


Graph 22: Categories of answers to question 4 (Variant A - Text)

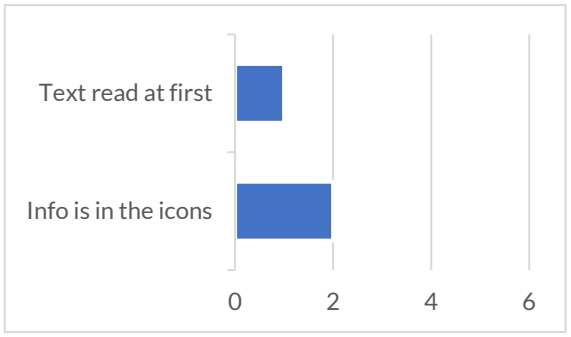


Graph 23: Categories of answers to question 4 (Variant B - Infographic)

In Graph 22, it is possible to see that four users indicated the partners or the stakeholder as having funded the project, which is incorrect. Graph 23 shows that two users find the correct information in the text, one expects to find the word "funding" in the text, which isn't there, and one found the information in the logo.

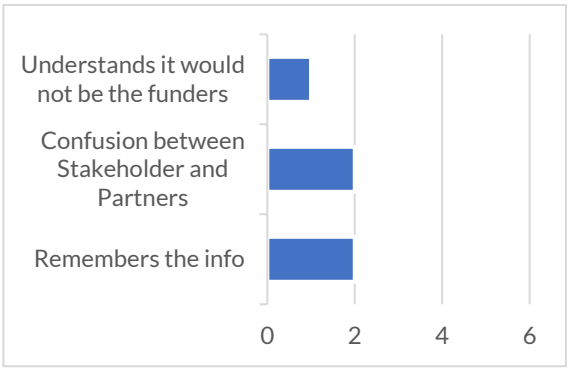


Graph 24: Categories of answers to question 5 (Variant A - Text)

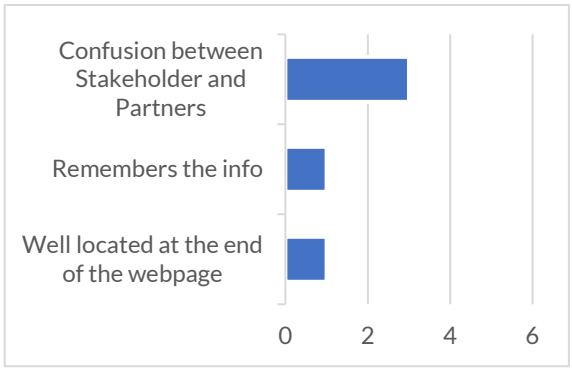


Graph 25: Categories of answers to question 5 (Variant B - Infographic)

According to Graph 24, while completing the task of finding the activities, one user considers the information on the timetable for the implementation of each activity positive. Two users mistook the goal and subgoal of the project for the activities in question. In Variant B (Graph 25), one user read the text first and expected to find the information on the text and two users found the information because of the icons.

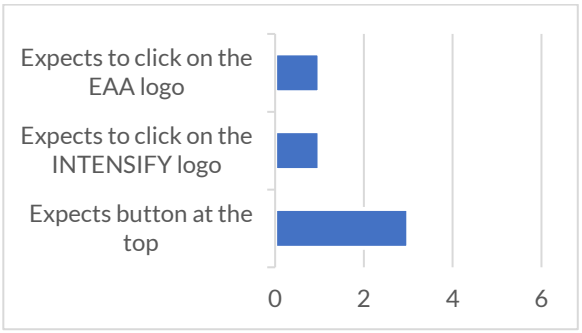


Graph 26: Categories of answers to question 6 (Variant A - Text)

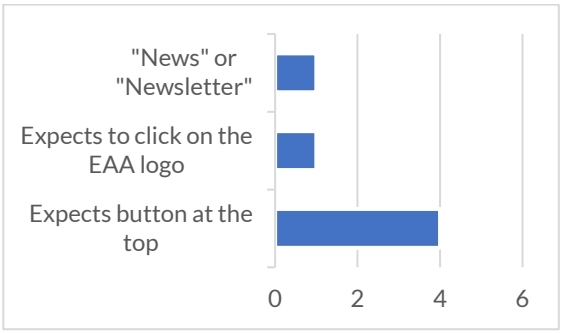


Graph 27: Categories of answers to question 6 (Variant B - Infographic)

Graph 26 shows that one user, while looking for the information about the project partners, understood that they were not responsible for the funding, two were confused between the partners and the stakeholders and two remember having seen this information before, when they are looking for other information (Variant A). In Variant B, three users were also confused between stakeholders and partners, one remembers seeing this information and one considered the information about the project partners to be well placed at the end of the webpage (Graph 27).

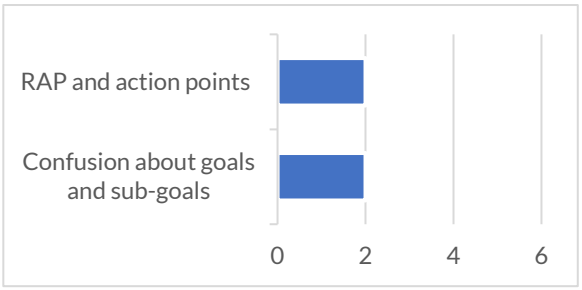


Graph 28: Categories of answers to question 7 (Variant A - Text)

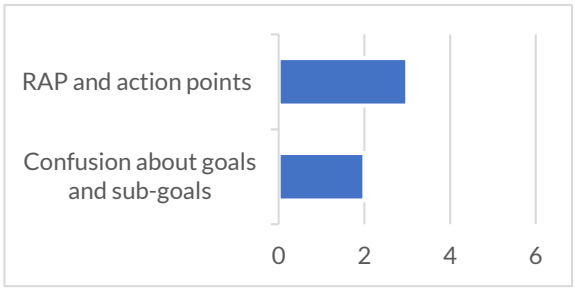


Graph 29: Categories of answers to question 7 (Variant B - Infographic)

Graph 28 shows that in Variant A, one user expected to find more news about INTENSIFY by clicking on the EAA's logo and another user expected the same but clicking on INTENSIFY's logo. Three users expected to find this information on the top of the webpage. In Variant B, according to Graph 29, four users expected to find a button with the information "News" or similar on the top of the webpage, one was confused between the two buttons "News" and "Newsletter" and one also expected to find this information by clicking on the EAA's logo.



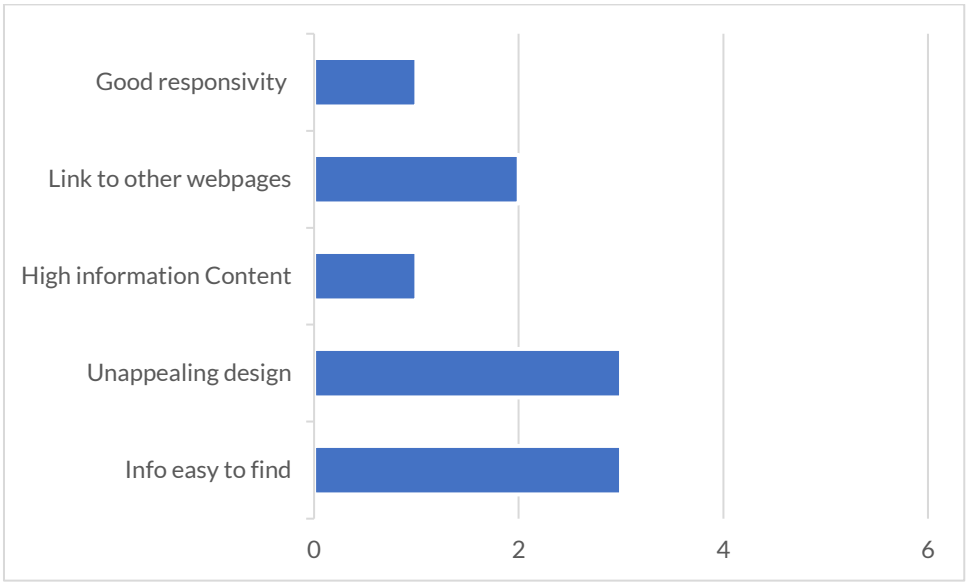
Graph 30: Categories of answers to question 8 (Variant A - Text)



Graph 31: Categories of answers to question 8 (Variant B - Infographic)

According to Graph 30, in Variant A two users respond by referring to the Regional Action Plan (RAP) and the action points, and two users respond by referring to the goal and subgoal. Graph 31 shows that in Variant B, three users find the information regarding the concrete implementation of the EAA in the city of Dessau-Roßlau in the RAP and the action points and like in Variant A, two users refer to the goals and subgoals.

After the usability test, a new questionnaire is conducted. The results are presented one more time according to the qualitative content analysis by Mayring (2015) and are shown in Attachment (from Table 7 until Table 15).



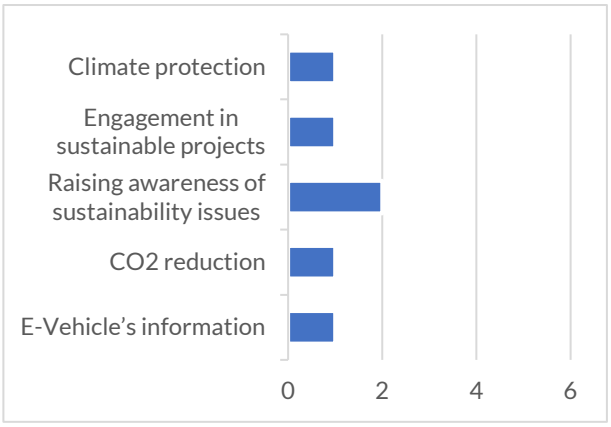
Graph 32: Reason of the experience of the users on the EAA webpage (Variant A - Text)

Graph 33: Reason of the experience of the users on the EAA webpage (Variant B - Infographic)

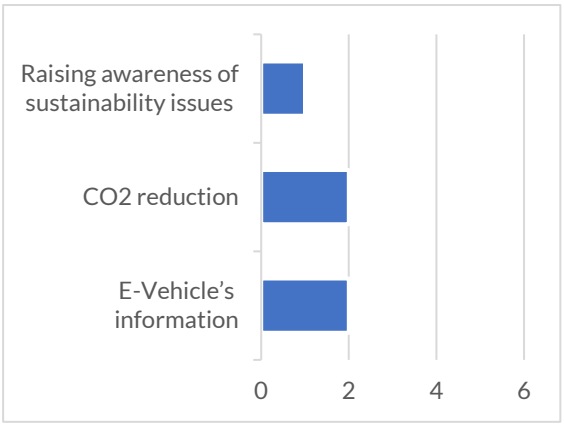
Each user was asked to describe, in as much detail as possible, their experience as a user of the EAA webpage. According to

Graph 32, three users consider the design unappealing and three users consider the information easy to find. Two users would have liked to see more links to other pages, for example to read more about the project in general, one user considers the webpage to be good in terms of responsivity and another user referred to the high information content. In Variant B, according to Graph 33, three users consider the information easy to find. Three users consider the design appealing whilst two disagree, considering it unappealing. One user refers to the impossibility of engaging directly through the webpage, one mentions that it is missing a video or animation content and one considers it good in terms of responsivity (see Table 7 attached).

One of the most important messages to be communicated in the project is the concrete implementation that the EAA wants to do in the region. Measuring the rate of success of the communication is achieved by asking the users about their understanding of what the EAA aims to implement concretely at the end with this project in Dessau-Roßlau.



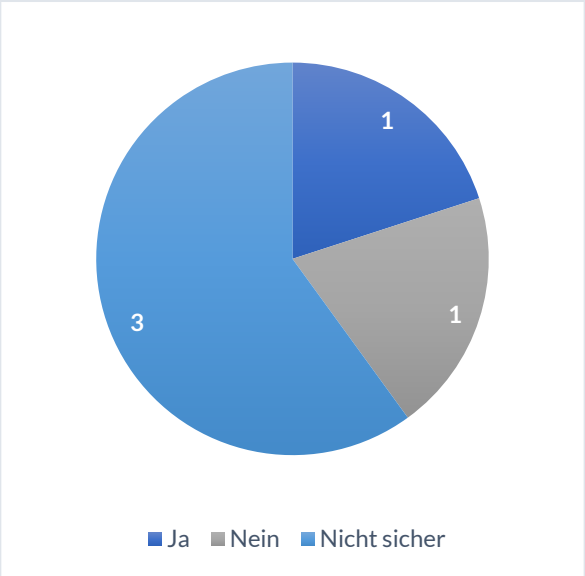
Graph 34: Comprehension of the users about what the EAA wants to implement at the end with this project in Dessau-Roßlau (Variant A - Text)



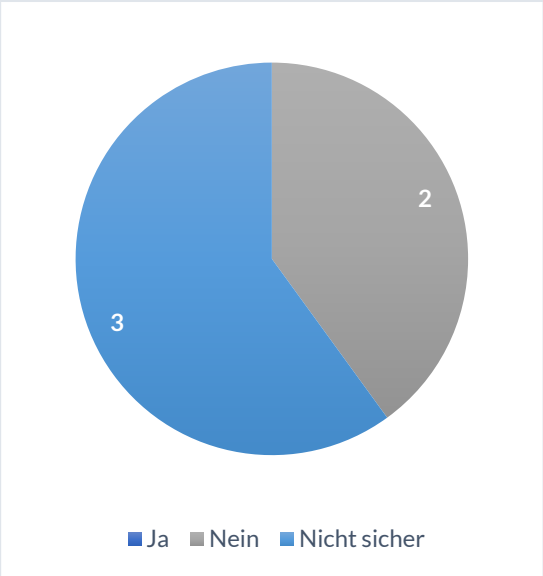
Graph 35: Comprehension of the users about what the EAA wants to implement at the end with this project in Dessau-Roßlau (Variant B - Infographic)

According to Graph 34 two users consider, during the thinking aloud exercise in Variant A, that the concrete implementation in Dessau-Roßlau aims to raise awareness of sustainable issues, one refers to climate protection, another to the engagement in sustainable projects, one talks about the reduction of CO2 emissions and just one talks about the information about e-vehicles. Graph 35 shows the reality in Variant B, where one user refers to the fact of raising awareness of sustainable issues, two refer to the reduction of CO2 emissions and two refer to the information about e-vehicles (see Table 8 attached).

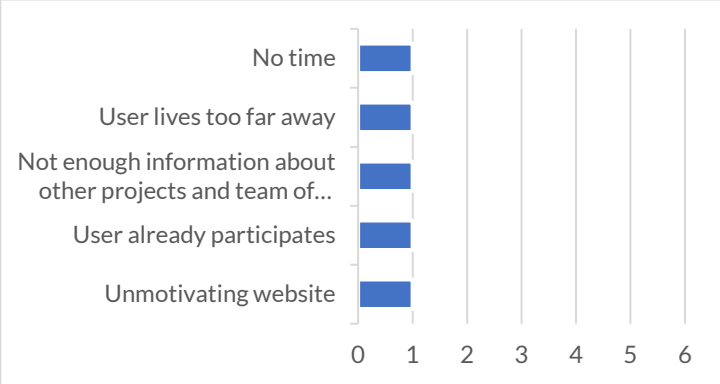
The users are also asked about their interest, after visiting the webpage, in cooperating with the EAA, becoming part of this project and becoming more active in the region with regards to sustainable issues. The results of the survey are shown in graphs 15 and 16.



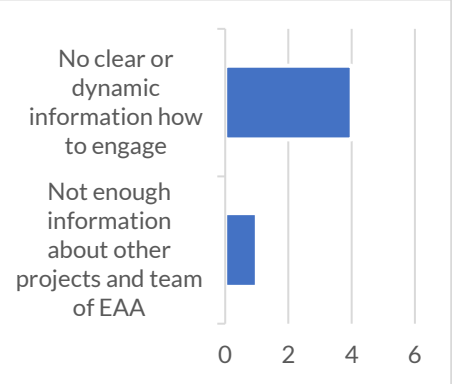
Graph 36: Interest in participating in this project with the EAA (Variant A)



Graph 37: Interest in participating in this project with the EAA (Variant B)



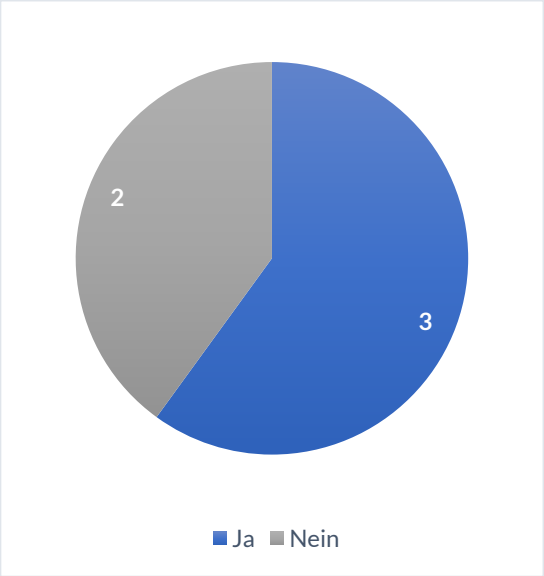
Graph 38: Influence of this Usability Test in becoming part of this project and become more active in the region with regards to sustainable issues (Variant A - Text)



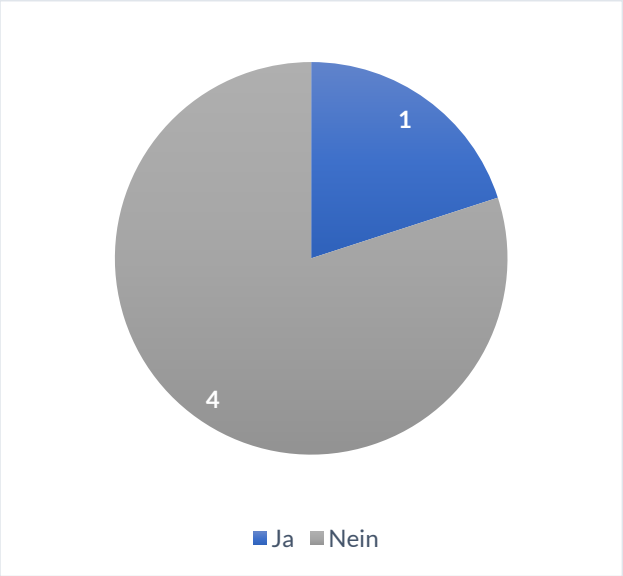
Graph 39: Influence of this Usability Test in becoming part of this project and become more active in the region with regards to sustainable issues (Variant B - Infographic)

According to Graph 36 and Graph 37, after the usability test on Variant A, one user claims to be interested in participating in projects with the EAA, one says no and three are unsure. In Variant B, three are unsure and two say no. This is a quantitative evaluation that is not significant when considering the size of the sample. For this reason, it is important to look more closely at the qualitative evaluation (see Table 9 attached) presented in Graph 38 and Graph 39. These graphs highlight the reasons and justifications expressed by the users for their interest, or lack of, in participating in EAA´s projects. In Variant A, each user expressed a different reason: no time to do it, would consider this option if lived closer, insufficient information about EAA and the team,

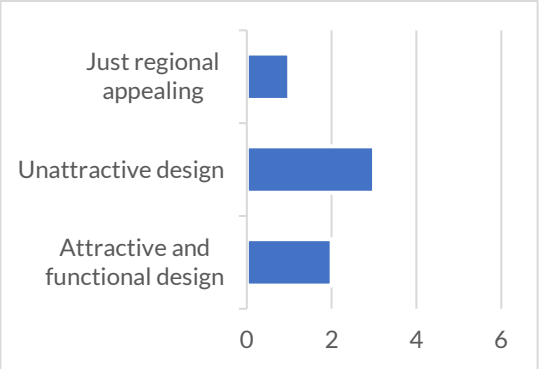
the webpage isn't motivating enough and one user already participate. In Variant B, four users refer to missing clear or dynamic information about how to engage and one also refers to not having enough information about other projects of EAA and the team.



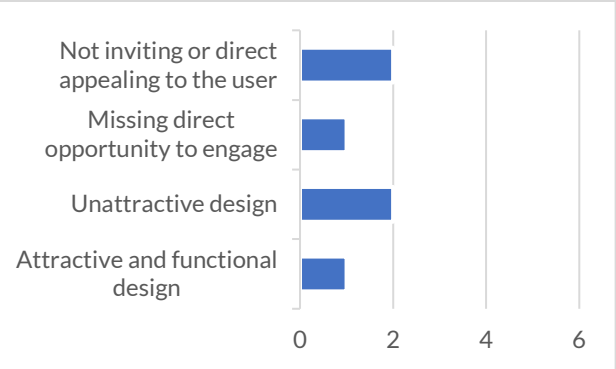
Graph 40: Impact of the design of EAA's webpage in terms of appealing and inviting "community participation in the EAA's activities" (Variant A - Text)



Graph 41: Impact of the design of EAA's webpage in terms of appealing and inviting "community participation in the EAA's activities" (Variant B - Infographic)



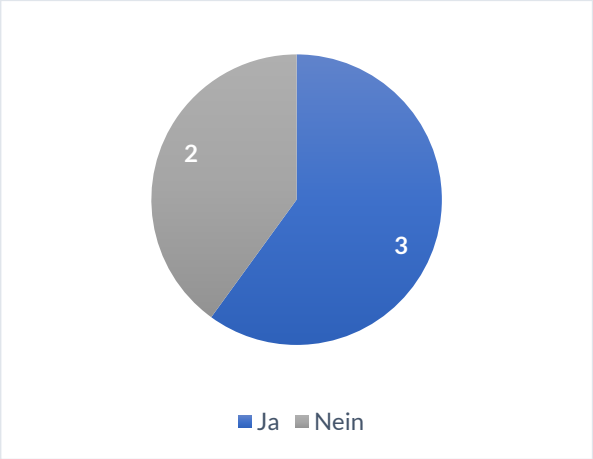
Graph 42: Reasons for the influence of the design of the webpage in motivating community to participate in the activities of EAA (Variant A - Text)



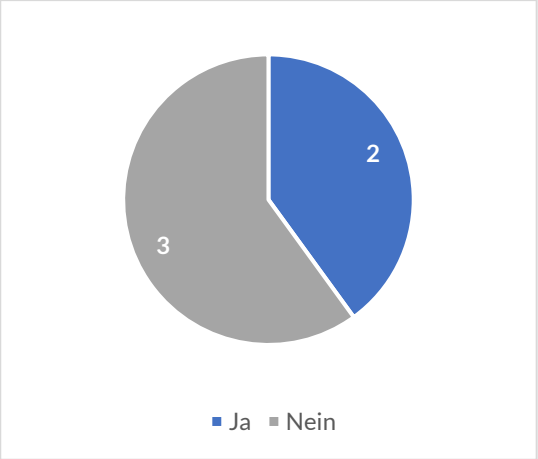
Graph 43: Reasons for the influence of the design of the webpage in motivating the community to participate in the activities of EAA (Variant B - Infographic)

Graph 40 shows that three users consider the design of the webpage to be influential in appealing and inviting the community to participate in activities organised by EAA, two users do not agree (Variant A). Graph 41 shows that just one user from Variant B considers this influence to be relevant while four do not. Again, this quantitative evaluation is not significant when considering the size of the sample. It is therefore more important to analyse the qualitative evaluation presented in Graph 42 and Graph 43. In Variant A, one user considers that this appeal

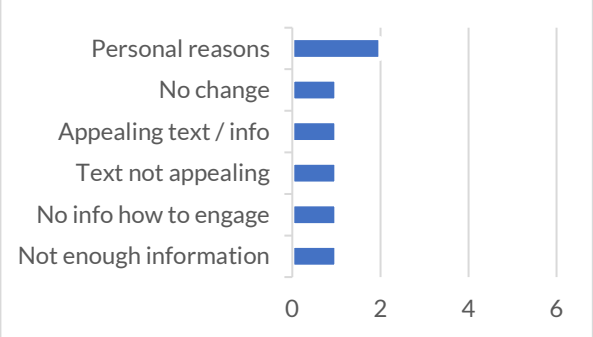
is just regional, three consider the design unattractive while two disagree and consider the design attractive and functional. In Variant B, two users consider that this design is not directly appealing or inviting to the user, two consider the design unattractive, one is expresses that there is a lack of information on how to engage, and one considers the design attractive and functional (see Table 10 attached).



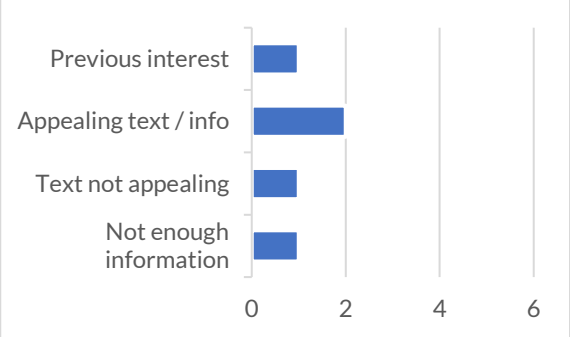
Graph 44: Influence of the way in which information is presented in terms of interest in the EAA´s project and activities (Variant A - Text)



Graph 45: Influence of the way in which information is presented in terms of interest in the EAA´s project and activities (Variant B - Infographic)



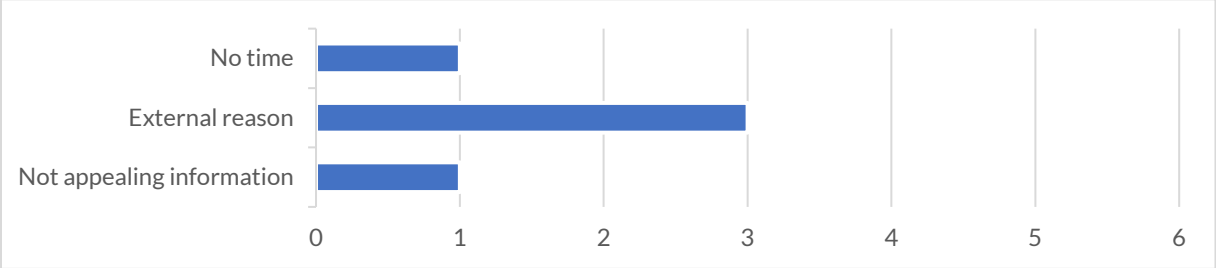
Graph 46: Reasons for this influence (Variant A - Text)



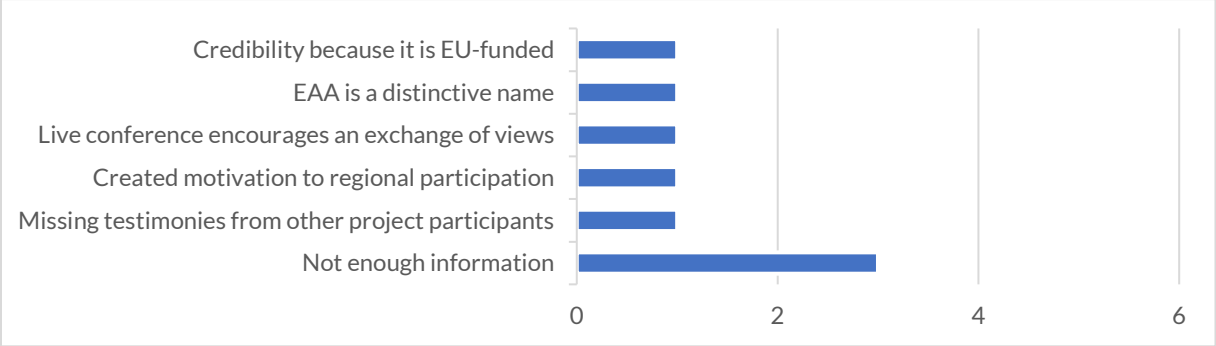
Graph 47: Reasons for this influence (Variant B - Infographic)

According to Graph 44 three users believe that the way the information is presented influences the interest to participate in EAA's projects and activities while two disagree (Variant A). Graph 45 shows another result, namely three do not agree with this influence and two do agree, in Variant B. The quantitative evaluation is again not significant, we therefore look at Graph 46 and Graph 47 where the qualitative results are presented. In Variant A, two users express personal reasons as justifications for their opinion. One user considers that the way in which information is presented does not change their interest, another considers the text and information appealing, another considers the text unappealing, another still lacks the necessary information

to engage and one considers that there is insufficient information. In Variant B, two users consider the text and information appealing, one user mentions having previous interest in the topic, one considers the text unappealing and one considers that there is insufficient information (see Table 11 attached).

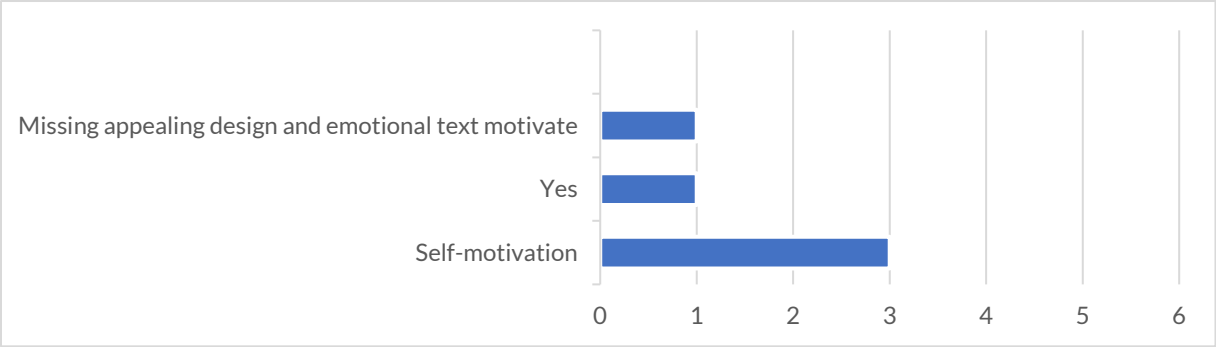


Graph 48: If users feel that the usability test and the EAA project webpage motivated them to actively participate in sustainable projects (Variant A - Text)

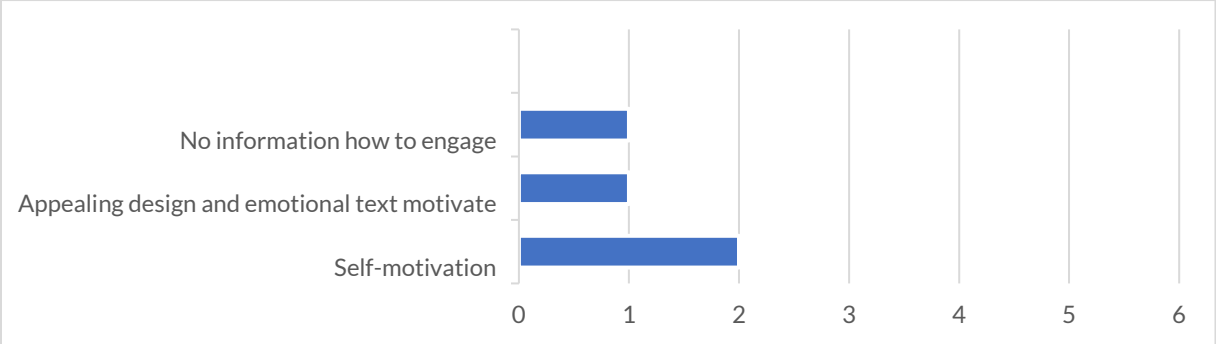


Graph 49: If users feel that the usability test and the EAA project webpage motivated them to actively participate in sustainable projects (Variant B - Infographic)

Graph 48 and Graph 49 show if the users feel that the usability test influenced their motivation to participate in sustainable projects. In Variant A, one user claims to not have enough time to participate, another considers that the information is unappealing and three feel that their motivation are linked to external reasons. In Variant B, three users feel that they did not receive enough information, one questions the credibility of the project as it is financed by the EU, one referred to the benefit of the live conference to encourage the exchange of ideas, one feels that the usability test motivated them and one expresses an interest in reading testimonies from other collaborators not featured on the webpage(see Table 12 attached).

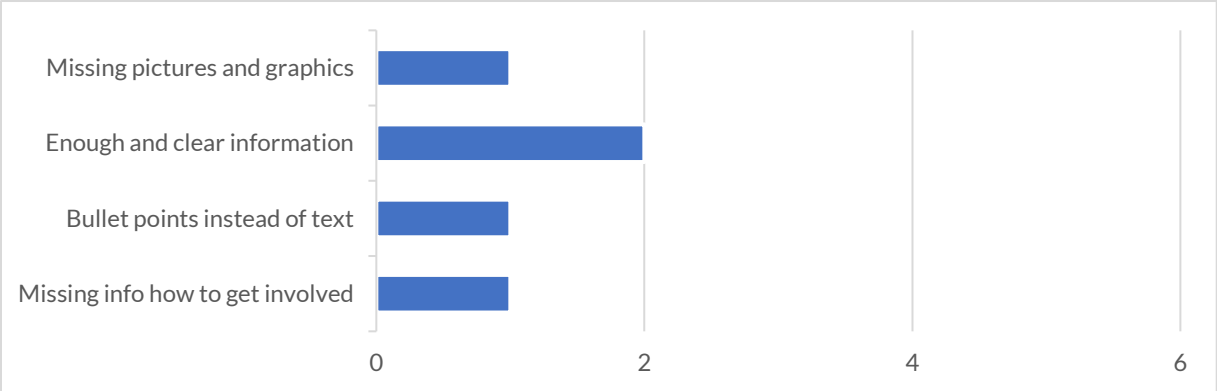


Graph 50: The opinion of the users about the way in which information is delivered and the structure of the information, i.e. the information design, influence on their motivation and engagement (Variant A -Text)

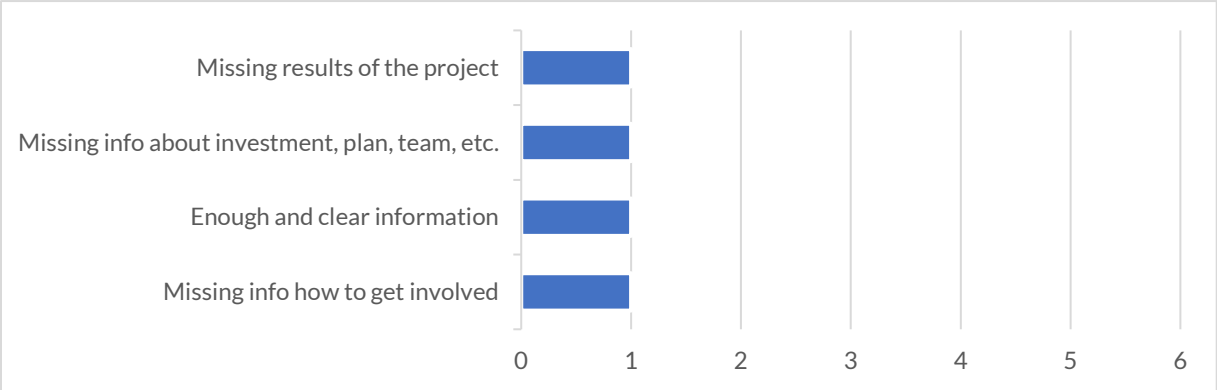


Graph 51: The opinion of the users about the way in which information is delivered and the structure of the information, i.e. the information design, influence on their motivation and engagement(Variant B -Infographic)

An important aspect of the usability test is to understand the opinion of the users about the way in which information is delivered and the structure of the information, i.e. the information design, influence on their motivation and engagement. Graph 50 shows that in Variant A, three users feel they have previous motivation, one user considers that the way the information is delivered and its structure influences their motivation to engage, and one expresses that there is a lack of appealing design and emotional text. In Variant B, two users feel that they have previous motivation, one identifies the appealing design and emotional text and one feels that there is insufficient information on how to engage (Graph 51) (see Table 13 attached).

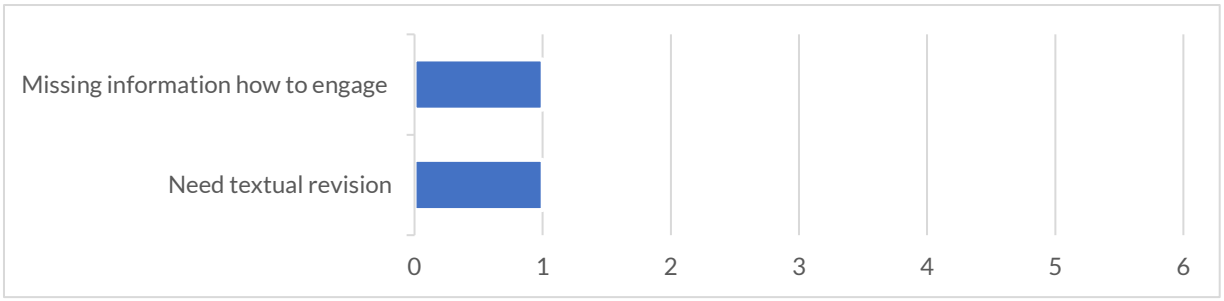


Graph 52: Opinion of the users about how the information is communicated and if the information is enough to communicate the message and, in this specific case, to present the project (Variant A -Text).

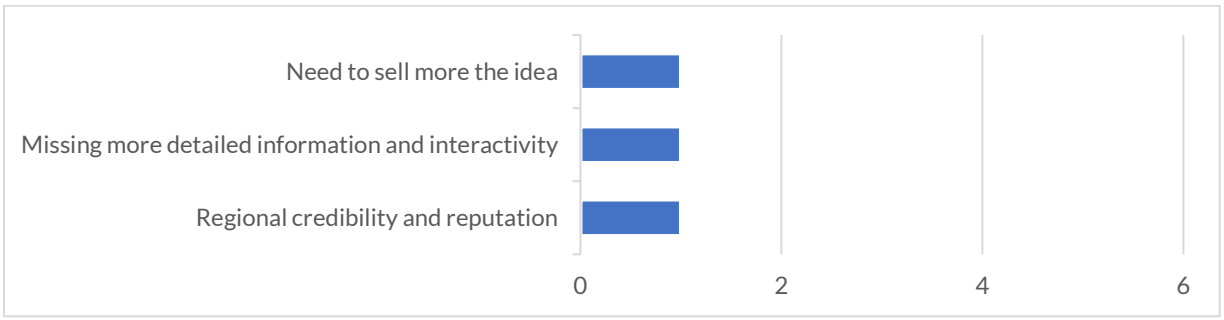


Graph 53: Opinion of the users about how the information is communicated and if the shown information is enough to communicate the message and, in this specific case, to present the project (Variant B - Infographic).

Information design is not just about the structure of the webpage but also about how the information is communicated and if the information is enough to communicate the message and, in this specific case, to present the project. In Graph 52, it is possible to see that in Variant A, two users consider the information to be sufficient and clear, one feels that it's lacking pictures and graphics, one would prefer to see bullet points instead of text and one feels there isn't enough information on how to engage. In Graph 53, in Variant B, one user feels that there is insufficient information on the results of the project, another feels the same about investment, plan, team, etc., one considers the information to be clear and sufficient and one feels there isn't enough information on how to engage (see Table 14 attached).



Graph 54: Other comments, feedback and suggestions left by the users (Variant A - Text)

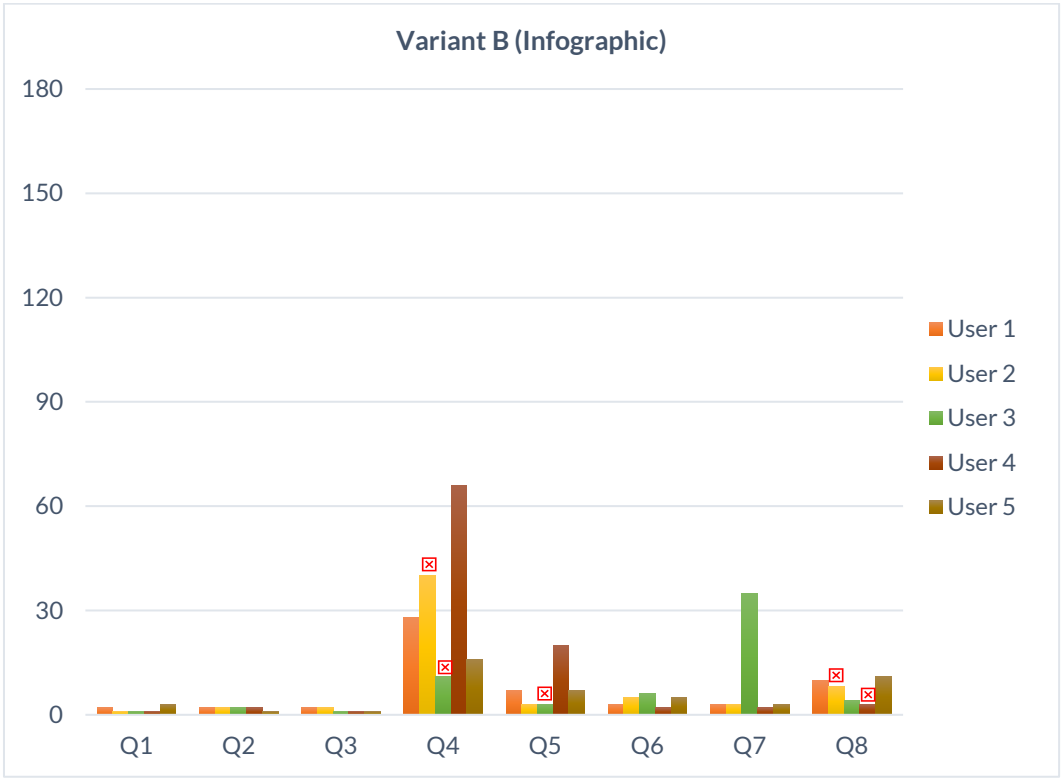


Graph 55: Other comments, feedback, and suggestions left by the users (Variant B - Infographic)

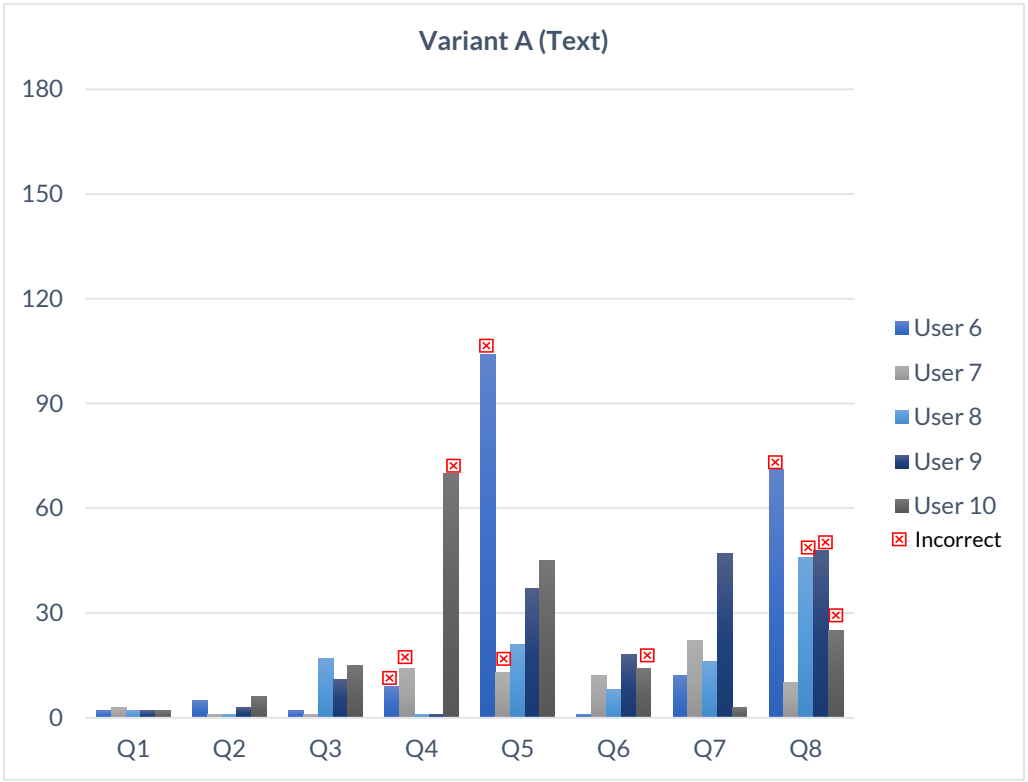
At least, in Graph 54 and Graph 55, there are other comments presented, as well as feedback and suggestions left by the users, after the usability test. More details about this qualitative analysis are available in Table 15 (shown in the Attachments). It is possible to see that in Variant A, one user again expresses the lack of information on how to engage and another user reports that the text needed to be reviewed so as to become more appealing and improve communication. In Variant B, one user expresses that there is a need to increase the selling of the idea of EAA in terms of communication, another feels there is a lack of detailed information about the project and a lack of interactivity, and one refers to the regional credibility and reputation of the project.

After the completion of the second questionnaire, each user performs the usability test again, this time with the other Variant. Those who first do the test with Variant A now do the same test with Variant B and vice versa. The object of this comparative usability test is to compare the time and thoughts and comments of the same user on different Variants. In this part of the thesis, the fist Variant shown is Variant B (Infographic) and afterwards Variant A (Text), this is in order to

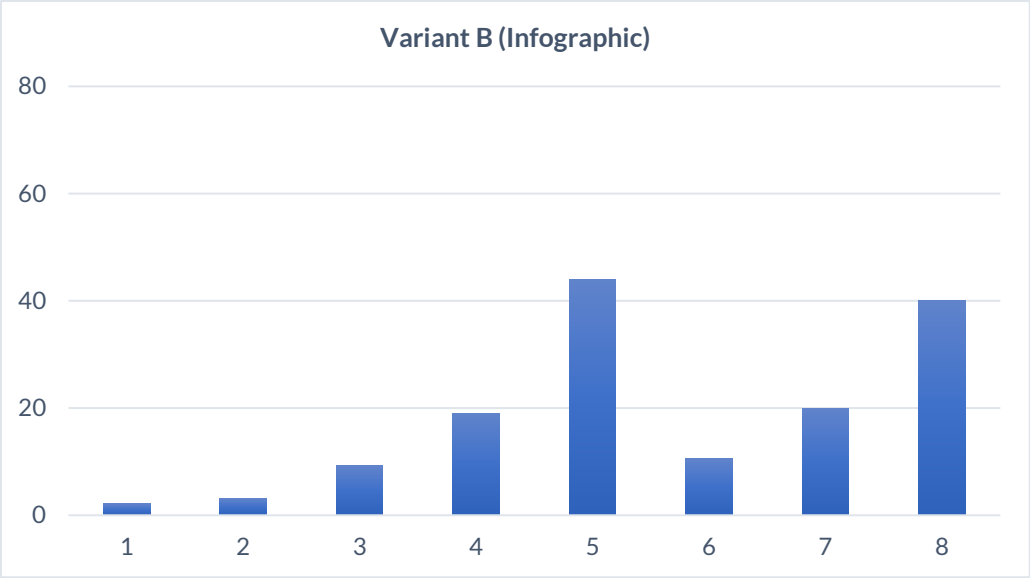
keep the same order of users (1 to 10) and makes it easier and clearer to compare to the first Usability Test (A/B Test. The tests of the comparative usability test are presented below.



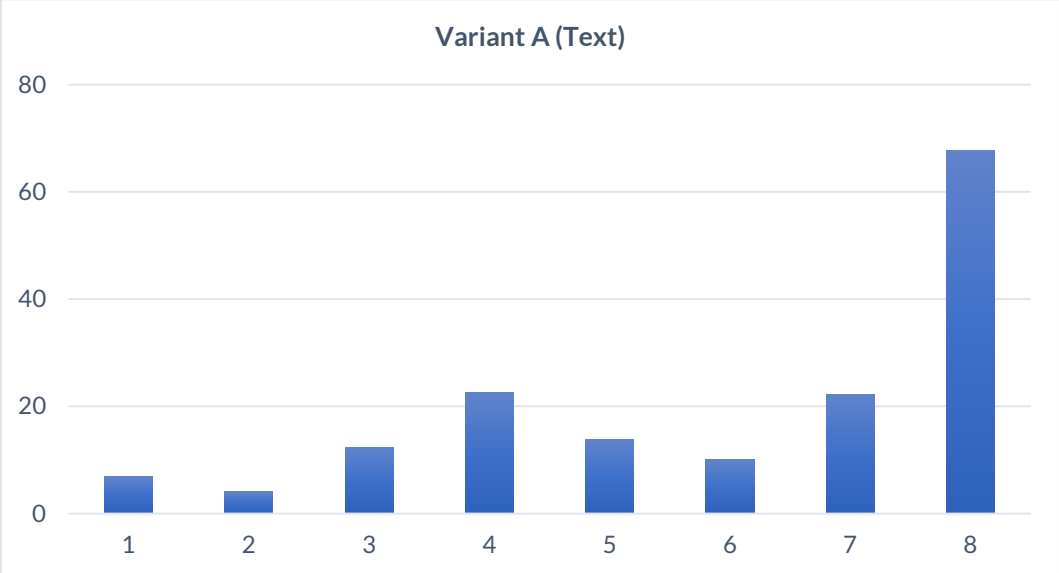
Graph 56: Seconds needed to perform the Usability Test, per user and correctness of the answers (Variant B - Infographic)



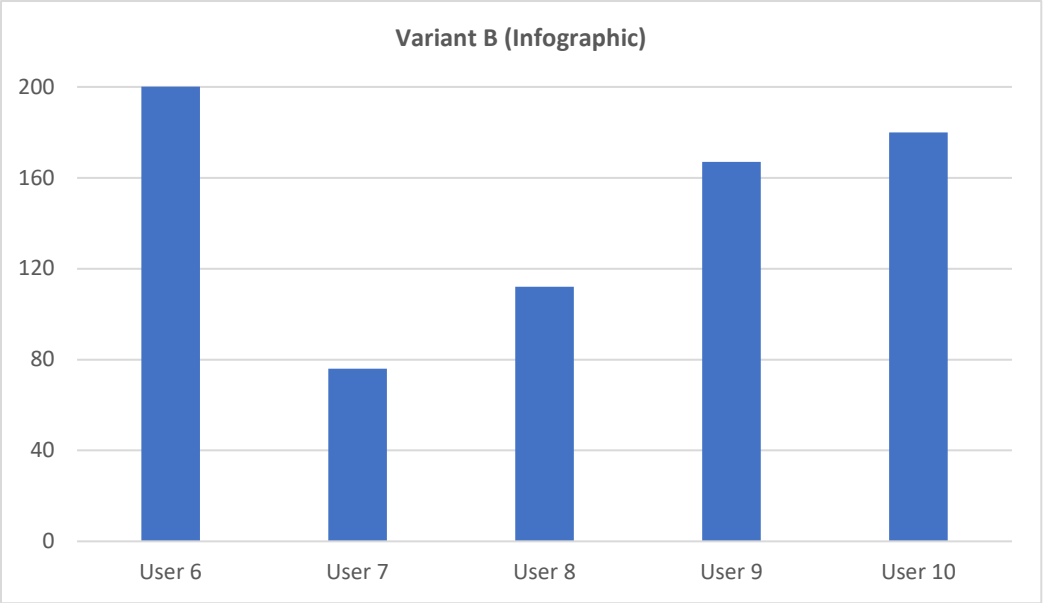
Graph 57: Seconds needed to perform the Usability Test, per user and correctness of the answers (Variant A - Text)



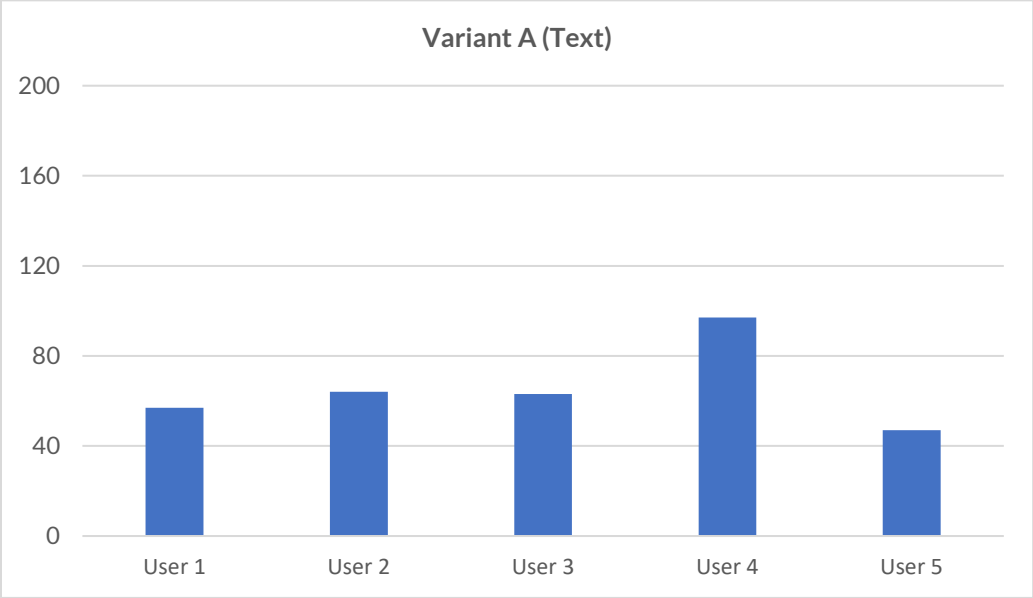
Graph 58: Average number of seconds needed to perform each task (Variant B)



Graph 59: Average number of seconds needed to perform each task (Variant A



Graph 60: Average number of seconds needed for each user to perform each task (Variant B)



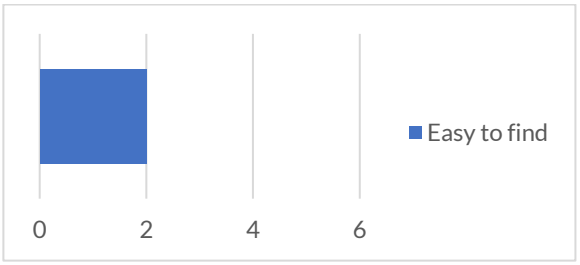
Graph 61: Average number of seconds needed for each user to perform each task (Variant A)

According to Graph 56, in the second usability test, now with Variant B (Infographic), the two users have not completed task 4 correctly (to find the funder of the project), one hasn't found the right answer about the action points (question 5) and two have not found the information about the concrete implementation in Dessau Roßlau. In Graph 57, it is possible to see the results of the second usability test, now in Variant A (Text). In this test, three users have not found the right answer about the funder of the project (Q4), two have not found the action points (Q5), one has failed to find the project partners and just one found the correct answer about the concrete implementation in Dessau Roßlau (Q6).

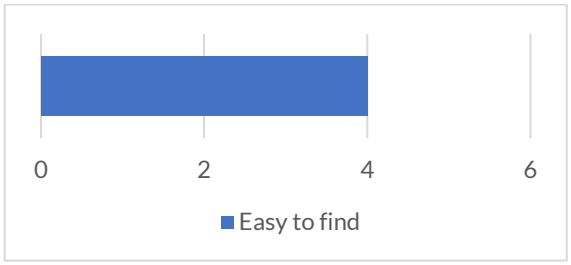
Regarding the average time needed to complete each task, in Graph 58 and Graph 59, it is possible to see that more time was needed in Variant B (Infographic) while looking for the concrete implementation of the project in Dessau-Roßlau. The fastest answers given are, in both cases, to the questions relating to the main goal and the name of the project. In the case of the latter, answers are given faster in Variant A .

In terms of average time needed for each user to complete each task, according to Graph 60 and Graph 61, in Variant A, all users needed on average more time than in Variant B. The slowest one in Variant A was user 6, and the fastest was user 7. In Variant B, the slowest was user 4 and the fastest was user 5.

During the usability test, users were again asked to express their expectations and thoughts, making it possible to perform a qualitative evaluation through thinking aloud. This evaluation is analysed according to the qualitative content evaluation method by Mayling (see Table 16 shown in the Attachments). The results are presented graphically below:

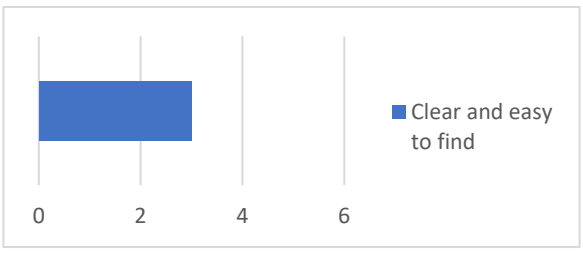


Graph 62: Categories of answers to question 1 (Variant B - Infographic)

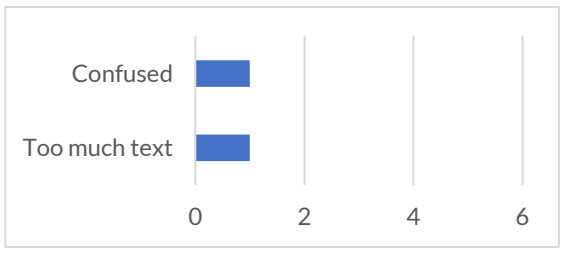


Graph 63: Categories of answers to question 1 (Variant A - Text)

In Variant B (Infographic) two users consider the information easy to find (Graph 62) and in Variant A (Text) four users have the same opinion (Graph 63).

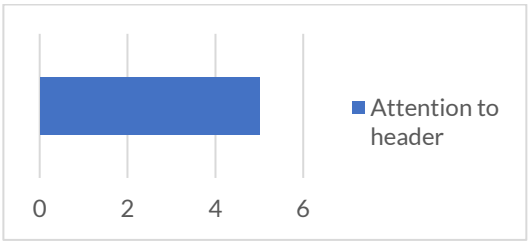


Graph 64: Categories of answers to question 2 (Variant B - Infographic)

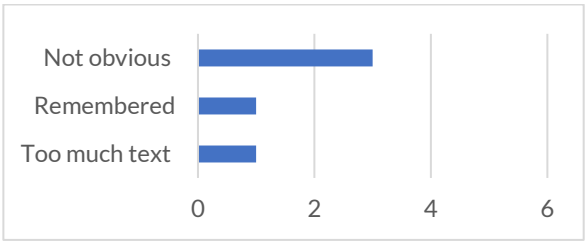


Graph 65: Categories of answers to question 2 (Variant A - Text)

According to Graph 64, in Variant B, three users consider the information about the main goal of the project clear and easy to find and in Variant A (Graph 65) one user considers it confusing and containing too much text.

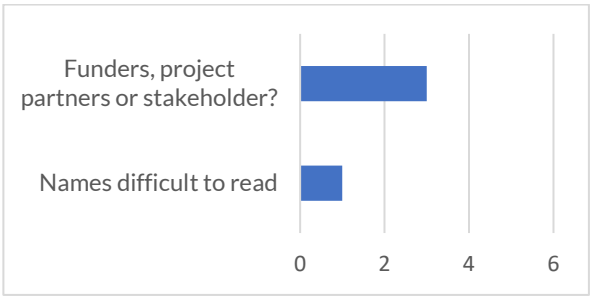


Graph 66: Categories of answers to question 3 (Variant B - Infographic)

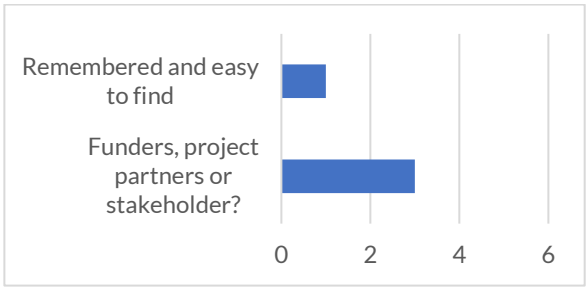


Graph 67: Categories of answers to question 3 (Variant A - Text

Graph 66 shows that in the Infographic Variant (B), five users noticed, first of all, the header of the webpage while looking for the period of time of the project and Graph 67 shows that in the text Variant (A), three users consider this information to not be obvious, one remembered this information from the test before and one considers it to contain too much text.

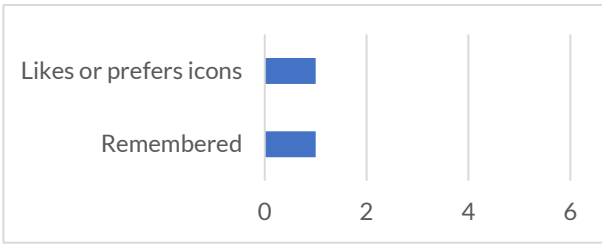


Graph 68: Categories of answers to question 4 (Variant B - Infographic)

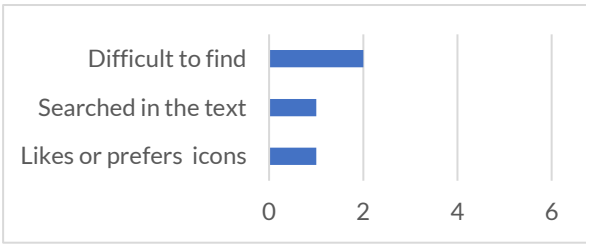


Graph 69: Categories of answers to question 4 (Variant A - Text)

Regarding question four (to find the funder of project), in Variant B and according to Graph 68, three users are not sure about the funder, project partners and stakeholders and one said that the name of the project partners is difficult to read. In Variant A, according to Graph 69, three users feel the same about the confusion between funder, project partner and stakeholder and one remembered this information from the usability test before and considers it easy to find nevertheless.

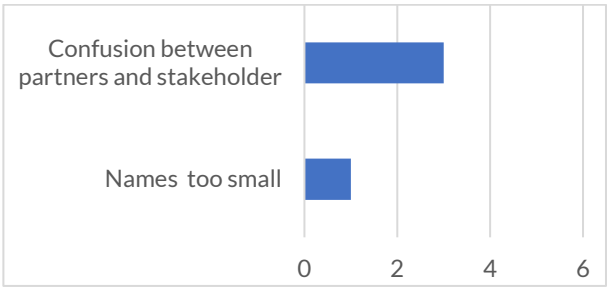


Graph 70: Categories of answers to question 5 (Variant B - Infographic)

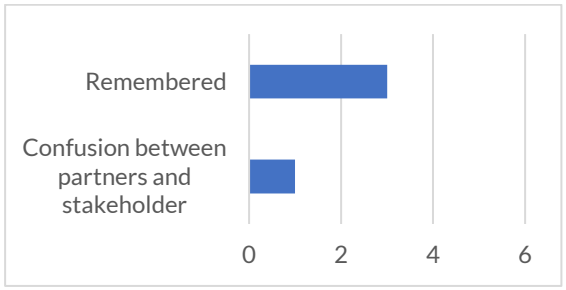


Graph 71: Categories of answers to question 5 (Variant A - Text)

In task number 5, users were asked to find the action points of the project. According to Graph 70, in Variant B, while performing the task, one user expresses their liking and preference for the information to be presented using icons and one remembers this information from the last usability test. In Graph 71, it is possible to see that in Variant A (text), two users consider this information difficult to find, one expected to find this information in the text and one claims to prefer the information to be presented using icons (like the user seen in the previous usability test).

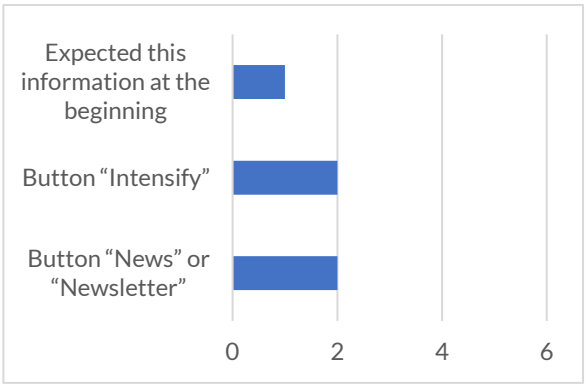


Graph 72: Categories of answers to question 6 (Variant B - Infographic)

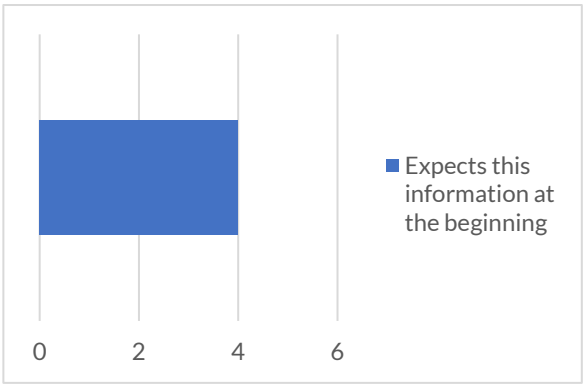


Graph 73: Categories of answers to question 6 (Variant A - Text)

According to Graph 72, in Variant B, three users were confused about the information on the project partners and the stakeholder of the project and one considers the names of the partners to be too small. In Variant A (text), three users claim to remember this information from the last usability test and one was also confused between project partners and stakeholders (Graph 73).

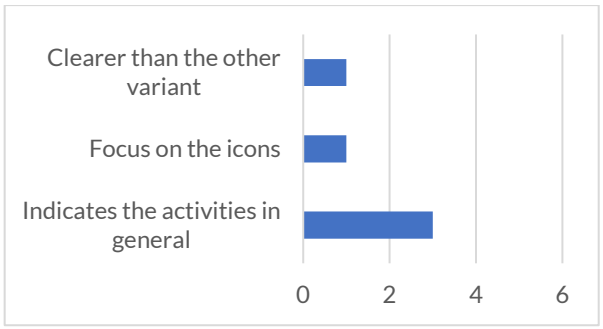


Graph 74: Categories of answers to question 7 (Variant B - Infographic)

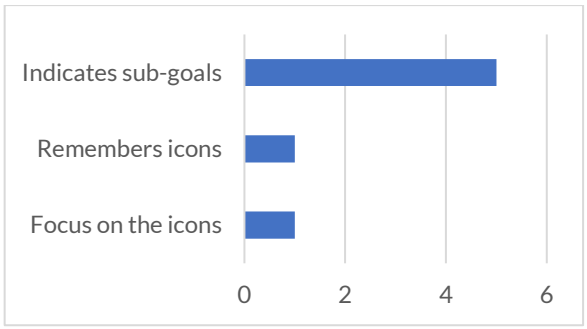


Graph 75: Categories of answers to question 7 (Variant A - Text)

The users were, in question number 7, asked where they would click to read more news on the project. According to Graph 74, in Variant B (Infographic) two users would click on the button "news" or "newsletter" and two on the button "INTENSIFY". One expected to find this information at the top of the webpage. Graph 75 shows that in Variant B (text), four users would expect to find this information at the top of the webpage.



Graph 76: Categories of answers to question 8 (Variant B - Infographic)



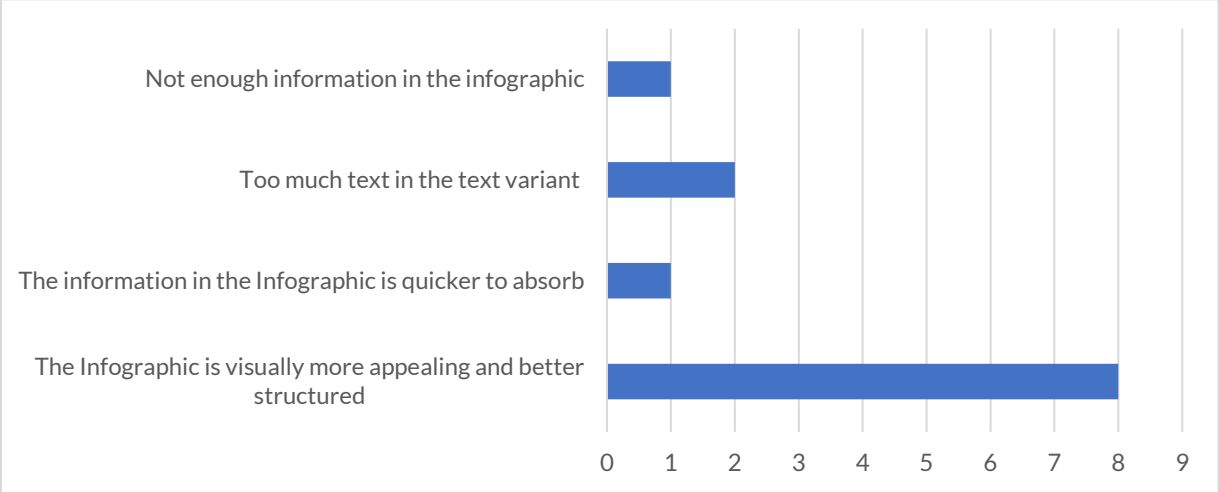
Graph 77: Categories of answers to question 8 (Variant A - Text)

When asked about the concrete implementation of EAA in Dessau-Roßlau through this project, according to Graph 76 in Variant B, three users mentioned different activities, one focuses on the icons and one considers this information to be clearer than in the other Variant (referring to Variant A). In Graph 77, it is possible to see that in Variant A, five users indicate the sub-goals instead of the implementation, one remembers the icons of the Variant before (referring to B) and one also focuses on the icons.

After the second Usability Test, an oral interview is conducted with each user. The objective of this interview is to compare the two Variants and to give complete freedom of response to the

users. The answers are analysed qualitatively according to Mayring's method (see Table 17 attached), from which the following categories resulted.

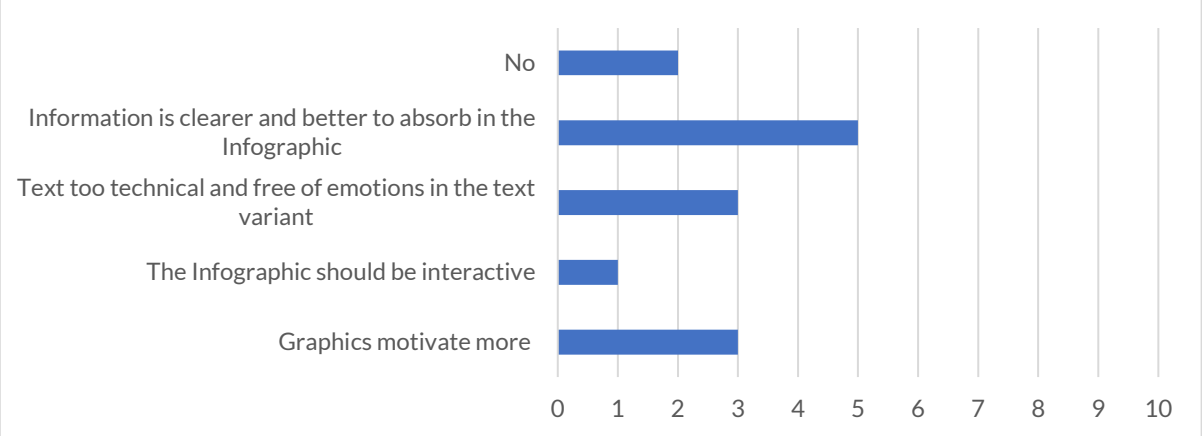
The first question asks the users in which Variant they consider the information to be better communicated and why.



Graph 78: Answers to which Variant the users consider the information to be better communicated in and why.

According to Graph 78, the majority of the users (eight) consider the information to be better communicated in Variant B because the Infographic is visually more appealing and better structured. One user considers that the information in the Infographic is quickly absorbed, and two users consider that Variant A contains too much text. One user considers the Infographic Variant to not contain enough information.

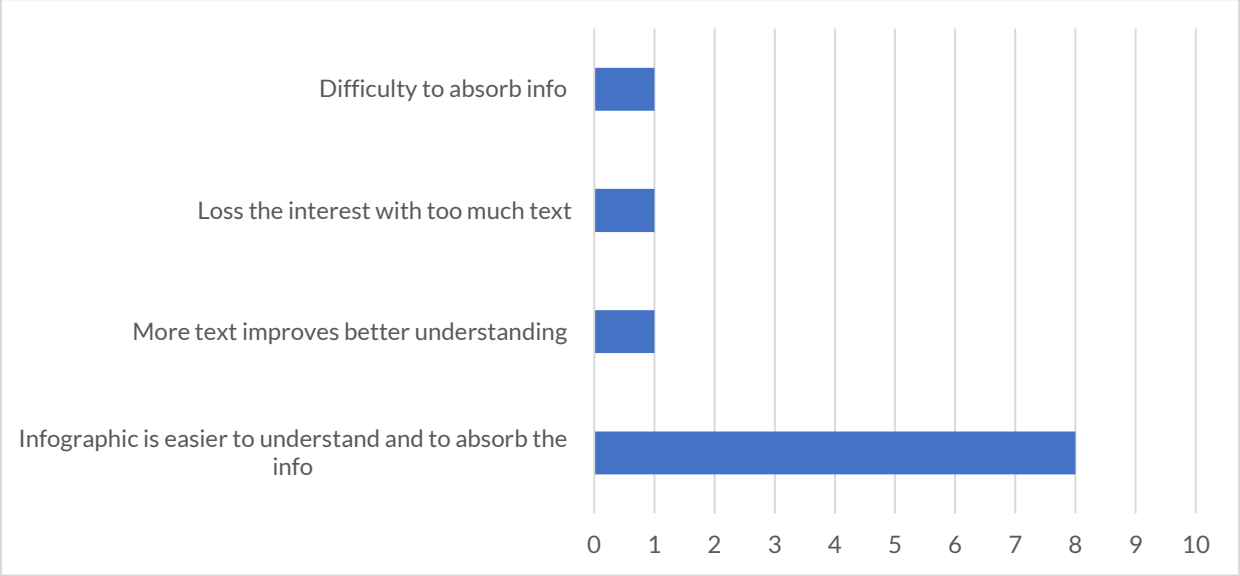
The second question asks the users which Variant addressed their concerns better if they felt more motivated by one of the two Variants and to what extent.



Graph 79: Answers from the users if they feel more motivated and engaged by one of the two Variants and to what extent.

According to Graph 79, five users consider the information to be clearer and more easily absorbed in the Infographic and three consider the graphics to be more motivating. Furthermore, three users consider that the text, in the text Variant (A), is too technical and free of emotions, it therefore does not motivate them. Two users do not feel more motivated and engaged by either one of the two Variants and one feels that the Infographic should be more interactive.

The last question asked the users if they think that the way information is conveyed - i.e. through text or Infographics - influences their understanding of the message.



Graph 80: Answers of the users if they think that the way information is conveyed - i.e. through text or Infographics - influences their understanding of the message.

According to Graph 80, eight out of ten users consider the answer to be yes, because Infographics make the information easier to understand and absorb. One expresses his loss of interest when having to read too much text. One user feels that the difficulty in absorbing the information also hinders the interaction and another user claims that more text improves the understanding of the message.

5. Discussion

The results show that most users did not know about the EAA or its website, but that most users would like to participate or already participate in regional sustainable projects. 50% of the users say they focus on sustainability in their daily activities.

The favourite media of most users is Infographic, this is because of the visualisation of the information. This preference is reflected in the usability tests because in Variant B (Infographic), users needed less time than in A. Furthermore, in a total of eight tasks/questions, in Variant B there are three incorrect answers while in Variant A (text) there are seven incorrect answers. The same is true for the second usability test, in terms of the speed in which tasks were completed. In general, users took less time than in the previous Variant. Factors such as previous knowledge of the tasks and information and getting used to the test are variables that could have influenced the results, although this cannot be proven. Additionally, in the second usability test, Variant B (Infographic) has fewer incorrect answers than Variant A. This means that users who answered correctly in Variant B, in the first test, failed the same tasks in the next test in Variant A (text). Furthermore, there is an improvement in the success rate of all users in the first group, who in the first usability test, in Variant A (text), got seven tasks wrong and in the second test, in Variant B, (Infographic) got five wrong.

In the first usability test, in both Variants, the answer registering the longest search time is with regards to the question of concrete implementation that the EAA wants to do in Dessau-Roßlau through the project. In the second test, again a long search time is registered for finding this answer, only slightly exceeded in Variant A (text) by the question on action points. This is a reality that needs special attention as one of the key points in the communication of a project is that the receiver fully understands what is to be implemented in order to achieve the project objective. In Variant B, the implementation of the E-Mobility information centre is highlighted and described using the same words as the question and even accompanied by the largest icon on the webpage, despite all of this, the communication does not work in either Variant. Thinking aloud shows that there is user confusion over the RAP and the action points as well as the project objectives and sub-objectives in both Variants. The questionnaire conducted after the first usability test (A/B test) shows that there is specific confusion between implementation and objective.

The name, the time period and the main objective of the project do not present any difficulty of understanding by the users, however in Variant B (Infographic), the clearer and shorter formulation of the main objective was identified as being positive several times, as was the icon that accompanies the description of the objective.

The information regarding the funding entity of the project is somewhat unclear since in the first usability test, in Variant A (text), only one user found this information. In Variant B (Infographic), everyone found the information, but several expected to read this information in the text, specifically with the word "financed by". The disclosure of this information is mandatory with regards to several funding entities, the funding information should therefore be clearly communicated in the text as well as in the logo . There is also confusion between project partners and stakeholders, this is highlighted by the fact that many users identified both as funders of the project. Furthermore, many users do not know the difference between regional stakeholder and project partner, so this information should be clearly communicated. Many users expect to find the information concerning the partners at the top of the page, as in Variant A, but this preference is not unanimous.

Task 7, where users cloud click in order to read news about the project provoked much spontaneous and immediate interaction from the users. The majority expected to find this information at the top of the page and many expressed a preference for having a button, logo or sidebar in the header with this information.

In the different phases of the usability test, there is feedback regarding the lack of information on how the user can engage with the project. This information is not communicated and is expected by several users. It has also been identified as one of the reasons why users did not feel interested in participating in this project, in collaborating with the EAA and/or in engaging in sustainable projects.

Getting to know the team and other EAA projects, as well as their results, was identified as a differentiating factor in the engagement and participation by several users.

Regarding the design, the questionnaire conducted after the first test shows different subjective opinions regarding the functionality and aesthetics of both Variants. However, in the final interview, after users got to know both Variants, the effectiveness and efficiency of Variant B (Infographic) is absolutely remarkable, in terms of communication, information absorption, content structure, design appeal and motivation. Specifically, in terms of motivation, there are two users who do not consider their motivation to differ in either Variant. Some reasons regarding the motivation prompted by the usability test, which was expressed in the questionnaire conducted after the first usability test, are previous interest, the appeal (or lack of) of the text, information regarding how to engage with the project and more information about the project.

Users refer to the text as being too technical and not very emotional and/or inviting, that they lack interactivity and information about the project and the EAA, users also felt that Variant A

(text) has a lack of images. These opinions prove that the adaptation of the content is essential for successful communication and engagement. It is noteworthy that video was the second most voted favourite media. Furthermore, it is noteworthy that the comments regarding the content, structure and presentation of the information, mainly in questions related to engagement, participation and motivation, surpassed those related to the aesthetics of the design.

Usability testing is, as the name indicates, used mainly and par excellence to test the usability of a product or service. It is, however, the chosen combination of methodologies and the established questions and tasks that define the orientation of the test and the obtainment of results. The focus when creating the usability test should be on the goal that is to be achieved from conducting the test in question. In this master thesis, the combination of methodologies used in the usability test resulted in well-founded conclusions that could improve the engagement of the target audience in EAA's sustainable projects, in addition to the performance of its website in terms of usability.

6. Conclusions

The combination of methodologies chosen for this usability test as a tool to test the effectiveness and efficiency of information design, as a means of communication, for engagement in sustainable projects demonstrates the different levels of influence which text and Infographics have on the recipient. It also demonstrates the influence which the medium, type and support of communication has on the users' opinion, but, more than that, it proves the importance of directed communication, of the study and knowledge of the target audience and of the strategic structuring and presentation of the information as a potentiator of the receiver's engagement, participation, motivation and interest. The study of the target audience, the communication of reliable and verified information and the structuring and adaptation of information to the audience are the key to successful communication and the soul of information design.

Some suggestions for the improvement of EAA's website after this usability test and which may be useful for other projects are:

- Formulate the text in a simple, concise and concrete way, appealing to participation and inviting the audience to be part of the project;
- Mix text with icons and images, making the reading interactive and appealing;
- Make known not only the project, but its results and concrete influence on the life of the community, as well as the people working on the project and the association and its values;
- Present the team in a photo or video, strengthening the relationship between the project managers and the target audience and making the message more emotive;
- Use interactive and dynamic media, such as videos, Infographics and/or animations to explain complex messages;
- Clearly communicate information about the project in question, the project financier and the entity that communicates and manages the project;
- Perform usability tests at different stages of the information design process to better understand the target audience and their expectations and to have the opportunity to correct possible mistakes and alter strategies;
- Cultivate a close relationship with the target audience and study it through questionnaires, interviews, etc.
- ...

This methodology has been studied and applied to the case of EAA and its website, however it can be extended, adapted and used in associations, organisations, companies and other entities that want to test the effectiveness and efficiency of their communication and the influence of

information design for the engagement of the target audience in projects, especially sustainable projects. Furthermore, this methodology was applied to the EAA website, but can equally be applied to any other media, channel or means of communication.

As is mentioned many times throughout this master thesis, we live in an information age and we have never been so uninformed. The verification and correct communication of information, making it accessible to all audiences to which it is directed is not only essential for climate protection and adoption of more sustainable lifestyles, but to ensure equal rights of information for all people.

Sustainability is based on three areas: environmental, social and economic. Information design has the duty and ability to communicate in a targeted and accurate way, contributing to the environmental, social and economic sustainability of the planet.

A well and correctly informed society is a society with the tools and the capacity to engage, enhancing common projects and successes.

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Attachment

Figure 29: Variant A (Text)

Spende an den EAA e. V. Mitmachen Suche

ENERGIEAVANTGARDE ANHALT

ENERGIEATLAS PROJEKTE REALLABOR ANHALT VEREIN VERANSTALTUNGEN PRESSE

EU-Interreg-Projekt „INTENSIFY“

INTENSIFY Interreg Europe

European Union European Regional Development Fund

Projektziel

- den lokalen Klimaschutz stärken - bisherigen Klimaschutzstrategien und -maßnahmen der Partner bewerten - CO2-Emission pro Kopf der Bevölkerung wesentlich verringern - durch nachhaltigen Umstellung auf eine energie- und ressourcenschonende Stadtentwicklung

Projektpartner

Energieavantgarde Anhalt e. V. Energieagentur von Almada, AGENEAL - Portugal / Cork Stadtrat - Irland / CEA Umweltstudienzentrum - Spanien / Milton Keynes Council - Großbritannien / Provinz Treviso - Italien / Gemeinde Trnava - Slowakei / Stadt Zadar - Kroatien / ECTA Umweltzentrum für Verwaltung und Technologie - Litauen

Handlungsfelder

Im Projekt „INTENSIFY“ wird der EAA e. V. im Zuge der Struktur- und Investitionspolitik der EU von 2019 bis 2023 gemeinsam mit Partnern aus **Großbritannien, Irland, Portugal, Italien, Spanien, Kroatien, Litauen und der Slowakei** den lokalen Klimaschutz stärken. Hierfür unterstützt der EAA e. V. mittels seiner Erfahrungen im Reallabor Anhalt die Kooperation und das Engagement der Zivilgesellschaft und regionaler Entscheidungsträger für den Klimaschutz. Im Rahmen von „INTENSIFY“ bereiten die Projektpartner die bisherigen Klimaschutzstrategien und -maßnahmen ihrer Regionen auf und vergleichen diese miteinander. Auf Basis dieses Austauschs entwickeln die Projektpartner den regionalen Klimaschutz weiter und intensivieren diesen. Die Aktivitäten im Rahmen des Projekts bestehen aus Studienreisen, Workshops sowie der Etablierung einer Plattform, die die Erarbeitung regionaler Aktionspläne ermöglichen sollen.

Sachsen-Anhalt gehört nach eigenen Angaben zu den Ländern, deren CO_2-Emission pro Kopf der Bevölkerung wesentlich höher als im Bundesdurchschnitt liegt. Deshalb sieht das Land bei der nachhaltigen Umstellung auf eine energie- und ressourcenschonende Stadtentwicklung einen besonderen Handlungsbedarf.

18-03-14_EAA-e.-V._Europäische-Union-fördert-Reallabor-Anhalt.pdf (525 Downloads) 18-04-10-MZ-Europa_will_von_Anhalt_lernen.pdf (450 Downloads)

INTENSIFY Interreg Europe

European Union European Regional Development Fund

Partnerschaft

INTERREG-Projekt INTENSIFY

Maßnahmenkonzept/Projektbeschreibung der Energieavantgarde Anhalt e.V.

1. Projektbeschreibung E-18-06-05_Projektbeschreibung-REGIO-Antrag-zu-INTERREG-INTENSIFY.pdf (301 Downloads)

1.2 Erwartete Ziele (Erläuterung in Bezug auf die Regionalentwicklung, aber auch bzgl. Stärkung Wirtschaftskraft und Image der Region, Erhaltung/Schaffung von Arbeitsplätzen, Vernetzung/Verbindung von Infrastrukturangeboten etc.)

Kernziel von INTENSIFY

- Mit dem INTENSIFY Projekt wollen die Konsortialpartner 15% größere Einsparungen bei den Treibhausgasemissionen erreichen als bis 2023 in den teilnehmenden Regionen geplant ist und regionale Anspruchsgruppen intensiv in den regionalen Klimaschutz einbeziehen.

Unterziele von INTENSIFY

- Bis 2022 entwickelt jeder der acht Konsortialpartner einen Beteiligungsmechanismus und setzt zwei Beteiligungsprojekte (insgesamt 16) um, die die Treibhausgasemissionen reduzieren.
- Die Kooperation der regionalen Anspruchsgruppen soll um 25% bis 2022 in mindestens 4 Partnerregionen gesteigert werden. Hierfür benutzen die Konsortialpartner unterschiedliche digitale Beteiligungsplattformen.
- In mindestens einer Partnerregion sollen die Investitionen in Projekte zur Reduktion von

Treibhausgasemissionen um 10% im Vergleich zu den drei Jahren zuvor gesteigert werden. Dies erreichen die Konsortialpartner durch den Einbezug von Unternehmen und einer stärkeren Beteiligung der regionalen Bevölkerung.

- Mindestens fünf neue Beteiligungsprojekte sollen Verhaltensänderungen initiieren und einen klimabewussten Lebensstil fördern.
- Durch Wissens- und Erfahrungsaustausch sowie Beteiligungsformate, die Kooperation, Kreativität und die Umsetzung von Maßnahmen forcieren, werden die lokalen Anspruchsgruppen in Bezug auf die Energiewende und den Klimaschutz qualifiziert und dadurch die Kompetenzunterschiede zwischen den Anspruchsgruppen reduziert.

Regional Aktionsplan:

Informationszentrum für E-Mobilität in Dessau-Roßlau

Die Stadt Dessau-Roßlau, mit einer durchschnittlich älteren Bevölkerung und großen Zahl von Studierenden, ist durch ihre seichte Topographie als Fahrradstadt prädestiniert. Gerade für mittelgroße Städte ist dies eine vielversprechende Strategie für die Reduktion von CO2. Der Austausch mit Milton Keynes soll das breite Spektrum der E-Mobilität (Auto, Straßenbahn, Fahrrad, Lastenrad) zum Ziel der Stadtentwicklung in Dessau-Roßlau sichtbar machen. Durch Studienbesuche in Milton Keynes wurde die EAA auf vielversprechende Maßnahmen wie bevorzugtes Parken für E-Autos, Informationskampagne zur E-Mobilität oder autonome Pods für einen dezentralen Warentransport aufmerksam. Diese guten Beispiele werden in einer Bürgerbeteiligung im Rahmen der “Zukunftsreise Dessau-Roßlau” diskutiert. Gemeinsam mit den Stadtwerken Dessau-Roßlau prüft die EAA im Rahmend es Projektes dn Aufbau eines Mobilitätszentrums nach dem Vorbild von Milton Keynes im Rahmen einer E-Mobilitätsoffensive.

Inspiration: Das “Milton Keynes Electric Vehicle Experience Centre”.

Welche Aktionspunkte sind bis 2023 geplant?

- Teilnahme an der Zukunftsreise Dessau-Roßlau (Okt. 2021 – Okt. 2022)
  - Ziel: Teilnahme an der von der Stadt organisierten Veranstaltung und Beitrag zur Sensibilisierung für die Bedeutung der Mobilitätswende in Dessau-Roßlau.
- Teilnahme an der European Mobility Week 2022 (Sep. 2022)
  - Vorstellung unserer Vision für die Zukunft von Dessau-Roßlau in Hinblick auf die Mobilität und die Einbeziehung der Bevölkerung.
- Test Drive mit E-Fahrzeugen (Okt. 2022)
  - Wir wollen die Teilnehmerinnen und Teilnehmer die Möglichkeit geben, ein Elektrofahrzeug während der Zukunftsreise und der Europäischen Mobilitätswoche auszuprobieren.
- 3D-Modell von Dessau-Roßlau nach unser Zukunftsvision (Nov. 2021 – Okt. 2022)
  - Erstellung eines digitalen 3D- Modell, dass den Menschen zeigt, wie die Stadt aussehen könnte.
- Informationszentrum für E-Mobilität in Dessau-Roßlau (2023)
  - Aufbau eines Informationszentrums in einem alten Gebäude in der Stadt. Wir möchten, dass die Menschen hier alle Informationen über E-Mobilität erhalten und verschiedene Fahrzeuge ausprobieren können.

Regionale Stakeholder:

- Stadt Dessau-Roßlau
- DVG – Dessauer Verkehrs GmbH
- NASA – Nahverkehrsgesellschaft Sachsen-Anhalt
- DVV – Stadtwerke Dessau-Roßlau
- Fraunhofer IMWS
- …

Kontakt des INTENSIFY-Projektleiters bei der EAA:

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Mehr über INTENSIFY:

Projektnews: https://www.interregeurope.eu/intensify/news/
E-18-06-05_Projektbeschreibung REGIO Antrag zu INTERREG INTENSIFY

Newsletter #6

Die re-produktive Stadt

SINTEG – WindNODE “Schaufenster intelligente Energie”

KONTAKT IMPRESSUM EINWILLIGUNG & DATENSCHUTZ

Figure 30: Variant B (Infographic)

Aktivität	Datum	Ziel
Teilnahme an der Zukunftsreise Dessau-Roßlau	Okt. 2021 - Okt. 2022	Teilnahme an der von der Stadt organisierten Veranstaltung und Beitrag zur Sensibilisierung für die Bedeutung der Mobilitätswende in Dessau-Roßlau.
Teilnahme an der European Mobility Week 2022	Sep. 2022	Vorstellung unserer Vision für die Zukunft von Dessau-Roßlau in Hinblick auf die Mobilität und die Einbeziehung der Bevölkerung.
Test Drive mit E-Fahrzeugen	Okt. 2022	Wir wollen die Teilnehmerinnen und Teilnehmer die Möglichkeit geben, ein Elektrofahrzeug während der Zukunftsreise und der Europäischen Mobilitätswoche auszuprobieren.
3D-Modell von Dessau-Roßlau nach unser Zukunftsvision	Nov. 2021 - Okt. 2022	Erstellung eines digitalen 3D- Modell, dass den Menschen zeigt, wie die Stadt aussehen könnte.
Einweihung des Informationszentrum für E-Mobilität in Dessau-Roßlau	2023	Aufbau eines Informationszentrums in einem alten Gebäude in der Stadt. Wir möchten, dass die Menschen hier alle Informationen über E-Mobilität erhalten und verschiedene Fahrzeuge ausprobieren können.

Regionale Stakeholder:

- Stadt Dessau-Roßlau
- DVG - Dessauer Verkehrs GmbH
- NASA - Nahverkehrsgesellschaft Sachsen-Anhalt
- DVV - Stadtwerke Dessau-Roßlau
- Fraunhofer IMWS
- ...

Projektpartner aus INTENSIFY:

Mehr über INTENSIFY:

Newsletter | News | INTENSIFY-Website

Kontakt des INTENSIFY-Projektleiters bei der EAA:

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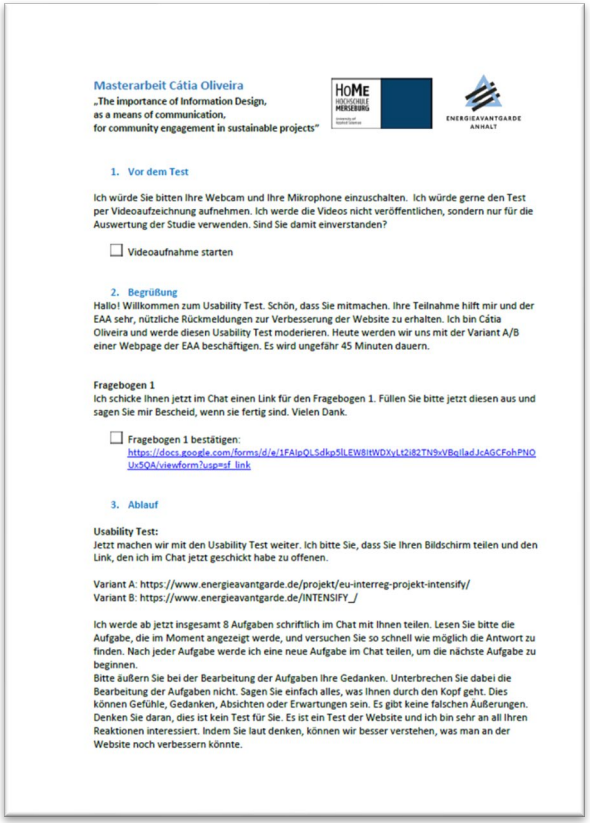
Figure 31: Script



Masterarbeit Cátia Oliveira

„The importance of Information Design,
as a means of communication,
for community engagement in sustainable projects"

1. Vor dem Test

Ich würde Sie bitten Ihre Webcam und Ihre Mikrophone einzuschalten. Ich würde gerne den Test per Videoaufzeichnung aufnehmen. Ich werde die Videos nicht veröffentlichen, sondern nur für die Auswertung der Studie verwenden. Sind Sie damit einverstanden?

☐ Videoaufnahme starten

2. Begrüßung

Hallo! Willkommen zum Usability Test. Schön, dass Sie mitmachen. Ihre Teilnahme hilft mir und der EAA sehr, nützliche Rückmeldungen zur Verbesserung der Website zu erhalten. Ich bin Cátia Oliveira und werde diesen Usability Test moderieren. Heute werden wir uns mit der Variant A/B einer Webpage der EAA beschäftigen. Es wird ungefähr 45 Minuten dauern.

Fragebogen 1
Ich schicke Ihnen jetzt im Chat einen Link für den Fragebogen 1. Füllen Sie bitte jetzt diesen aus und sagen Sie mir Bescheid, wenn sie fertig sind. Vielen Dank.

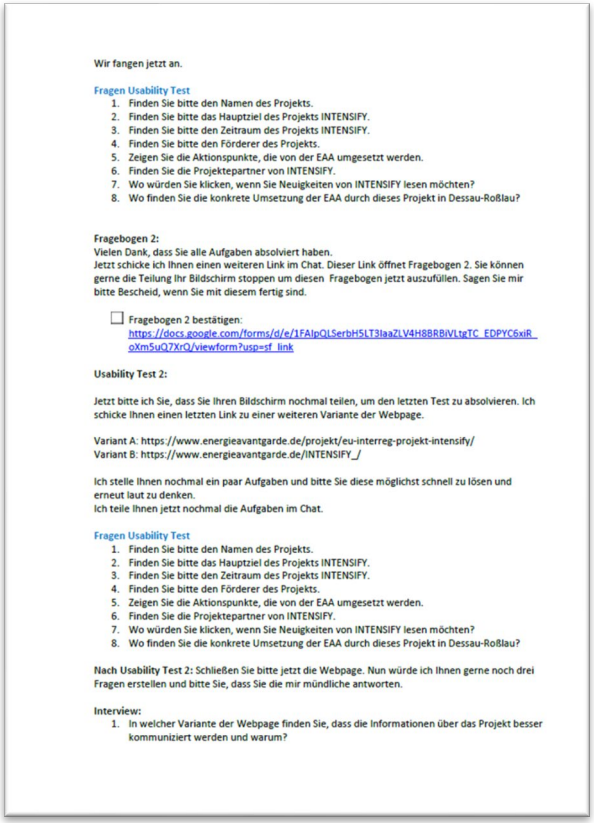
☐ Fragebogen 1 bestätigen:
https://docs.google.com/forms/d/e/1FAIpQLSdkp5lLEW8ItWDXyLt2i82TN9vVBqIladJcAGCFohPNOUx5QA/viewform?usp=sf_link

3. Ablauf

Usability Test:
Jetzt machen wir mit den Usability Test weiter. Ich bitte Sie, dass Sie Ihren Bildschirm teilen und den Link, den ich im Chat jetzt geschickt habe zu offenen.

Variant A: https://www.energieavantgarde.de/projekt/eu-interreg-projekt-intensify/
Variant B: https://www.energieavantgarde.de/INTENSIFY_/

Ich werde ab jetzt insgesamt 8 Aufgaben schriftlich im Chat mit Ihnen teilen. Lesen Sie bitte die Aufgabe, die im Moment angezeigt werde, und versuchen Sie so schnell wie möglich die Antwort zu finden. Nach jeder Aufgabe werde ich eine neue Aufgabe im Chat teilen, um die nächste Aufgabe zu beginnen.
Bitte äußern Sie bei der Bearbeitung der Aufgaben Ihre Gedanken. Unterbrechen Sie dabei die Bearbeitung der Aufgaben nicht. Sagen Sie einfach alles, was Ihnen durch den Kopf geht. Dies können Gefühle, Gedanken, Absichten oder Erwartungen sein. Es gibt keine falschen Äußerungen. Denken Sie daran, dies ist kein Test für Sie. Es ist ein Test der Website und ich bin sehr an all Ihren Reaktionen interessiert. Indem Sie laut denken, können wir besser verstehen, was man an der Website noch verbessern könnte.



Wir fangen jetzt an.

Fragen Usability Test
1. Finden Sie bitte den Namen des Projekts.
2. Finden Sie bitte das Hauptziel des Projekts INTENSIFY.
3. Finden Sie bitte den Zeitraum des Projekts INTENSIFY.
4. Finden Sie bitte den Förderer des Projekts.
5. Zeigen Sie die Aktionspunkte, die von der EAA umgesetzt werden.
6. Finden Sie die Projektepartner von INTENSIFY.
7. Wo würden Sie klicken, wenn Sie Neuigkeiten von INTENSIFY lesen möchten?
8. Wo finden Sie die konkrete Umsetzung der EAA durch dieses Projekt in Dessau-Roßlau?

Fragebogen 2:
Vielen Dank, dass Sie alle Aufgaben absolviert haben.
Jetzt schicke ich Ihnen einen weiteren Link im Chat. Dieser Link öffnet Fragebogen 2. Sie können gerne die Teilung Ihr Bildschirm stoppen um diesen Fragebogen jetzt auszufüllen. Sagen Sie mir bitte Bescheid, wenn Sie mit diesem fertig sind.

☐ Fragebogen 2 bestätigen:
https://docs.google.com/forms/d/e/1FAIpQLSerbH5LT3IaaZLV4H8BRBiVLtgTC_EDPYC6xiR_oXm5uQ7XrQ/viewform?usp=sf_link

Usability Test 2:

Jetzt bitte ich Sie, dass Sie Ihren Bildschirm nochmal teilen, um den letzten Test zu absolvieren. Ich schicke Ihnen einen letzten Link zu einer weiteren Variante der Webpage.

Variant A: https://www.energieavantgarde.de/projekt/eu-interreg-projekt-intensify/
Variant B: https://www.energieavantgarde.de/INTENSIFY_/

Ich stelle Ihnen nochmal ein paar Aufgaben und bitte Sie diese möglichst schnell zu lösen und erneut laut zu denken.
Ich teile Ihnen jetzt nochmal die Aufgaben im Chat.

Fragen Usability Test
1. Finden Sie bitte den Namen des Projekts.
2. Finden Sie bitte das Hauptziel des Projekts INTENSIFY.
3. Finden Sie bitte den Zeitraum des Projekts INTENSIFY.
4. Finden Sie bitte den Förderer des Projekts.
5. Zeigen Sie die Aktionspunkte, die von der EAA umgesetzt werden.
6. Finden Sie die Projektepartner von INTENSIFY.
7. Wo würden Sie klicken, wenn Sie Neuigkeiten von INTENSIFY lesen möchten?
8. Wo finden Sie die konkrete Umsetzung der EAA durch dieses Projekt in Dessau-Roßlau?

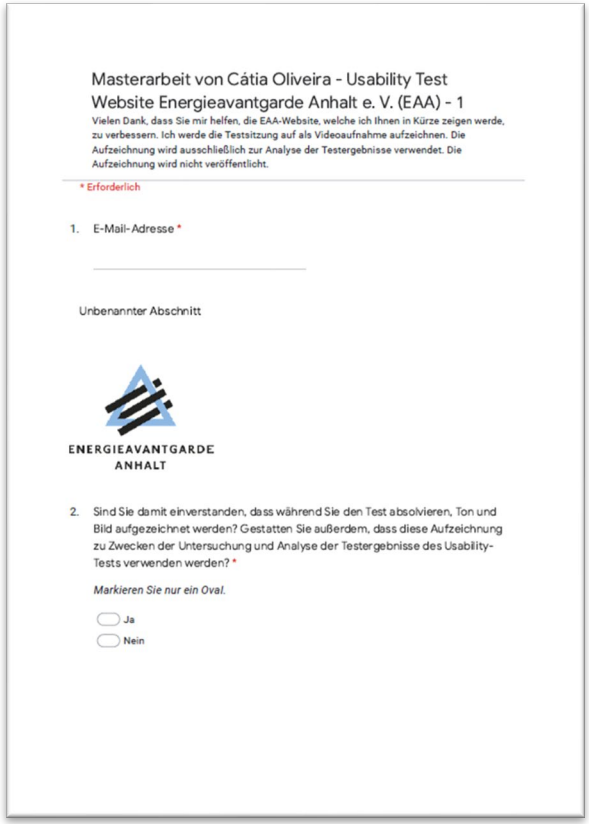
Nach Usability Test 2: Schließen Sie bitte jetzt die Webpage. Nun würde ich Ihnen gerne noch drei Fragen erstellen und bitte Sie, dass Sie die mir mündliche antworten.

Interview:
1. In welcher Variante der Webpage finden Sie, dass die Informationen über das Projekt besser kommuniziert werden und warum?
2. Haben Sie das Gefühl, dass Sie sich bei einer der beiden Varianten motivierter und angesprochener fühlen, als bei der anderen? Wenn ja, in welcher Variante und inwiefern?
3. Denken Sie, dass die Art und Weise, wie Informationen vermittelt werden - sprich durch Text oder Infografiken - Ihre Verständnis beeinflusst, die Botschaft zu verstehen?

4. Nach dem Test

Wir sind mit dem Test fertig und damit haben wir alle unsere Aufgaben schon erledigt.
Ich danke Ihnen nochmal für Ihre Zeit und Hilfe. Vielen Dank.

Figure 32: Questionnaire before the usability test



Masterarbeit von Cátia Oliveira - Usability Test
Website Energieavantgarde Anhalt e. V. (EAA) - 1

Vielen Dank, dass Sie mir helfen, die EAA-Website, welche ich Ihnen in Kürze zeigen werde, zu verbessern. Ich werde die Testsitzung auf als Videoaufnahme aufzeichnen. Die Aufzeichnung wird ausschließlich zur Analyse der Testergebnisse verwendet. Die Aufzeichnung wird nicht veröffentlicht.

* Erforderlich

1. E-Mail-Adresse *

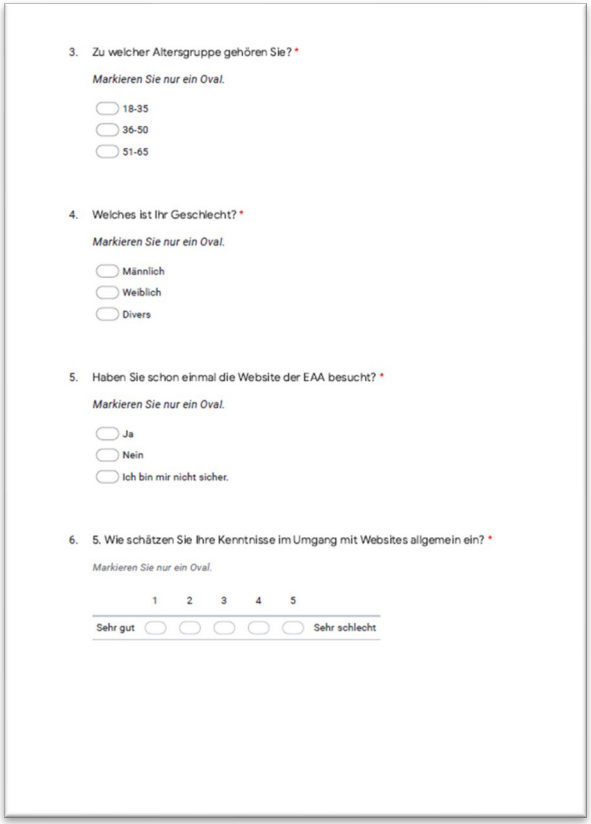
Unbenannter Abschnitt

ENERGIEAVANTGARDE ANHALT

2. Sind Sie damit einverstanden, dass während Sie den Test absolvieren, Ton und Bild aufgezeichnet werden? Gestatten Sie außerdem, dass diese Aufzeichnung zu Zwecken der Untersuchung und Analyse der Testergebnisse des Usability-Tests verwenden werden? *

Markieren Sie nur ein Oval.

- Ja
- Nein



3. Zu welcher Altersgruppe gehören Sie? *

Markieren Sie nur ein Oval.

- 18-35
- 36-50
- 51-65

4. Welches ist Ihr Geschlecht? *

Markieren Sie nur ein Oval.

- Männlich
- Weiblich
- Divers

5. Haben Sie schon einmal die Website der EAA besucht? *

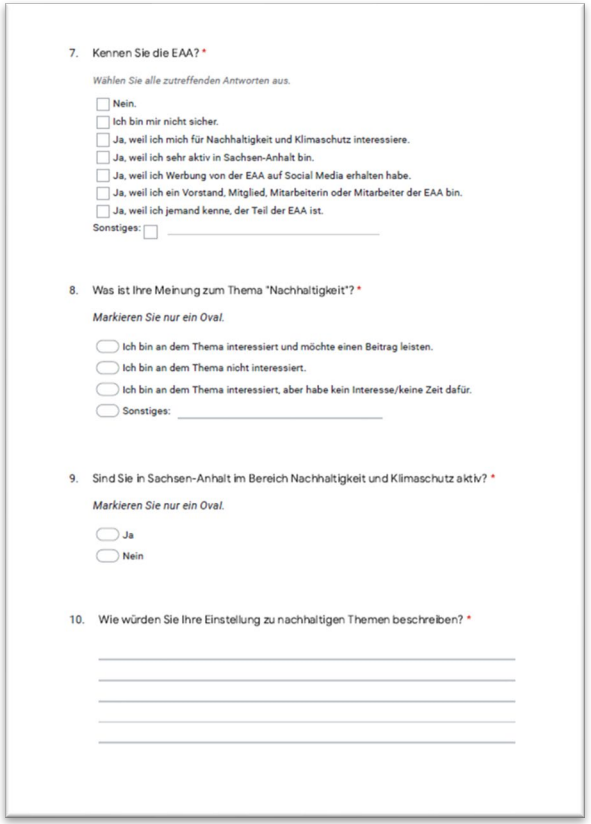
Markieren Sie nur ein Oval.

- Ja
- Nein
- Ich bin mir nicht sicher.

6. 5. Wie schätzen Sie Ihre Kenntnisse im Umgang mit Websites allgemein ein? *

Markieren Sie nur ein Oval.

	1	2	3	4	5	
Sehr gut						Sehr schlecht



7. Kennen Sie die EAA? *

Wählen Sie alle zutreffenden Antworten aus.

- Nein.
- Ich bin mir nicht sicher.
- Ja, weil ich mich für Nachhaltigkeit und Klimaschutz interessiere.
- Ja, weil ich sehr aktiv in Sachsen-Anhalt bin.
- Ja, weil ich Werbung von der EAA auf Social Media erhalten habe.
- Ja, weil ich ein Vorstand, Mitglied, Mitarbeiterin oder Mitarbeiter der EAA bin.
- Ja, weil ich jemand kenne, der Teil der EAA ist.

Sonstiges:

8. Was ist Ihre Meinung zum Thema "Nachhaltigkeit"? *

Markieren Sie nur ein Oval.

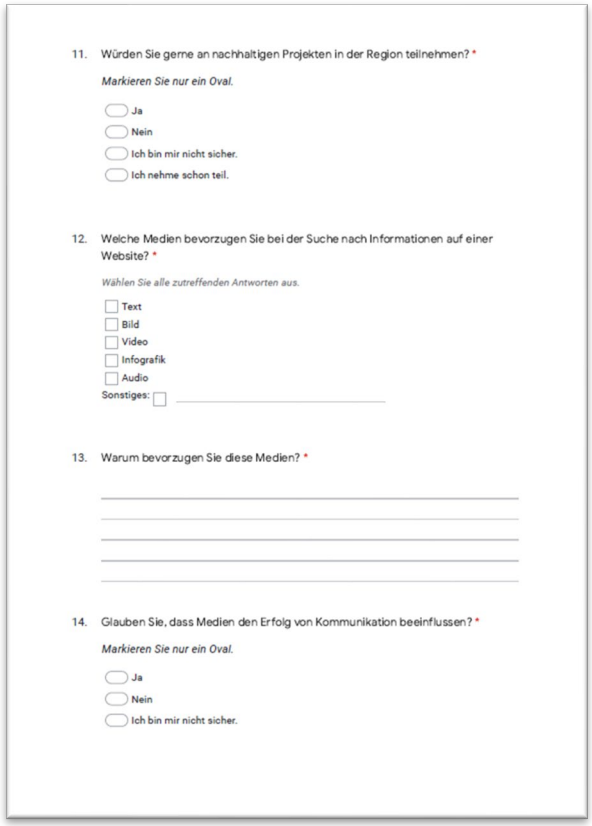
- Ich bin an dem Thema interessiert und möchte einen Beitrag leisten.
- Ich bin an dem Thema nicht interessiert.
- Ich bin an dem Thema interessiert, aber habe kein Interesse/keine Zeit dafür.
- Sonstiges:

9. Sind Sie in Sachsen-Anhalt im Bereich Nachhaltigkeit und Klimaschutz aktiv? *

Markieren Sie nur ein Oval.

- Ja
- Nein

10. Wie würden Sie Ihre Einstellung zu nachhaltigen Themen beschreiben? *



11. Würden Sie gerne an nachhaltigen Projekten in der Region teilnehmen? *

Markieren Sie nur ein Oval.

- Ja
- Nein
- Ich bin mir nicht sicher.
- Ich nehme schon teil.

12. Welche Medien bevorzugen Sie bei der Suche nach Informationen auf einer Website? *

Wählen Sie alle zutreffenden Antworten aus.

- Text
- Bild
- Video
- Infografik
- Audio
- Sonstiges: _____

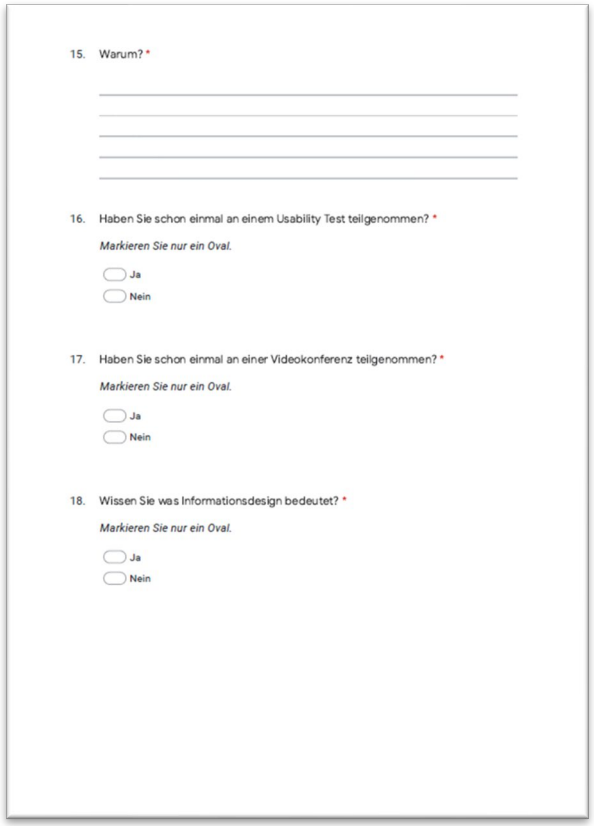
13. Warum bevorzugen Sie diese Medien? *

_____

14. Glauben Sie, dass Medien den Erfolg von Kommunikation beeinflussen? *

Markieren Sie nur ein Oval.

- Ja
- Nein
- Ich bin mir nicht sicher.



15. Warum? *

_____

16. Haben Sie schon einmal an einem Usability Test teilgenommen? *

Markieren Sie nur ein Oval.

- Ja
- Nein

17. Haben Sie schon einmal an einer Videokonferenz teilgenommen? *

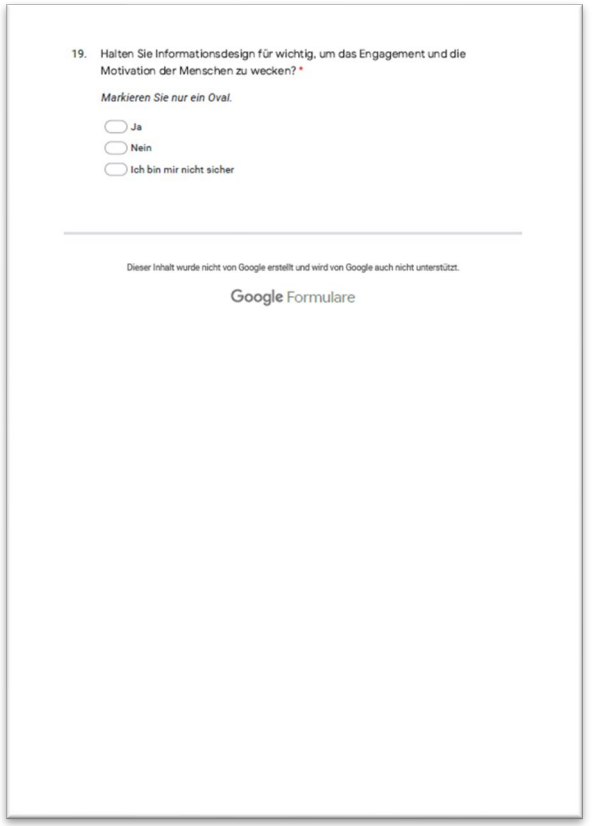
Markieren Sie nur ein Oval.

- Ja
- Nein

18. Wissen Sie was Informationsdesign bedeutet? *

Markieren Sie nur ein Oval.

- Ja
- Nein

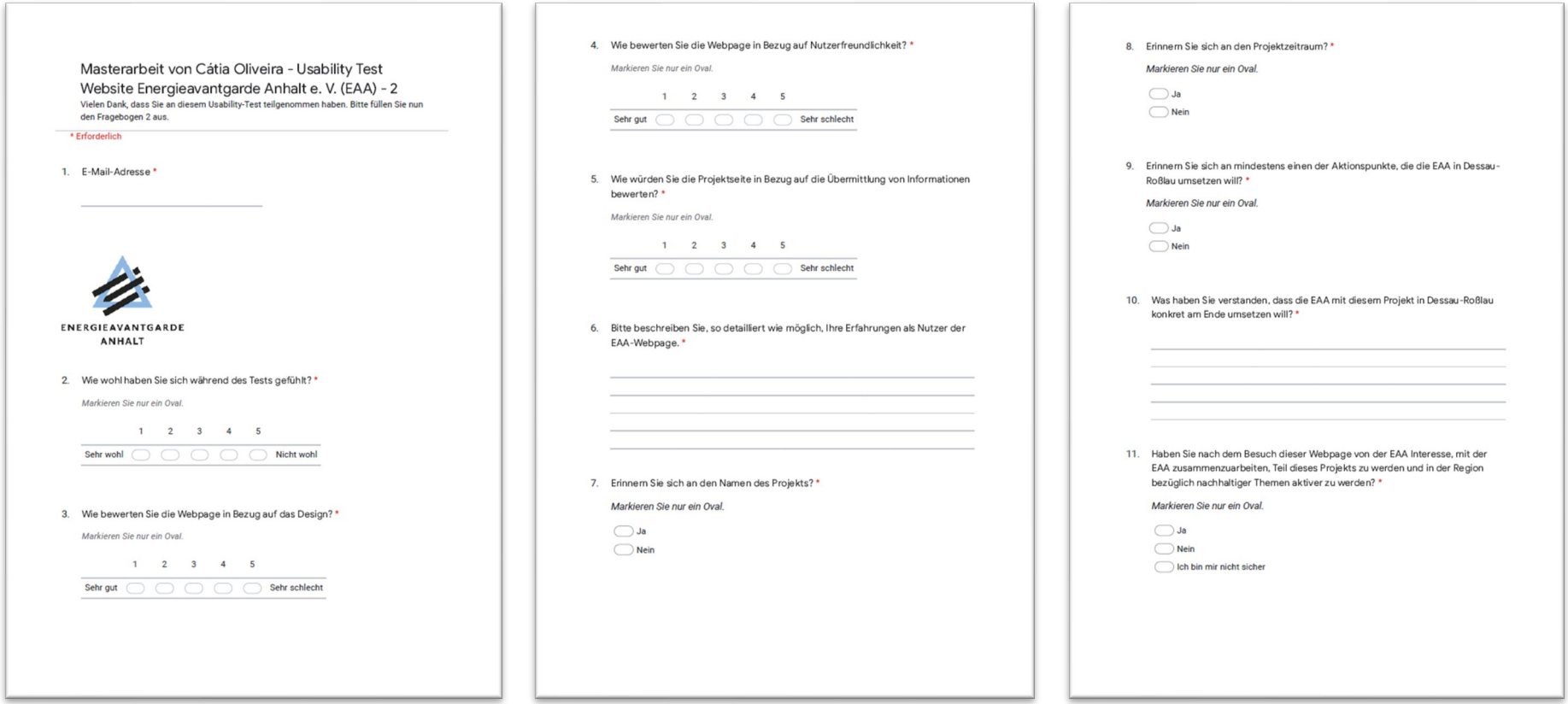


19. Halten Sie Informationsdesign für wichtig, um das Engagement und die Motivation der Menschen zu wecken? *

Markieren Sie nur ein Oval.

- Ja
- Nein
- Ich bin mir nicht sicher

Figure 33: Questionnaire after the usability test



Masterarbeit von Cátia Oliveira - Usability Test
Website Energieavantgarde Anhalt e. V. (EAA) - 2
Vielen Dank, dass Sie an diesem Usability-Test teilgenommen haben. Bitte füllen Sie nun den Fragebogen 2 aus.

* Erforderlich

1. E-Mail-Adresse *

ENERGIEAVANTGARDE ANHALT

2. Wie wohl haben Sie sich während des Tests gefühlt? *

Markieren Sie nur ein Oval.

	1	2	3	4	5	
Sehr wohl	◯	◯	◯	◯	◯	Nicht wohl

3. Wie bewerten Sie die Webpage in Bezug auf das Design? *

Markieren Sie nur ein Oval.

	1	2	3	4	5	
Sehr gut	◯	◯	◯	◯	◯	Sehr schlecht

4. Wie bewerten Sie die Webpage in Bezug auf Nutzerfreundlichkeit? *

Markieren Sie nur ein Oval.

	1	2	3	4	5	
Sehr gut	◯	◯	◯	◯	◯	Sehr schlecht

5. Wie würden Sie die Projektseite in Bezug auf die Übermittlung von Informationen bewerten? *

Markieren Sie nur ein Oval.

	1	2	3	4	5	
Sehr gut	◯	◯	◯	◯	◯	Sehr schlecht

6. Bitte beschreiben Sie, so detailliert wie möglich, Ihre Erfahrungen als Nutzer der EAA-Webpage. *

7. Erinnern Sie sich an den Namen des Projekts? *

Markieren Sie nur ein Oval.

◯ Ja
◯ Nein

8. Erinnern Sie sich an den Projektzeitraum? *

Markieren Sie nur ein Oval.

◯ Ja
◯ Nein

9. Erinnern Sie sich an mindestens einen der Aktionspunkte, die die EAA in Dessau-Roßlau umsetzen will? *

Markieren Sie nur ein Oval.

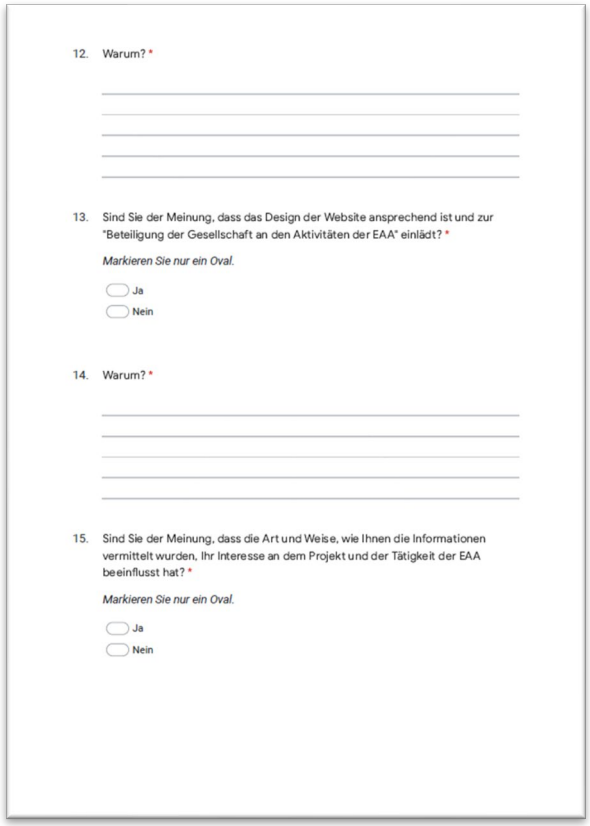
◯ Ja
◯ Nein

10. Was haben Sie verstanden, dass die EAA mit diesem Projekt in Dessau-Roßlau konkret am Ende umsetzen will? *

11. Haben Sie nach dem Besuch dieser Webpage von der EAA Interesse, mit der EAA zusammenzuarbeiten, Teil dieses Projekts zu werden und in der Region bezüglich nachhaltiger Themen aktiver zu werden? *

Markieren Sie nur ein Oval.

◯ Ja
◯ Nein
◯ Ich bin mir nicht sicher



12. Warum? *

13. Sind Sie der Meinung, dass das Design der Website ansprechend ist und zur "Beteiligung der Gesellschaft an den Aktivitäten der EAA" einlädt? *

Markieren Sie nur ein Oval.

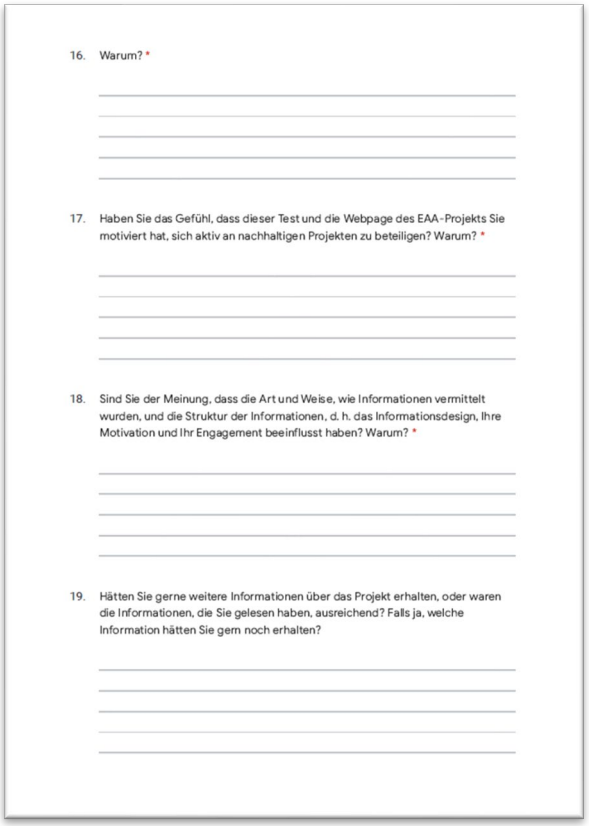
Ja
Nein

14. Warum? *

15. Sind Sie der Meinung, dass die Art und Weise, wie Ihnen die Informationen vermittelt wurden, Ihr Interesse an dem Projekt und der Tätigkeit der EAA beeinflusst hat? *

Markieren Sie nur ein Oval.

Ja
Nein



16. Warum? *

17. Haben Sie das Gefühl, dass dieser Test und die Webpage des EAA-Projekts Sie motiviert hat, sich aktiv an nachhaltigen Projekten zu beteiligen? Warum? *

18. Sind Sie der Meinung, dass die Art und Weise, wie Informationen vermittelt wurden, und die Struktur der Informationen, d. h. das Informationsdesign, Ihre Motivation und Ihr Engagement beeinflusst haben? Warum? *

19. Hätten Sie gerne weitere Informationen über das Projekt erhalten, oder waren die Informationen, die Sie gelesen haben, ausreichend? Falls ja, welche Information hätten Sie gern noch erhalten?

20. Möchten Sie eine Rückmeldung, einen Kommentar oder eine Anregung hinterlassen? *

Table 3: Users' attitudes towards sustainability issues

Category	Transcription
Scientific or technical approach	"Balance between ideal vision and economic and technical feasibility."
Daily life	"I am interested in sustainability and try to adopt this in my everyday life, for example by buying sustainable products."
	"I study sustainability and try to do my part. And if necessary, also the part that others don't want to or can't do."
	"I find sustainability extremely important. For example, I am also interested in the UN's Sustainable Development Goals and try to contribute to this through my involvement with AIESEC."
	"I am open to sustainable issues and try to live well sustainably within my possibilities."
	"I am very interested in living as sustainably as possible according to my living situation. For me, it is important that little plastic gets into the environment. I also try to travel less by car, only when it is necessary."
Concern for the future	"The sustainable use of resources is essential - not only for us, but for all future generations. For this reason, I would describe myself as open-minded and interested in sustainability."
	"Absolutely urgently important topic!!! And the implementation (especially by leading market companies) even more urgent!"
Important but hard	"Action is needed but it is often difficult to be consistent."
General interest	"I am interested. "

Table 4: Reasons for users' media preferences

Category	Transcription
Information visualisation	„To get an all-encompassing knowledge of the issues."
	"As this is a brief summary of relevant information."
	"High informational content."
	"Information can be absorbed more quickly from images and graphics in combination with text than from text alone. In addition, pictures and graphics are visually appealing and liven up the overall appearance of the page."

Category	Transcription
Understanding	"Because this form of media is most likely to give me the information and to give me a sufficient depth of understanding of the respective information."
	"Easiest and quickest to understand."
Communication	Through media, a basis for communication can be created. So that the participants in the communication have a common basis.
Memorisation	"Memorability is better."
	"I find these particularly striking."
Personal ability or limitation	"I am slow at reading, so I prefer to consume audio."

Table 5: Why users consider that the media influence the success of communication

Category	Transcription
Influence on people	"Because media can be appealing and attractive and thus arouse people's interest."
	"Media generally have a great influence on people."
	"Media, e.g. pictures, can lead to an increase in recognition value. Furthermore, media also have an influence on sensations, etc."
Understanding	"Easier comprehensibility and focus on the topic"
Basis and support for communication	"Through media, a basis for communication can be created. So that the participants in the communication have a common basis."
	"Due to increasing digitalisation, media (especially in digital form) are becoming more and more important. They form the cornerstone of modern communication."
	"Yes, because media play a special role in communication. Media are present everywhere and shape the way we communicate. Through media, it is much easier, faster and more intensive to exchange about topics."

Category	Transcription
	"Media give a wider field of participants for communication and allow more different types of communication."
	"Supporting function."
Other	"I can't exactly put it into words."

Table 6: Thinking aloud - 1. Usability Test

Category	Thinking aloud	
	VARIANT A	**VARIANT B**
Q1: Please find the name of the project.		
Difficult to find	"It wasn't easy to find."	
Easy to find		The user found it immediately, on the logo and then on the web tab.
		The user gave the answer immediately when their opened the website.
Confusion with EAA logo		Had to wonder for a few seconds if it was the EAA logo, but realised it was the company. But the first impression was right away that it would be INTENSIFY because it's centred at the top of the page.
		He found it in the middle, but first thought it would be EAA.
Q2: Please find the main objective of the "INTENSIFY" project.		
Difficult to find	"It wasn't easy to find."	

Category	Thinking aloud	
	VARIANT A	**VARIANT B**
Unclear text	"Hard to understand what the main objective is, with so much written text."	
Easy to find		The user said it was easy to find.
		"Just below the name, quick to find."
		The user read the text in the box. And gave as an answer the first paragraph.
Q3: Please find the time period of the "INTENSIFY" project.		
Easy to find in the text		First in the text and then in the header. He remembered seeing this info at the very beginning. The user thought it was interesting that the project time range was right in the header, but the user doesn't have the project experience to know if it would be necessary.
		"I found it in the text."
		The user found it in the heading and then in the text.
		The user read the text first.
Easy to find in INTNSIFY logo		The user found it in the heading and then in the text.
Q4: Please find the funding of the project.		
Partners or Stakeholder as funders	The user did not get it right. The user immediately looked up the small map and indicated as funders the partner countries, which the user saw in the text in Bold. The user looked this information up in the text.	
	The user couldn't find the information. The user thinks it's funded by the country.	
	The user did not find it. The user understood it to mean the project partners. Then, the user looked further and found the Stakeholders. The user mentioned that their needed more time, and that the information is not clear, which would not please the funder.	

Category	Thinking aloud	
	VARIANT A	**VARIANT B**
	The user did not find it. Thinks it is the project partners, in the header. It would understand that the project would be funded by the partners.	
Info in the text		The user found the EU information in the text but considered that the project partners also fund it.
		The user looked for the information in the text and understood that the funder is UE but was not clear.
The word "funding" is searched		The user started by looking at the bold words in the text and hoped to find this information there. The user looked for the word "funded". "What does stakeholder mean?" – he asked. The user didn't find it because it was not clear, but referred that it could be the partners.
Logo in the header		The user immediately found the answer through the logo. But the user was confused by the name "Interreg Europe" after the name "INTENSIFY". The user didn't understand if it would be another project or a part of this project.
Q5: Please show the action points that will be implemented by the EAA.		
Goals or sub-goals	Indicated core target and sub-targets.	
	The user indicated the points of the sub-targets of INTENSIFY. When the user continued to view the webpage, the user found the correct information and immediately understood from the title. The user stated that if he had scrolled this information would be clear.	
Info about date is positive	The user found the activities and then the information centre and the user believed the information was easy to find because it is central on the page. The user liked the information about the date.	
Info is in the icons		The user indicated information from the text because the user didn't scroll on the webpage. The user expected to find the information immediately. The user found the correct information immediately when their saw the icons and said: "the icon´s representation is very good". The user suggested less text and the icons right on the homepage.

Category	Thinking aloud	
	VARIANT A	**VARIANT B**
		The user found it by keywords. The user said that they are very well listed, what is planned.
Text read at first		The user found the activities in the text, but not the action points. While scrolling their found the answer but found it confusing that it should be on the very first page. Considered it boring that he must read the text.
Q6: Please find the project partners of INTENSIFY.		
Remembers the info	The user first found the information in the text because the user had already indicated it as a funder and then the user saw it in the header.	
	The user remembered that their had found them before. It was easy and quick to find.	
Confusion between Stakeholder and Partners	First, the user thought it was the Stakeholder but then the user saw the information about the project partners in the header.	
	The user first indicated the project partners and then the Stakeholder. The difference between the two was not clear.	
Understands it would not be the funders	The user found the information in the header and assumed that the project partners would not be the funders.	
Well located at the end of the webpage		The user found it. The user usually found the partners at the bottom of the page and therefore thought that the information is well located.
Remembers the info		"It is well defined." The user remembered seeing this information.
Confusion between Stakeholder and Partners		The user first indicated the project partners and then the stakeholder. The difference between the two was not clear.
		The user immediately indicated the EU and then the stakeholder and project partners and found no difference between the two.

Category	Thinking aloud	
	VARIANT A	**VARIANT B**
		The user tried to find the information in the text and then in the menus on the website. Then the user found the Stakeholder and thought it was this one. Then the user found the title "project partners" and the user was sure. But the difference was not clear, because the user was not very familiar with the term "Stakeholder".
Q7: Where would you click if you want to read news from INTENSIFY?		
Expects button at the top	The user found the information but was hoping to have an interactive button right at the top of the page.	The user didn't find it. The user was expecting a button at the top of the page, or the user would "press" start menu.
	Newsletter and News, with interactive link. The user immediately said that their expected a News button at the beginning.	Before looking for the information the user immediately indicated that their would like to see the information right at the top of the page or on the side with a tag, like a headline. When searching the site, the user referred to activities or actions points and only then found the "news" button way down.
	The user didn't find it. The user was expecting a button at the top of the webpage, or their would click on the "press" start menu.	The user would click in the menu "press", in the main menu or "events" or social networks or establish contact. But the user would expect this information to be at the beginning, as a presentation of the project. The user finally found the link button but did not indicate it as a clear answer.
		The user was expecting this information at the top of the page, like a button or similar. The user clicked on the EAA logo to find this information.
Expects to click on the INTENSIFY logo	On the INTENSIFY logo close to the map.	
Expects to click on the EAA logo	The user did not find it. The user was hoping to find the information on the Homepage and for that the user would click on the EAA logo.	The user was expecting this information at the top of the page, like a button or similar. The user clicked on the EAA logo to find this information.
"News" or "Newsletter"		Correct, but the user thought for a second whether Newsletter or News. When the user read the third button, the user understood that their is on the EAA website and could open the INTENSIFY website.
Q8: Where can you find the concrete implementation of the EAA through this project in Dessau-Roßlau?		

Category	Thinking aloud	
	VARIANT A	**VARIANT B**
Confusion about goals and sub-goals	The user could not find the information. The user thought of Information centre but did not indicate it as an answer.	The user indicated co-objectives but could not find a concrete implementation.
	The question was not clear. The user read the information about the Information centre but did not indicate it as the correct answer. The user read the website in detail. The user gave the wrong answer indicating co-objectives. The user was confused and struggled to find the information.	The user found the "action points" by searching for this answer. The user referred again to the icons and the graph and then in text. The user expected differently and did not find it immediately. The user has indicated the "action points" as an answer.
RAP and action points	The measures were described by the user in the long text of the Information centre.	Indicated the action points.
	Regional Actions Plan and action points.	The user was tried to figure out what the concrete implementation looked like. The user indicated the action points, then the main objective, then about the general objective described in the initial text. The user says their gets mixed up and can't understand what the concrete implementation is, but the electric vehicles and other information for the community were memorised.
		The user first indicated sub-objectives as the answer but then gave the correct answer (RAP).

Table 7: Experience as user of the EAA´s website

Category	Transcription Version A	Transcription Version B
Info easy to find	I basically found the information very quickly. The headings were very helpful.	I find the information linguistically comprehensible.
	The EAA webpage is very clearly laid out. All essential information is summarised very centrally.	The page itself informs about the most important points of the project and gives an insight into the project and the partners.
	The website communicated the information of the project "INTENSIFY" well and showed what the contents of the project are.	Regarding the questions, it is easy to find out the individual points because you simply have to scroll down.

Category	Transcription Version A	Transcription Version B
Unappealing design	The design of the page is very simple, I would like to see more "design" here, not just simple text. Illustrations or another basic structure of the page. In general, the site is informative but not necessarily appealing. It's not a bad design but very plain and simple.	I think I find the colour blue somewhat unpleasant, as well as the table.
	The structuring was sometimes confusing as the headings were not clear and partly numbered and partly not.	The font was a bit too big and homogeneous for me, so that it was difficult for me to distinguish the themes from each other right away. The choice of colours was also very homogeneous for my eyes, so that it was difficult to distinguish the 'important' themes.
	I thought that the information was placed from top to bottom and not spread out over the whole page. Accordingly, there was empty space to the right and left. I did not find the colours particularly striking and the page a bit too simplified. The page somehow only had pictures; the text was also not real text but given as pictures.	
High Information Content	The site has been constantly improved and is characterised by a high information content. The EAA's Corporate Design and Corporate Identity have been consistently implemented.	
Link to other webpages	It would be desirable if there were an information box with a link to other projects so that one could choose flexibly between them.	
	For the news I would have expected a clickable link or button.	
Good responsivity	I also tried loading the website on my mobile and that worked pretty well.	I also tried loading the website on my mobile and that worked pretty well.
Appealing design		I like the blue boxes and the presentation of the action plan.
		But I found that the information was placed from top to bottom and not spread out over the whole page. Accordingly, there was empty space to the right and left. I did not find the colours particularly striking and the page a bit too simplified. The page somehow only had pictures; the text was also not real text but given as pictures.

Category	Transcription Version A	Transcription Version B
		The first page is simply structured and has a certain recognition value due to the corporate design regarding the company's logo. The font is clear to read and appropriately large. The individual information areas can be distinguished.
Missing video / animation		On the other hand, I think a short video that shows what it's all about is always pleasant for beginners. I think a short video can win the reader or interested party over more quickly than if the information is only given in words.
No possibility to engage directly on the project through the webpage		I do not have the possibility to participate directly in the offers on the page.

Table 8: Users' perspective on the concrete implementation that the EAA wants to make in the city of Dessau-Roßlau through this project

Category	Transcription Version A	Transcription Version B
E-Vehicle's information	Implementations in the field of e-vehicles and information.	Establishment of an information centre for e-mobility by 2023.
		Establishment of an information centre for e-mobility.
CO2 reduction	Reduction of CO2 emissions, strengthening and moderation of the region.	Reduce CO2? But I think that is not the specific goal at the end, but the big, general goal.
		Reduction of CO2.
Raising awareness of sustainability issues	Raising awareness of sustainability issues.	Improve sustainability in relation to as many environmental issues as possible and achieve greater sensitivity to them.
	Initiate at least five projects to change behaviour.	
Engagement in sustainable projects	Encouraging participation in sustainability projects.	
Climate protection	Strengthen climate protection.	

Table 9: Users' perspective on the influence of the EAA project webpage visit in terms of engagement in regional sustainable projects

Category	Transcription Version A	Transcription Version B
Unmotivating website	The site did not motivate me to want to participate myself.	
User already participates	I am already part of the project.	
Not enough information about other projects and team of EAA	I am not sure if the EAA also implements projects in my region. The project in Dessau is described very well. However, there is no global overview of which other projects are being implemented or will be included in the EAA's portfolio in the future.	It would be interesting for me to know who the people behind the project are. To see the contact persons with a picture. This would give me a personal reference.
User lives too far away	I currently live in Kassel and am therefore too far away from the project site. If I lived nearby, I would consider it.	
No time	I'm quite busy in terms of time.	
No clear or dynamic information how to engage		I didn't realise what contribution I could make or how I could do it.
		The aim of the project seems to be more information than action, but I could imagine that the information I receive from EAA would give me concrete alternatives for action.
		I don't know exactly how I can participate in the project, whether I have to be there. I myself work and therefore have very limited time. It would be interesting if flexible participation were possible.
		Personally, I can say that I am more likely to get a broader insight into a topic through short videos or that I am at least likely to be stimulated in several senses through the tone of voice of the speaker, images, video sequences, etc. I often find websites where there is only text too tiring. However, they are very good for reading.

Table 10: Users' perspective on the influence of webpage design on the community's motivation to participate in EAA activities

Category	Transcription Version A	Transcription Version B
Attractive and functional design	The design is modern.	It is well done in terms of infographics.
	The website gives a good overview of the project.	
Unattractive design	I like the clean design of the website. With a few more pictures and data, it would have picked me up more personally.	It was too simple and too little for me.
	Too much text.	I miss more interactivity. The site still seems a bit static and therefore invites you to surf on a bit "slowly". Since I haven't been on the site much, I can't judge that.
	The design is not bad, but very plain and simple. It is good to get information about the main points of the project, but it does not seem inviting to participate. I am not addressed personally, and I did not see any possibility that it is even desired to get involved as a private person. Furthermore, the information was presented in a very factual way.	
Just regional appealing	The website certainly appeals to the Dessau region in particular.	
Missing direct opportunity to engage		The website seems to invite more information than interaction. I would welcome the opportunity to interact with the project directly on the website if I am interested, perhaps via direct sign-ups to the EAA's offerings?
Not inviting or direct appealing to the user		I think it could be made more inviting. For example, if people/visitors are addressed personally, there could be a higher level of participation because it happens on a closer level. After all, climate protection is an emotional topic that affects us all. And you have a personal interest and need persistence because the results are not immediately visible.

Category	Transcription Version A	Transcription Version B
		The information is one thing, but the feeling decides in the end whether I buy something, consume something or my interest is aroused. I believe that a website that is only designed by "type design" has a very hard time appealing to people nowadays.

Table 11: Users' perspective on the influence of the way information is communicated on their interest in participating in EAA´s projects

Category	Transcription Version A	Transcription Version B
Not enough information	The fact that the information was presented in a very matter of fact and simple way meant that I felt little addressed.	It was too simple and too little for me.
No information how to engage	There was no information anywhere about how or whether I could get involved myself.	
Text not appealing	I would expect a more emotional approach and concrete information about my own commitment.	Too few senses were stimulated. I just don't "feel" it, it didn't trigger anything in me.
Appealing text / info	Because otherwise I would not have had any knowledge of the project.	The offerings themselves are appealing and contemporary and sparked my interest.
		There was not only text but also infographics. That appealed to me and I would want to get more information on the site.
Previous interest		Since I am interested in the topic of sustainability myself, it is not so important here how the information is conveyed. But it is certainly an important aspect that people who are perhaps sceptical about the topic are also addressed.
No change	I perceived the research on the website as providing information about the project. But I don't think that the mere provision of information has changed the interest in the project.	
Personal reasons	As I currently live in Kassel and am only slightly interested in the topic of sustainability in the mobility and construction	

Category	Transcription Version A	Transcription Version B
	sectors, I was not particularly taken by the project. But if I'm ever looking for work in the region, I'll also look at the EAA.	
	I am neutral on the subject.	

Table 12: Users' perspective on the influence of the usability test and the EAA´s project webpage on the motivation to participate actively in sustainable projects

Category	Transcription Version A	Transcription Version B
Not appealing information	Rather less. The factual and neutral information did not appeal to me very much.	
Not enough information		No. I found no philosophy or vision of what the company stands for.
		The test did not motivate me. But I realised that I need at least more than written information to motivate me or to have the feeling that I want to do/change something. I really think it is a matter of design whether interest is aroused or not. The setting is often more important than the content. If both fit, so much the better :)
		I would like to learn more about the project to see how I could get involved.
External reason	Yes, because sustainability is a megatrend and concrete action is needed here.	
	The website informed me very well about the EAA project. An increase in active participation in sustainable projects after visiting the website is not noticeable.	

Category	Transcription Version A	Transcription Version B
	I am already very active and motivated in sustainable projects, so visiting the website did not have a big impact on that. If I were looking for a project in the Dessau-Roßlau area, the website would have aroused my interest.	
No time	No, I have a very busy schedule.	
Missing testimonies from other project participants		I would have liked to read an opinion from the people participating in this project.
Created motivation to regional participation		My disposition to get involved in projects was already there before visiting the site and was not changed overall by the webpage, but rather guided into regional projects that I could look at more closely.
Live conference encourages an exchange of views		Yes, because dealing with the topic in a live conference encourages an exchange of views.
The name "EAA" is a easy to remember		The name is easy to remember, as avant-garde suggests something progressive
Credibility because it is EU-funded		It is also serious that the EU has a share in the project.

Table 13: User's perspective on the influence that the way information is communicated and structured (information design) has on their motivation

Category	Transcription Version A	Transcription Version B
Self-motivation	If I am really interested in a topic, the design -for me- plays a subordinate role.	No, not necessarily, because I am already motivated enough and can imagine taking part in such projects.

Category	Transcription Version A	Transcription Version B
	I am already very active in this area. However, the importance of good information processing (also through the design) has once again become clear to me.	Yes. The answer would be the same as for the previous question. (self-motivation)
	No. The information design helps me not to lose interest in researching information. But I wouldn't say that motivation or engagement has changed, either positively or negatively.	
Yes	"Yes, I do."	
Missing appealing design and emotional text motivate	Yes, I would have felt more addressed by a page with a more appealing design and more emotional text and, if necessary, illustrations. Pure text or bullet points seem very factual and neutral.	
Good appealing design and emotional text motivate		Yes, I was able to absorb and internalise the information presented by the infographics more quickly than the texts.
No information how to engage		I did not really feel personally addressed. I rather have the impression that the site is aimed at companies. Therefore, the question for me is whether I can participate at all as a private person.

Table 14: User's perspective on how the information is communicated and whether the information shown is sufficient to communicate the message (to present the project)

Category	Transcription Version A	Transcription Version B
Missing information how to get involved	I would have liked information on whether and how I can get involved.	Yes, I would like to receive contact information and whether information is actively given out on social media.
Bullet points instead of text	Less text, more bullet points.	

Category	Transcription Version A	Transcription Version B
Enough and clear information	The information was sufficient. It is not the quantity of information that matters, but the quality. In my opinion, this was very well taken to heart.	I think the information was clear.
	For me, it was sufficient.	
Missing pictures and graphics	I always like a few pictures and graphics.	
Missing information about investment, plan, team, etc.		I would like to see more information, e.g., how much money is invested, a roadmap, people participating or leading the project etc.
Missing results of the project		I would like to have the results of the projects presented.

Table 15: Other comments, feedback and suggestions from users

Category	Transcription Version A	Transcription Version B
Textual revision	A few typos should be removed, and I think the structure of the headings needs a revision.	
Missing information how to engage	Link to other projects, possibly other organisations involved in similar projects, clearly state how to get actively involved, name contact persons if necessary.	
Regional credibility and reputation		I find it very committed and positive that a regional project is being advanced here, which also seems to be heard in European politics.
Missing more detailed information and interactivity		I would like to see more interactivity directly on the page. Maybe it would help to highlight the action points more clearly and back them up with information. The wording in some places is relatively vague (e.g., Zukunftsreise Dessau-Roßlau).
Need to sell more the idea		The framework has to fit. I think the way to arouse interest in the first place, i.e., how do I get people interested in the topic, is the be-all and end-all. I think you should take a look at what good salespeople do. They

Category	Transcription Version A	Transcription Version B
		trigger their customers with feelings of various kinds, and only when the future customer/interested party has the feeling that he wants or needs this or that, then he will get more information, no matter which way.

Table 16: Thinking aloud - 2. Usability Test

Category	Thinking aloud	
	VARIANT B	**VARIANT A**
Q1: Please find the name of the project.		
Easy to find	The user considers that it is good in the second variant that the name of the project is more prominent than the name of the programme, especially in capital letters.	"You see it mediately, that's the first thing."
		"Very recognisable."
	The user indicated it in the title.	
	The user pointed to the logo.	
	"It pops straight out. Very clear."	
Q2: Please find the main objective of the INTENSIFY project.		
Too much text	"Too much text. I expected one line."	
Confusing	The user needed to read the text more than once to understand the point.	
Clear and easy to find		"Quite clear."
		"Immediately below the name."
		"Very clearly defined, especially by the blue rectangle. Clearly better than the previous variant. The icon gives an idea of the main goal right away, without the need to read it, which is a big improvement."
Q3: Please find the time period of the INTENSIFY project.		

Category	Thinking aloud	
	VARIANT B	**VARIANT A**
Attention to header		The user found the header in blue attractive. In the previous version the user looked immediately to the text and in the second version, despite having the same text, the user saw it more quickly in the header.
		"Right away the first sentence in the blue window."
		The user indicated the time first in the heading and only then in the text, although the user immediately saw both.
		The user immediately found it in the headline.
		The user read in the header.
Too much text	"A combination of text and icon would turn it easier." The user also indicated the date of implementation of the activities, but said it is too much text for their."	
Remembered	The user found it in the text. The user remembered the previous version.	
Not obvious	The user found in the activities that it is until 2023 and then in the text. It is not obvious.	
	The user found it in the text but was expecting this info in the header. "It is ok because I did not have to scroll".	
	The user looked for numbers. "It's hidden, but you can find it in the text."	
Q4: Please find the funding of the project.		
Names difficult to read		The user read the whole text of the blue box and then scrolled down to the project partners. The user indicated that it is difficult to read the names.
Funders, project partners or stakeholder?		„I can see the project partners, but the funders I cannot see. "
		The user mentioned Stakeholder. The user stated that the information is still a bit hidden. The user suggested top present it as a button in the header, with interactive logos for the websites.

Category	Thinking aloud	
	VARIANT B	**VARIANT A**
		"It is not clear. I found the information in the text, but it is not clear. The word "financed" should be written in the text."
	The user gave the same answer as the previous version and added the project partners. The user said that their likes to have text right at the top of the page, namely partners' information.	
	The user thinks that the project partners should also be the funders.	
	The user was hoping this information would be in the text. "I'm very unsure, but maybe the Stakeholder - Not clear."	
Remembered and easy to find	The user still remembered but immediately saw the logo again.	
Q5: Please show the action points that will be implemented by the EAA.		
Remembered		The user remembered that it was above.
Likes or prefers icons	"I can't find this right away." The user scrolled and ran the cursor through the information but said "I really can't find it". The user pondered whether it was the project description. The user remembered that in the previous variant this information was presented in graphical form.	The user indicated the Information centre and not the activities. The information is smaller and easier to understand. The user mentioned that icons make the information easier to understand and prefer it.
Searched the text	The user indicated the text. It was wrong.	
Difficult to find	"I need to look it up." Then he found the RAP and finally the answer. It was not obvious.	
	"This is really a lot of text."	
Q6: Please find the project partners of INTENSIFY.		
Names too small		The user said again that the names are small, and the user does not know them.
Confusion between partners and stakeholder	"Difficult to recognise"- Indicated Stakeholder again.	The user indicated the Stakeholder and project partner.
		"This information is hidden". The user advises to put it in the header like the stakeholder information. The user says that their

Category	Thinking aloud	
	VARIANT B	**VARIANT A**
		feels more motivated when their sees that so many people support the project.
		"In this variant, since the title "Stakeholder" and then "Project partner" are together and the question specifically refers to project partners, it was clear. If not, the difference between the terms would not be clear."
Remembered	Reading the question, the user immediately remembered having seen this information and indicated it immediately.	
	When the user found it, the user remembered that their had already seen this information.	
	The user remembered that in the other variant the partners were below the Stakeholder and looked again for it. Then the user found the correct information in the header.	
Q7: Where would you click if you want to read news from INTENSIFY?		
Button "News" or "Newsletter"		"On the "News" button."
		On the Newsletter or News button
Button "Intensify"		"On the "Newsletter" or "News" button. No! On the INTENSIFY button."
		I would click on one of the buttons in the "More about INTENSIFY" submenu.

Category	Thinking aloud	
	VARIANT B	**VARIANT A**
Expected this information at the beginning	The user found the correct information but their would prefer to see this information at the top of the page.	The user could not find it at first. The user understood the structure of the page and the sequence of the information but their expected to have an info-box at the beginning, like a "news" sidebar.
	"It is unclear. I only found it because I remembered that this information, in the previous variant, was at the bottom of the page. This information would go unnoticed. I expected to find this information at the top of the page."	
	The user mentioned again that their would expect this information at the top of the page and then the user tried to understand the structure. The user found the answer but said he doesn't want to scroll so much to find news. The user suggested a menu, a sidebar or partner and customer reviews.	
	The user immediately said that their expected this information on top, just like in the previous version.	
Q8: Where can you find the concrete implementation of the EAA through this project in Dessau-Roßlau?		
Indicate the activities in general		Information centre and Activities.
		Activities (mentioned that it was above Stakeholder).
		Activities.
Focus on the icons	The e-vehicle and more information for the community were memorised.	The user indicated the activities, first with the icons and then the explanatory table. The icon with the biggest square is the main objective of the project and the small ones indicate the activities that will be implemented to reach the main goal.
Clearer than the previous variant		In this variant it is clearer what will be implemented than in the previous one.
Remembered the icons	The user found the "action points" when their searched for the answer. The user referred again to the icons and the graphics. The user did not expect and did not find this information immediately, in the text variant.	
Indicates sub-goals	The user first indicated "sub-goals" as the answer but then gave the correct answer (RAP).	

Category	Thinking aloud	
	VARIANT B	VARIANT A
	Indicated the sub-goals as the answer.	
	The user indicated "sub-goals" but could not find concrete implementation.	
	The user was still trying to figure out what the concrete implementation is. The user indicated the action points, then indicated the main objective and afterwards talked about the general objective described in the initial text. The user said that it is confusing and cannot understand what the concrete implementation is, but the e-vehicle and other information for the community were memorised.	
	The user found the project partners immediately and has indicated the action points.	

Table 17: Final interview

Category	Transcription
Q1: In which variant of the webpage do you think the information about the project is better communicated and why?	
Infographic visually more appealing and better structured	I find the second version (B - Infographic) much more visually appealing, due to the graphics and the nicer design. The large headings and blue background made it easier to find one's way around. The first version was very factual and simply presented and less appealing.
	The second one (B - Infographic) was better because it has a clear structure, less text and therefore the content can be conveyed more quickly.
	The second variant (B – Infographic) is much more manageable. The visuals explain the goals and structure much more quickly.
	The second version (B- Infographic) was much better structured. This one had clear headings and was much tidier. Important information was highlighted in bold. The design was also nicer and better divided.
	In the second variant (B – Infographic) it is visually easier to see what needs to be done. There is no unnecessary information that makes it look confusing.
	In the first version (B – Infographic), the information was made concise, clear and easier to overlook.

Category	Transcription
	In the first version (B – Infographic) I found the smaller text and the infographics better, because it also fits better with the logo and the colours.
	I like the first page (B -Infographic) more because it was better visually divided and there was not so much flowing text.
The information in the Infographic is quicker to absorb	The first page (Variant B -Infographic), because the information is quicker to absorb, especially because of the infographics.
Too much text in the text variant	Both have advantages and disadvantages. In the second variant (Variant A – Text). I found it more professional, but too much text.
	The second version (A – Text) had a lot of text, which is more difficult to read through.
Not enough information in the infographic	The first version was too simple for me, and I expected more information and that it would be spread over the whole page.
Q2: Do you have the feeling that you feel more motivated and engaged in one of the two variants than in the other one? If so, in which variant and to what extent?	
Graphics motivates more	The second variant (B -Infographic) is more motivating with friendly and emotional graphics.
	The second version (B – Infographic) is much more motivating than the first one. Among other things because of the beautiful graphics.
	The first one is more appealing (B – Infographic), but with the disadvantage of not being as interactive.
Infographic should be interactive	The first one is more appealing (B – Infographic), but with the disadvantage of not being as interactive.
Text too technical and free of emotions in the text variant	With the first one (A – Text), I don't have the motivation to engage myself or to feel addressed about what I should do now. This one was presented in a very fact-oriented way.
	With the second variant (A -Text), it would motivate me more if there were more graphics.
	The first version (A -Text) looked unfinished and like little work had gone into it, which did not motivate me very much.
Information is clearer and better to absorb in the Infographic	Yes, with the second one the graphics (B – Infographic) are more modern and the result is much faster.
	In the other version (B- Infographic) it was clear what the goals and measures of the project are.
	The first version (B -Infographic). You should set a stimulus on different levels so that it is more interesting for the reader to absorb the information than if there is only text.
	Yes, with the first variant (B -Infographic), because it is more concise.
	With the first variant (B – Infographic), I had the impression that information was better absorbed.
No	No

Category	Transcription
	No
Q3: Do you think that the way information is conveyed - i.e. through text or infographics - influences your understanding of the message?	
Infographic is easier to understand and to absorb the info	Yes, because I learn better and faster through pictures. The visual impressions make it easier to understand than if I must imagine for myself what is meant.
	That is individual for each person. But the assumption is that the second variant (B -Infographic) is better received and more understandable.
	Yes, because the visuals of the second variant are "top".
	Yes, definitely. It is easier to absorb information through the graphics and the well-designed website. There is a common thread, and it is clear what is communicated.
	Yes, it is understandable. There was more work with pictures, which give you information quickly and easily.
	With graphics, I can remember information better without having to read it. It should not be monotonous. That means there should be many different elements. A summary at the beginning motivates me to read on.
	Yes, because graphics are easier to understand.
	Yes, because the pictures are easier to understand. The motivation to absorb the information is higher because there are more possibilities for action.
More text improves better understanding	Yes, definitely, because I feel more engaged. More texts would improve my understanding.
Loss the interest with too much text	Yes, because, for example, too much text can quickly make you lose interest.
Difficult to absorb the information	Yes, when it is difficult to absorb information, the barrier for interaction is higher.

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Affidavit

I hereby confirm that my thesis entitled Information Design, as a Means of Communication, for engagement in Sustainable Projects - Case study on Energieavantgarde Anhalt e.V. is the result of my own work. I did not receive any help or support from commercial consultants. All sources and / or materials applied are listed and specified in the thesis.

Furthermore, I confirm that this thesis has not yet been submitted as part of another examination process neither in identical nor in similar form.

Merseburg, 28th of February 2022
Place, Date

Cátia Sofia Cunha de Azevedo Oliveira
Signature