Framing, Aligning, Paradoxing, Abstracting, and Directing: How Design Mood Boards Work

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ABSTRACT
This paper builds upon the earlier work of Gaver on design workbooks by taking another design method and making a case for using it in HCI and interaction design. In this paper I discuss *design mood boards,* which consist of a collection of visually stimulating images and related materials. I present the results of an empirical study of how experienced designers from different disciplines (i.e., fashion, textile and industrial design) use mood boards as part of their work. The results suggest that mood boards can play five main roles in the early stages of the design process: *framing, aligning, paradoxing, abstracting,* and *directing*. I also reflect on design practice by providing concrete examples of mood boards and the resulting prototypes for an interaction design project. These examples are used to ground the discussion on the five roles found in the study.

Author Keywords
Interaction design, ideation, creativity, conceptual design.

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms
Design

INTRODUCTION

In this paper, I discuss how *design mood boards* are created and used in design practice. Mood boards are an idea development tool used by designers and their clients to communicate, think, and share their different views that emerge from the design brief while defining future products or trends. Mood boards mostly consist of visually stimulating images, but can also include color and material swatches, textures, drawings, and physical objects that are affixed to A0, A1, A2 or A3 foam boards. Images from magazines and books are used to tell a story about the company, product, or audience. There is no right or unique interpretation of a mood board [22].

The original idea for this paper is to build upon Gaver's work on design workbooks [15] by looking into another design method, *design mood boards,* and introduce it to the HCI and interaction design communities. This paper consists of both a reflection on design practice and an empirical study of how experienced designers from different disciplines (i.e., fashion, textile and industrial design) use mood boards as part of their work. I take both the findings from retrospective interviews and the reflections of use to suggest and illustrate five roles that mood boards play in the early stages of the design process. First, mood boards play a *framing* role by defining the limits of the design task, which includes both problem setting and problem solving. Second, mood boards assist in the transmission of a mindset or vision by *aligning* the different stakeholders and getting them on the same wavelength. Third, mood boards support designers in visually researching apparently conflicting or contradicting ideas or *paradoxing*. Fourth, mood boards play an *abstracting* role by allowing designers to juxtapose both concrete and abstract imagery depending on the project and client. Finally, mood boards play a *directing* role by setting a trajectory for future design efforts.

This paper is structured as follows. To ground the discussion, I first provide a concrete example of a mood board created for an interaction design project. Second, I describe the relationship between mood boards and other design methods, as well as how they are used in different design disciplines. Third, I present the results of retrospective interviews with 14 experienced designers who regularly use mood boards as part of their work. From this study, I identify five main roles that *design mood boards* play in the design process. Fourth, to ground these five roles in practice, I present a second example of a mood board in interaction design. Finally, I discuss what HCI and interaction design can learn from how other fields use mood boards and provide examples of two prototypes that were created by using mood boards in the early stages of the design process.

ONE EXAMPLE OF A MOOD BOARD

I begin by introducing a concrete example of a mood board. This will help both illustrate how mood boards are used in the design process, as well as ground the discussion.

DIS 2012, June 11-15, 2012, Newcastle, UK.

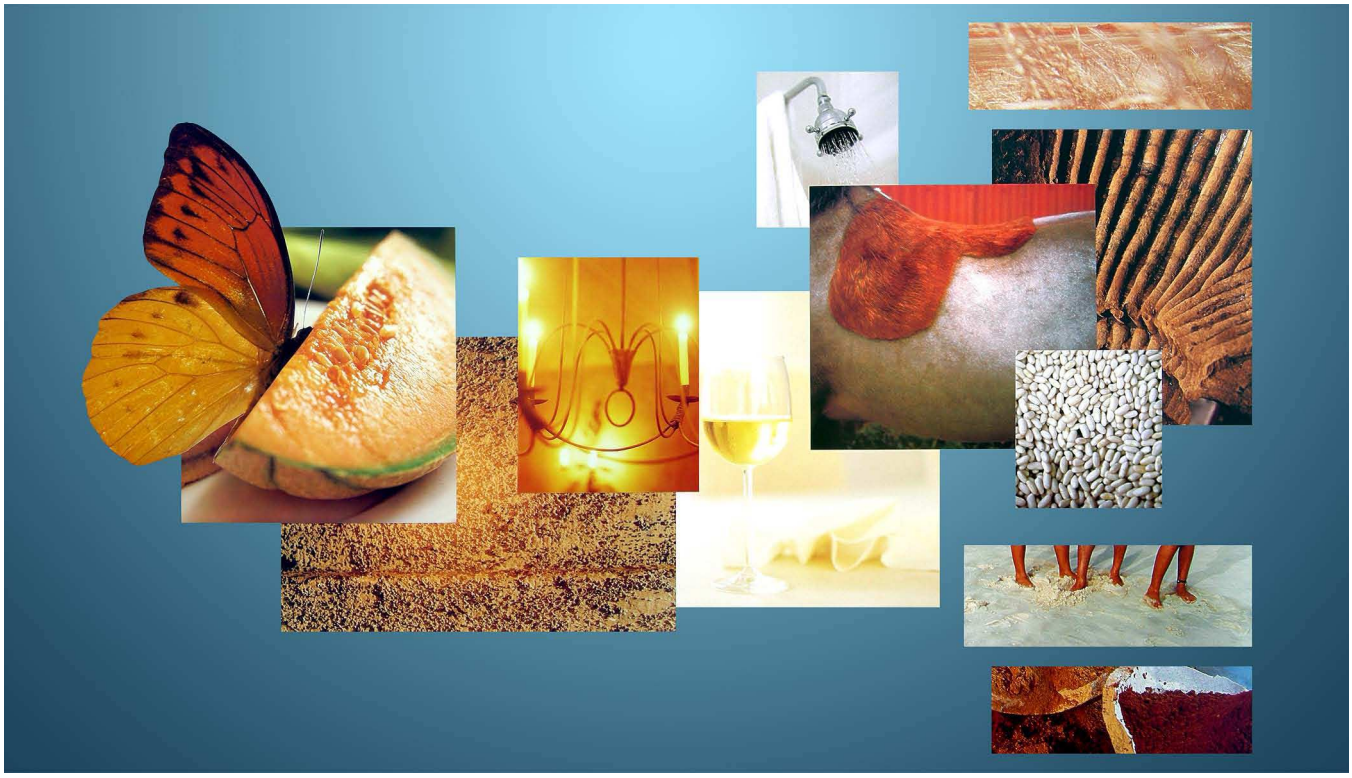

Figure 1. This mood board explores the idea of an Augmented Reality tool that uses other senses than just sight for interaction.

The Senses Mood Board

This first mood board was created for a project that studied the impact of Augmented Reality (AR) systems in work practice [22]. At the time, AR systems heavily relied on sight as the main interaction modality, aligning visual information to the physical world by means of different display techniques (e.g., head-mounted, handheld, or projection displays). These technologies required users to carry heavy equipment or wear displays over their eyes. Dissatisfied with the limitations in interaction imposed by these systems, I wanted to explore the idea of making an AR support tool for professional users (i.e., industrial designers) that would make use of five senses (i.e., *sight, hearing, smell, taste, touch*) instead of just *sight* for interaction (Figure 1).

This mood board took one week to make including image selection, composition and building. The images were taken from specialized design magazines (e.g., View on Color, Provider) and books, and were mounted on an A0 foam board. These images were included for their visual or cultural properties. Several interpretations can be made from these images beyond their literal meaning. A verbal explanation accompanied these mood boards, where I would refer to the literal or abstract sense of the images.

As these images primarily communicate visually to the viewer, the explanation would start by referring to the beauty of the butterfly and the use of *sight*. Then the story would evolve towards the ripe juicy melon to introduce the sense of *smell*. Next, the energizing feeling of hot water on your body in the morning (i.e., the shower), and the relaxing feeling of putting your feet in wet sand (i.e., the beach) or sticking your fingers in a bag full of dry beans and squeezing them in your hands (i.e., beans), would all be mentioned to talk about *touch.* The sense of *hearing* would come into the picture by talking about the sound of the wind passing through a wheat field (i.e., wheat). The verbal explanation would end with the central picture of the glass of wine, summarizing all senses (i.e., the *sound* of pouring wine, the cool *touch* of condensation on the glass, the *sight* of reflections on the wine, and the *smell* and *taste* when drinking the wine).

This mood board provoked discussions that went beyond the specific topics presented in it (i.e., senses). Although (or rather because) the selected images had little to do with interactive systems, the stakeholders added new issues to the discussion, which resulted in new design explorations. For example, we discussed about an interactive system that would have some sort of intelligence and make proposals when the designers have been away from the system for some time, as opposed to just being off. In that sense, the images worked as triggers that allowed stakeholders to express their own personal views of the overall project. This mood board (together with another presented later on) ultimately set the direction for the design of two prototypes: the *Funky Coffee Table* [21], and the *Funky Wall* [23].

RELATED WORK

Mood Boards in the Design Process

At the start of the design process, designers can pick from a variety of methods to tackle the design task. I will now discuss the relationship between mood boards and two other popular design methods (i.e., sketches and workbooks) by highlighting their main commonalities and differences.

Sketches

Sketching is the archetypal activity of design [4] and as such it has been thoroughly studied [16,19]. Designers make extensive use of sketches to develop, explore, communicate and evaluate ideas in the early stages of the design process [31]. By generating alternative solution proposals, sketching allows designers to understand the nature of the design task [5]. Through sketching, designers try out vague and uncertain ideas, making unintended discoveries that promote new ideas [30]. Sketches are meant to be public, allowing others to observe, comment, and revise ideas [32].

Although formally sketches and mood boards rely on different types of representations (i.e., hand drawings and images), both use similar techniques to support the exploration of ideas at the start of the design process. First, they are both intentionally ambiguous so that the viewers and the author can interpret them in different ways. Sketching achieves this by producing quick, fluid, and minimally detailed drawings that leave big enough holes [4], while mood boards make use of abstract and concrete imagery to create ambiguity [14]. Second, both rely on establishing a conversation with their authors, which allows them to make unintended discoveries. In sketching, the author sees unintended relations among the drawn elements, while with mood boards the authors are surprised during image search by images that introduce new themes and topics that they had not thought of before. Third, both sketches and mood boards are social things that are put up on walls so they can be discussed. Some differences between sketches and mood boards relate to time, quantity, and cost. While sketches are meant to be quick, plentiful and cheap, it can take a designer between one day and a couple of weeks to slowly gather the material together for a mood board, while involved in other activities [6].

Workbooks

Design workbooks [13,15,25] are another method used in the early stages of the design process to investigate options for design. They are collections of design proposals made up of collages, found images, diagrams, renderings, sketches and other materials that are bound together to form a small booklet. Design workbooks create a design space by suggesting important issues, approaches and options for a particular design task through the many ideas they contain.

Workbooks share some common characteristics with mood boards. Both are useful in trying to understand the nature of design tasks, and are primarily social as they rely on people's interpretations to elaborate upon the ideas they contain. However, some notable differences between workbooks and mood boards are the use of text, their linearity, and image quality. First, workbooks can require lengthy textual descriptions or shorter captions to convey ideas, while mood boards rely on verbal explanations. Second, workbooks have a segmented and linear structure, unlike mood boards that can be perceived as a whole. Finally, at the start of the process workbooks can be sketchy and include scanned images, whereas mood boards rely on quality images from design magazines and books; images that are authentic, photographically inspiring, large in size, and printed on thick glossy paper.

Mood Boards in Different Design Disciplines

The mood board shown on Figure 1 illustrates how mood boards are used in interaction design. I will now cover how mood boards are used by different design disciplines.

Industrial Design

Industrial designers make use of mood boards in the traditional way, where designer and client work together from the start of the design process to define a new product. Similar to other disciplines, industrial designers will also use mood boards to encapsulate qualities of mood, atmosphere and voice [6]. However, when looking for images for their mood boards, industrial designers will more explicitly incorporate aspects of space, movement, shape, and materials into their search. Industrial designers will make a preliminary material selection and include material swatches or samples of e.g. floor covering or wooden panels.

Fashion and Textile Design

Fashion and textile designers use mood boards to define and create trends for their future collections. In these design disciplines, a mood board gives viewers a tease to the collection and signals what is to come through mood, color, customer, detail and aesthetic [11]. By collating ideas, mood boards are used to forecast a theme and color palette for the forthcoming season [3].

Mood boards are first used internally for the designer's or design team's own inspiration. Creating mood boards helps them identify what will be the new fashion trends in the international markets at the beginning of a collection's development. Only later on in the process, fashion and textile designers involve their clients in the process. In large department stores, fashion designers use mood boards to define their upcoming collection for each season. A group of designers is divided into smaller teams and brand managers are appointed for each brand. They hold general meetings to present and discuss the images selected by each team, trying to get in the mood of the brand. The mood board can give the foundations to research material and fabric. When the mood boards are ready, fashion designers organize a special trend day. Company stakeholders (e.g.,

managers, marketing, buyers) are invited to this internal event where designers present and discuss their intended direction for the season, obtaining feedback before advancing. Buyers later use these mood boards to find the materials and products needed to create the trend.

Graphic Design

In the graphic design industry, mood boards are used as an aid to conduct visual research [6]. Mood boards are used for different types of projects to define: an illustration style for a series of books, a scheme for an exhibition stand, typeforms for a corporate identity or a photographic style for an advertising campaign. For this type of visual research, designers mostly choose materials for their visual qualities: colors, characteristic letterforms, textures and imagery from books, magazines or newspapers that stimulate associations with the project at hand. Ultimately, mood boards help establish the character of a design and to identify the elements needed to create it.

MOOD BOARD INTERVIEWS

The present work introduces *design mood boards* to the HCI and interaction design communities. The work offers a critical synthesis of over 30 hours of retrospective interviews with design professionals. I present an empirical study of how experienced designers make and use mood boards as part of their work. Instead of focusing on a specific area of design, I took a broader view of how mood boards are used in different design disciplines (e.g., fashion, textile or industrial design).

Earlier studies on mood boards have concentrated on understanding the role that mood boards play in design education [12,26,27]. In doing so, these studies have been mostly looking at design students and how they create and perceive mood boards. One notable exception is Eckert and Stacey [10] who analyzed the use of mood boards (among other design techniques) to study the role played by sources of inspiration in the knitwear industry.

Participants

The retrospective interviews were conducted in the Netherlands and Finland with 14 practicing designers who regularly used mood boards as part of their work. All participants except one had at least 10 years of design practice experience (14 years of experience on average). These participants varied in their education (university/academy), background (4 textile designers, 4 industrial designers, 3 fashion designers, 2 designers, and 1 stylist/photographer), age (between 35 and 45), and gender (9 female and 5 male). Three of them worked in large companies (i.e., Nokia and Stockmann), six of them worked in small design firms that they owned, and the rest did freelance work at home for large companies (e.g., Nike, SNCF, Rukka, Luhta, Pentik).

Method

The type of study conducted was retrospective interviews based on contextual inquiry [17]. Designers took the role of experts and guided the interviewer (the author) through different aspects of using mood boards for some of their previous projects. There were no pre-defined sets of questions for the interviewer to ask, allowing for a more informal discussion to flow. The researcher took an apprentice role, usually interfering to create a shared understanding of what was happening and to steer the conversation along three main areas of concern:

- *Background:* Education/industry history, motivation, day-to-day responsibilities, etc.
- *Design process:* Inspirations, rationale, strategies, working with the client, etc.
- *Working with images:* Qualities of a good image for a mood board, composition, color, copyright, etc.

The retrospective interviews were planned for a total of two hours in the participants' workplaces. After a brief 15-minute introduction to explain the purpose of the interview, participants freely described between two and five of their previous projects for which they had used mood boards. As participants went through their projects, they explained different aspects of each mood board such as its purpose, the clients' expectations, and the making process.

All sessions were recorded on video, except two where notes were made instead due to confidentiality issues. Photos were taken to capture specific aspects of the work described by the participants as well as of the environment.

Affinity diagramming [17] was used to analyze the data from the retrospective interviews. The interviewer plus two researchers first independently made notes as they watched the 14 interview videos, and then collaboratively analyzed the qualitative data through several interpretation rounds. The affinity diagram supported categorization and visualization of the main themes emerging from the data. Through these themes we identified five main roles of mood boards in the early stages of the design process. These five roles form the heart of our findings section.

FINDINGS FROM THE MOOD BOARD INTERVIEWS

In this section, I present the main findings from the retrospective mood board interviews. These findings refer to the five roles that mood boards play in framing the design task, getting people on the same wavelength, researching a paradox, working on different abstraction levels, and finally setting a direction for design. As I go through these five roles, I will refer to one designer, one client and several stakeholders to exemplify the relationship between the different persons involved in the making of a mood board. I will use the term 'viewer' to refer to any person looking at the mood board, regardless of their relationship to it.

Framing: Defining the Limits of the Design Task

The most important role of *design mood boards* is to allow different stakeholders to explore the available design space and to define the limits of the design task. Mood boards allow framing the design task, which includes both problem setting as well as problem solving activities [5,7,20,28,33]. At the start of the design process, the client approaches a designer with undefined and rough ideas for a product or service. In that situation, it can be difficult for the client to express exactly what they mean and thus to brief the designer. Mood boards define the limits of the design task and suggest possible solutions through an iterative process of defining *keywords*, conducting *research*, and creating a *common understanding*.

First, the designer and the client hold meetings where the discussion evolves around topics that are put on the table by the client. In this dialogue, the client tries to share their thoughts and express their ideas through words, while the designer attempts to understand (and shape) what the client has in mind. The outcome of this discussion is a set of *keywords* that outline the context of the project and that the designer has to interpret on their own:

"We cannot read their mind. Clients transmit their ideas through words. The meaning behind those words is not important; it is the idea they are trying to express which is important. The impressions on the keywords for the designer may be totally different for the client. Therefore, we need to find some level of understanding on what is actually meant." (P2)

Second, the designer conducts a thorough *research* fed by the topics discussed with the client. In this way, the designer tries to build their own understanding of the task and go beyond what the client is able to verbalize. This research may consist of reading books and marketing reports, conducting market and competitor analyses, or having interviews, covering different elements surrounding the project that could influence the end result. Conducting a thorough research at the start shortens the amount of design work that the designer has to do later on:

"It helps speed up the process." (P3)

Third, the designer processes the information from the research phase, builds a client profile, and presents it back to the client. The designer may already at this point use mood boards to visualize the keywords initially mentioned by the client. The designer confronts their client with some of the findings from their research, which in turn helps the client think about their ideas once more. Presenting this new information to the client allows both parties to reach an agreement and create a *common understanding* of the problem. This iterative process of defining *keywords*, conducting *research*, and creating a *common understanding* helps designer and client get a better grip of the product or service that they have in mind, thus framing the design task.

Mood Boards are purposely ambiguous and thus can be interpreted in several ways. There is no right or wrong interpretation to be made. Mood boards create the conditions for different people to have a productive discussion together. The designer avoids spending too much time explaining or defending the mood board, as they are mostly interested in how the client perceives it. New interpretations are made in the process of discussing the mood boards:

"Having a constructive discussion and receiving feedback is extremely important. When I present a mood board everybody wants to give their interpretations." (P13)

"Unlike written text or mathematics, we are in an area where nobody can say, 'this is exactly right.' What is important is that we have an agreement on the holistic view, that everybody has somewhat the same ideas in their head when they are talking about the topic, but then everybody can have different opinions." (P12)

Aligning: Getting People on the Same Wavelength

The second role that mood boards play is to assist in the transmission of a mindset or vision to different stakeholders and getting them on the same wavelength [26]. A mood board is a simple to approach medium that is used to convey elaborate messages (e.g., a new vision for a company) to a wide audience.

A mood board reflects a mindset or vision that designer and client define together. The designer helps their client shape their vision by asking them questions such as: *"what do you want for the future of your company?," "what is important for you?," "what brand personality do you want this new product to have?"* When the designer has some answers to these questions, the designer looks for images that reflect that vision. These images should inspire and impress the client. Through these images, the designer communicates how they look at the client's product, company, brand, or market. The client should feel comfortable with the values and design that are being aimed at. At the same time, the client has a chance to express what they like, what is pretty for them, what kind of designs they like. If a client likes a specific image, the designer tries to find other images that relate thematically and/or stylistically to that image. The client must somehow relate to the mood board.

The resulting mood board is used to get the stakeholders on the same wavelength. A client may want to create a new vision to change how their company is perceived, or to develop a new product or service. The iterative process of interpreting, making, and discussing mood boards helps the client define and transmit this vision to as many people as possible, so that the client, the company employees and the stakeholders are all aligned and share the same perspective. In large companies, mood boards are made available on the company Intranet to inspire designers, marketing, sales, and people in advertising:

"It is to get everyone on board the same boat, making everybody part of the change." (P3)

Mood boards are also used to communicate the final designs to technicians who will make or build the designs:

"Making a knitwear collection can be quite complex. It's very handy to have these mood boards to show to the technical persons 'look, this is a structure I would like to have, something like this.'" (P11)

Although, technicians may not necessarily understand the moods, feelings and abstract ideas behind the boards, they do understand the technical aspects of the materials or knitwear shown:

"It's also very good for those guys. They are looking (at the boards thinking) 'what the hell is this?' But they understand this part of the structure very well." (P11)

Paradoxing: Researching Conflicting Ideas

A third role played by mood boards is that of allowing the designer to research a paradox of apparently conflicting or contradicting ideas. A mood board is a powerful tool that can assist in exploring such ideas by visually juxtaposing images that clash both in form and content. Mood boards can be used e.g. in interaction design to address problems where stakeholders have conflicting goals [34].

In the process of defining keywords to frame the design task, clients often bring certain conflicting topics and ideas that form a paradox. This tension is at the core of mood boards. Mood boards allow the designer to visually explore these contradictory ideas by introducing images that can form a paradox both in form (visual aspects) and content (meaning). Form refers to the use of color, shapes, and the overall composition in the mood board. Content refers to the substance, the ideas, and the explanation or story behind a mood board can also be part of the paradox [8]:

"If the purpose of the mood board is exploring shapes for packaging, mood boards will allow this exploration by giving a feeling of control over the juxtaposition of contradicting shapes that fit the paradox." (P2)

A mood board must clearly communicate the client's vision and be perceived as a whole. An excess of conflict between form and content of the images used to explore the paradox can get in the way of conveying a clear and recognizable feeling. Therefore, the designer must keep an eye on the bigger picture while picking images that explore the paradox. Figure 2 shows examples of how designers use mood boards to research a paradox of apparently conflicting elements. For a luxurious vintage clothing line inspired in the 1930s, P7 created a set of eleven mood boards. The main concepts of the collection were 'mobility', 'women drivers in the 1930s', and 'Russia'. Each mood board explored specific aspects of the collection such as 'the joining of art and science', 'the diffusion of genders', and 'how technology has been adjusted to be more feminine.'

Figure 2. Set of eleven mood boards for a luxurious clothing line. These mood boards explore the apparently conflicting elements of 'mobility', 'women drivers', and 'Russia'.

This exploration of conflicting ideas has a clear purpose: it makes the designer, and especially the client think. When the designer and the client are confronted with the mood board, instead of acting as passive spectators, they are compelled to think by the images and the ideas contained in the mood board. Two designers refer to a mood board that explored the paradox 'organic-eco-luxury':

"(With these topics) we have to think in a little different way. 'Organic-eco-luxury' makes you think. There are many different solutions to find from that. If you only see the pictures, you make your own conclusions and ideas from what you see. But when you combine it with the (story), you make the tension, you make it more interesting." (P10)

"You may use strong pictures with strong words which makes that awkward combination that makes you think. It really makes you and the client think." (P9)

Abstracting: Working on Concrete and Abstract Levels

Fourth, mood boards allow designers to work on different abstraction levels. The designer decides to keep the discussion on a more concrete or abstract level depending on the type and purpose of the project. Keeping the discussion on an abstract level allows the viewer's thinking to flow and come up with new ideas. A discussion on a concrete level tends to narrow the number of directions for design, cutting out the possibilities that are in the immediate vicinity of the visualizations contained in the mood board. The designer is challenged to find the right abstraction level that supports communication and discussion with the client:

"You stay abstract to be able to work emotions, moods, atmospheres, and inspiration. If you go too concrete into the topics you are dealing with, then the attention is caught by details that are really uninteresting." (P12)

"With this kind of work there are different levels: very concrete level or very abstract level. It depends on the project on which level you work. If we start doing some new collection in a very new way, then we can work on a very abstract level. If we say, 'this is happening next year' then we can be more concrete." (P9)

On one hand, the images that help build the story must be abstract, allowing designer, client and the stakeholders think on a general level to get a sense of the feeling that must be conveyed. The designer translates the abstract values and concepts that have been previously identified into a visual deliverable. Using the purely literal sense or meaning of objects in a mood board does not help the research the designer is undertaking. As an example, faces of famous people or images directly connected to the project context can create a distraction, dragging the viewers' attention and preventing them from getting the general picture. Any image that jumps out and prevents the whole being seen in one glance should be avoided [1]:

"If it is too literal, it is of no use." (P2)

"If the face leads you to think about something specific only, then that is limiting you, it is a stereotype. We can refer to different personalities but referring to a specific face could be too limiting. It should not be forced to you nor dictated to you." (P13)

On the other hand, the images must also be real to allow the discussion to evolve around concrete things. The designer tries to incorporate textures and materials that the client can quickly relate to (e.g., textures from their workplace, the company logo), which transport them to the real world. Creating mood boards is an exercise that involves jumping back and forth between the abstract and the concrete.

The designer generally avoids including both images that show what is currently available in the market, or that come from the same domain they are designing for [9,10]. Images unconnected to the domain have the vagueness and ambiguity that are important for triggering reinterpretations [10]. Rather than supporting the exploration for an evolutionary design, mood boards allow defining revolutionary future designs:

"There is no use in bringing products from the competitors (to the mood board) because they are already known and available in the shops. Here we are talking about the future, and what will be happening some years ahead." (P10)

"It is very difficult to find these pictures because what you are seeking is new and what the images show already exists, it is always old. However, it helps tell another person what I mean, what I have in mind."(P11)

Finally, the designer carefully considers whether using mood boards will help their client and stakeholders, as not everybody is familiar working with abstract imagery:

"It depends on who you are working for (client)." (P14)

"I have the feeling that most people are not generally capable of discussing the mood boards, if you know what I mean. Without being rude, people who don't have education that has visual dimensions, they do not know the language of visuals and, to make it concrete, an engineer, not all of them but some, instead of seeing the 'technical' visual approach, they would see a bicycle, a knife, and a coffee maker. That's not what we want to talk about." (P12)

"For some teams it is not so good to have a mood board out there because they are too abstract for them. They prefer to talk about concrete things. The very beautiful thing is that people learn and if you work together you can request more abstraction." (P13)

Directing: Setting a Design Trajectory

Finally, a completed mood board sets a new direction for design. The designer creates a unique and recognizable atmosphere using color, shapes and composition. Making mood boards is the art of making these different visual elements fit together to create a new whole. The visual elements and the message included in the mood board create a new direction to guide future design efforts. When used successfully, mood boards indicate the direction of travel for design and development [12].

As mentioned previously, the mood board is the result of the ongoing discussions; it reflects the mindset or vision that the designer and client jointly defined. Therefore, in the end the mood board does not come as a surprise, but as the result of these discussions. Mood boards are used to set a direction for design and to communicate this direction internally to salesmen, marketing people, product developers, and other stakeholders so they all share the mindset for the future product. Mood boards can serve as a reminder for the designer to focus on this new direction, and as inspiration for future designs. Color can be used to create an identity for a mood board, as well as become an important factor for the future design direction:

"By comparing the final product and the mood board that set the direction for design you should be able to see that they are related; that they are family but not twin brothers. The mood board should be a reference." (P2)

"When you look at a final design, you will not see the exact same elements in the mood boards, but you will expect to find the colors that mood board is presenting." (P3)

To set a new direction for design, the completed mood board must have its own identity. The different images should all coexist harmoniously and give the feeling that they belong together. The total should evoke the feeling instead of its details. Although viewers should be able to make connections between its parts, the general picture of the resulting mood board should be very straightforward:

"It goes directly into your heart; it is very coherent." (P3)

"Every picture is present in a mood board because of the relation it has with its neighbors and the total. If one image changes, everything changes. If one image is more dominant than another (i.e. because it shows a typical kind of house), it will capture the viewer's attention and they will be drawn into expecting exactly what that image is conveying." (P2)

Figure 3. The essence of mood boards: this mood board summarizes and communicates the findings from studies on mood boards.

ONE MORE EXAMPLE OF A MOOD BOARD

This second mood board grounds in practice the five roles that mood boards play at the start of the design process.

Framing the Design Task

This mood board (Figure 3) is also part of the augmented reality in work practice project [22]. The purpose of this mood board is slightly different from the previous example. After spending a few months conducting and analyzing the data from the retrospective interviews with designers on mood boards, I wanted to summarize its main findings. In this mood board I created a new vision for an augmented reality tool for professional users by exploring and processing the design space that these findings suggest.

Getting People on the Same Wavelength

The stakeholders included people with psychology, design, and engineering background. I had to present the results in appealing ways for this diverse audience. I used a mix of affinity diagram, work-modeling diagram, textual definition and mood board. This mood board allowed me to share the new vision with the stakeholders, who expressed their personal views of the project by bringing new issues to the table. We jointly explored the design space, which resulted in a new common understanding of the project.

Researching a Paradox

The exploration for this mood board included apparently contradicting topics such as *playfulness*, *movement*, *idea development*, *intuitive interaction* and *levels of abstraction*. Compared to the first mood board (Figure 1), the composition is more dynamic and the images are rotated to reflect aspects of both *playfulness* and *movement*. The images were also arranged to create a clear diagonal ascending from the bottom-left to the top-right of the mood board to reflect about *idea development.*

Working on Different Abstraction Levels

By using abstract and concrete imagery that was unrelated to interactive systems, I created a space that was open for reinterpretation by the viewers. The general use of bright colors and the scattered composition were used to talk about *playfulness* (i.e., the plush toy, the dresses, the fireworks pattern, and the colored cups on the wall hanger). The three images on the top-left corner (i.e., the summit, the kite-dress and the penguins) were used to talk about the designer and the client looking for different solutions during *idea development*, always aiming high. The contents of the pictures (i.e., textures, people, nature, objects) were related to the different *levels of abstraction*. Finally, I would introduce the topic of *intuitive interaction* by means of different images where people are engaged in simple and pleasurable activities using (parts of) their bodies (i.e., the couples dancing tango, the children playing in the park, and the girl softly touching the dried grass with her hands).

Setting a Direction for Design

Finally, this and the previous mood board (Figure 1) set the direction for the design of two prototypes, which include *playfulness* and *intuitive interaction* as main design drivers.

DISCUSSION

Revolutionary Rather than Evolutionary Future Designs

One of the main challenges that HCI practitioners and interaction designers face in their day-to-day activities is to project original future designs. Mood boards can assist this process by inviting practitioners to think outside the direct domain they are designing for. Team members can bring their particular views on the design task to the table by collecting abstract imagery. Mood boards allow the design team to approach design problems from different perspectives, thus serving as an aid to lateral thinking [2].

As mentioned earlier, the *Funky Coffee Table* [21] and the *Funky Wall* [23] prototypes were conceived for an interaction design project to overcome interaction limitations imposed by existing display technologies at the time. The design intent was to make use of our five senses rather than just sight for interaction. In the second mood board, (Figure 3) I explored the topic of *intuitive interaction* where people are engaging in simple activities with (parts of) their bodies. I wanted to provide support for this type of subtle, flexible and natural use of the body. The resulting prototypes steered away from WIMP (i.e., Windows, Icons, Menus and Pointers) interaction styles by encouraging gesture-based aesthetic interactions. In these prototypes, designers use their hands collaboratively where each hand has a different function, such as when using a knife and a fork (Figure 4). Speech, sound, and touch were included both as input modalities and to provide feedback.

Discussing Conflicting Ideas Among Stakeholders

HCI stands at the intersection of computer science, behavioral science, design, and many other fields of study. Furthermore, in HCI practice it is common for stakeholders to have conflicting goals. Mood boards support initial design explorations by team members and stakeholders with different backgrounds and interests, and serve as a springboard for discussion [6]. Mood boards allow this by simply using the juxtaposition of images as the main mechanism to explore conflicting ideas. Mood boards become an approachable, easy, and tangible medium to begin idea exploration [24,29]. Images (and the ideas they contain) become the means to introduce topics to the discussion. Although an image may at one point be excluded from the final mood board, the design team can always go back and refer to the original ideas it contains. Developing mood boards can, of course, be challenging. Depending on how far the design exploration has progressed, the design team may need to focus (or converge), or open up the discussion (or diverge) to better achieve their goals. This mix of openness to define the limits of the design task (i.e., *framing*) and to research conflicting ideas (i.e., *paradoxing*) can be confusing to some stakeholders (e.g., non-designers). It will then take an experienced designer or another team member familiar with the *design mood boards* method to judge and negotiate with the rest of the team how to use mood boards effectively.

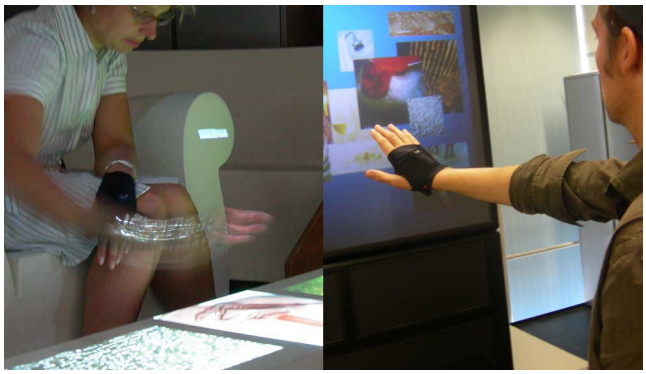

Figure 4. The *Funky Coffee Table* and *Funky Wall* prototypes resulted from the two mood boards presented in this paper.

The stakeholders involved in the project that led to the aforementioned prototypes had the typical mix of backgrounds for an HCI project: psychologist, designer and engineer. Although traditional HCI representation methods were used to communicate the study results to the stakeholders, the mood boards ultimately allowed us to open up the discussion onto topics that were not directly contained in the other diagrams such as adding some sort of intelligence to the system.

Focusing on User Experience Rather than Usability

In the last decade, HCI research has been going beyond instrumental human needs to focus on how users form an overall judgment on the quality of interactive products [18]. In this shift from usability towards user experience (UX) research, mood boards can become a useful design method.

Instead of offering detailed idea descriptions, mood boards invite the design team to look at the bigger picture and create a holistic understanding of the design problem. Mood boards entice viewers to speculate and create different interpretations and stories based on the images they contain. As opposed to showing instrumental solutions, mood boards suggest and allow exploring different topics that may only seem to be tangentially related to the design problem, but nonetheless important to create an overall delightful user experience. Other topics included in the two mood boards in this paper (Figures 1 and 3), were the sense of *smell* and *taste,* as well as *playfulness.* Although it may not be evident how these topics influenced the final prototypes shown on Figure 4, I argue they were the result of an exploration based on curiosity that allowed the design team to discuss and reach a holistic understanding of the design task by broadly considering different aspects.

CONCLUSION

Inspired by Gaver's work on design workbooks [15], this paper builds upon that work by looking into another design method, *design mood boards,* and making a case for their use by HCI practitioners and interaction designers. By reflecting on design practice and presenting the results of an empirical study of how experienced designers from different disciplines use mood boards as part of their work,

I discussed five roles that mood boards play in the early stages of the design process: *framing, aligning, paradoxing, abstracting,* and *directing*. I ground these five roles in design practice by providing examples of two mood boards and two resulting prototypes. I hope both Gaver's and this work encourage other designers to also reflect on their practices and hopefully create a series of publications that cover how other design methods work.

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