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“Integrated Product Design” is the course of study offered at the Coburg University of Applied Sciences, where this study on Design Communication was developed. “Integrated” represents our goal and responsibility as teachers to train young designers not only to be able to integrate themselves seamlessly into the most diverse processes of innovation and product design, but also to be able to network with their knowledge and capabilities. We are able to develop this integrated approach from our research findings and their resulting new content and methods. To achieve the full potential of design, we should not treat it as an exotic foreign matter. Just by taking a look around us, we find that design is connected to everything. More than we realize, it is already an integral component of culture, teams and processes. Integration depends a great deal on the ability to communicate. For design, it is essential to make yourself be understood verbally and visually as well as be able to argue, negotiate, convey and mediate beyond the boundaries of thought patterns and cultures. The more interconnected and cooperative our modus operandi in companies and agencies are, the more this competence becomes vital.

The word “Applied” in The Coburg University of Applied Sciences reveals our further important goal and responsibility: to convey applicable knowledge from our research and develop practical strategies and methods to support designers with their daily communication. This brochure aims at providing the first step.

The study is financed by the Bavarian Ministry of Trade and Industry, Infrastructure, Transport and Technology.

We would like to especially thank all those, who supported us and made this study possible:

BAYERNDESIGN, OUR INDUSTRY PARTNER BMW GROUP DESIGN, BOSCH-SIEMENS-HAUSGERÄTE GMBH, (BOSCH AND SIEMENS HOUSEHOLD APPLIANCES, BSH), OUR COLLEAGUES AT THE COBURG UNIVERSITY OF APPLIED SCIENCES (ESPECIALLY THE RESEARCH AND TRANSFER CENTRE), THE PARTICIPATING COMPANIES AND AGENCIES AS WELL AS ALL INTERVIEW PARTNERS, WORKSHOP PARTICIPANTS, AND EVERYONE, WITH WHOM WE HAD THE PLEASURE OF ENGAGING IN VERY INTERESTING DISCUSSIONS.

Prof. Anne Bergner
Dipl.-Des. Ulrike Rogler
More than ever, “design” is not a clear term or concept.

Companies have high innovation and cost pressures that require efficient processes.

Design changes and expands itself over time. Its ambiguity also reflects the dynamism of its development. The designer’s work is increasingly connected with other disciplines and areas.

Working successfully in a creative capacity with other areas requires common goals, trust and mutual understanding.

It has to be clear what “design” means for the company and what it achieves.
Therefore, it is necessary that designers themselves know the basis of values, attitudes, goals, contexts and processes they are working with. They have to know how to communicate their work and self-image, so that also “non-designers” can understand.

While designers can vividly describe their designs with images and models, language remains the most important, universal medium of communication.

Thus, communicative, particularly linguistic competence, is not merely a “soft skill”, rather it is one of the designer's core competences.
DESIGNERS AND DESIGN IN COMPANIES

DOES ANYONE UNDERSTAND ME???

One of the first incisive experiences that young product designers have in their professional life is that it can sometimes be difficult to communicate and work together with others, which may include engineers, marketing specialists, product managers and non-designers.

The second experience is that “the world outside”, the public, often has other ideas about “design” than designers themselves, despite the growing public interest.

Also in companies, design seems to have finally “arrived”. It is increasingly integrated into the company organization, thereby enabling constancy, closer networking and more efficient processes. Also in company communication and advertising, design aspects and topics come up more frequently.

In these companies, in-house designers often find that their partners lack a basic understanding of design, recognition for their performance and trust in their competences. They feel that no one understands them.

“There’s a whole range of development zones that would readily appoint designers (...) the role of service providers, whether internally or externally. First they [the engineers] put the technical package together. Then the designers come and make it ‘beautiful’.”

Design Director, large company

“‘The era of the lone design genius working in isolation is over.‘”

John Thackara

“Designers also have to realize that they don’t need to prove themselves. They are service providers of the brand. What counts is that the customer likes [the product and the brand].”

Marketing Executive, large company

“‘There’s no general understanding of this role.’”

Designer, large company

Nevertheless, design thrives on networking and working closely with other areas.

Only in this way, can designers effectively fulfill necessary interfacing tasks and implement design goals. Interdisciplinary cooperation and communication is a decisive success factor for innovative strength.

The increasing pressure to innovate amidst cost pressures and reduced product development cycles makes efficient knowledge transfer at these interfaces indispensable. Such pressures tremendously affect design.

In companies, many often perceive design as a “soft” factor. As it cannot be continuously objectified, not to mention, quantified, it therefore seems to lose ground in the “battle for hard facts.”
Public interest in design topics is growing, while more and more companies are integrating design into their organization.

However, designers and their process partners in the company often vary in their understanding and perception of “design” and what it achieves.

Thus, misunderstandings, mistrust and unwillingness to cooperate often ensue.

At the same time, increasing innovation, cost and time pressures require interconnected cooperation and efficient communication among process partners.
DESIGN COMMUNICATION IN COMPANIES

DESIGN-CONSCIOUS?

The kind of design identified in many industries as “the number one selling point” is becoming more present in public relations as well as in company advertisements. It is dealt with in very different ways. Designers themselves become ambassadors of their brands and products. The media-hyped phenomenon of the “Star Designer” has been around in the public consciousness for a long time. But also less eccentric in-house designers have become representatives and symbolic figures of a company’s creativity and innovation.

The “creative” has become a beacon in society.

Everyone wants to and should be creative. “Creative” communicators, who advertise their own products, come across as likable, believable and unconventional at the same time. In doing so, they form a genuine relationship to their products. Moreover, by giving products an identifiable origin and a human face, a relationship with customers can be formed.

Originally, identifying or presenting designers in external communication was typical of high-priced design brands. Then companies, such as Ikea, began communicating their design competence in their catalogs by placing designers next to their products.

“Design communication is also a competitive factor. To an extent, the others are ahead of us. So we have to follow suit.”

Business Communication Executive, large company

“Here, our designer, H. C. Ericson focused on the letter Y. He symbolically put together various things in the form of a divining rod; uniting two ways or a figure that greets the morning sun.”

Quote from an Ikea Catalog 2014

Fig.1 | Catalog page DESIGNERCARPETS 2010, Teppich Drechsle GmbH & Co KG

Figs.2/3 | IKEA product / IKEA Designer, IKEA GmbH
Products and designs, specifically their respective context, form, signs, drawings and symbols are explained and interpreted. In this way, things become more charged with meaning for viewers, customers and users. With this knowledge, they can experience and understand the product and its design anew.

Increasingly, designers themselves reveal the designing process, their inspirations, intentions and their design language.

Some companies go on the offensive when dealing with strategic design contents, such as design constants and product language. With the assurance that brands and product substance cannot simply be copied, what was once considered a “trade secret” is now openly communicated. By conveying “design icons” and “codes” to the public, the customer becomes the connoisseur and can thus develop a stronger bond with the brand and its design. However, not only are customers and the wider public the target groups of such a communication. In the context of restructuring and change processes within the company, in-house design teams position themselves or drive these processes within the organization.

“We have to communicate more and more to our target groups the background, for why something is designed the way it is.”
Product Management Director, large company

“We publishing our Design DNA was regarded risky, but it created a complete autonomy in terms of what people think of design in the company. It also created one message for external purposes.”
Design Director, medium-sized company

Fig. 4 | Design Mission Statement of Braun GmbH
“It is time for Braun to again become the design brand that it was in the past: strong, innovative and renowned for its modern, functional design. This is what our philosophy “Strength of Pure” stands for - it is the basis and standard for our new design language.”

Fig. 5 | “Design DNA” Grohe GmbH
“Three signature design elements – ring, lozenge, 7° – make up our visual DNA. This unique design language is our blueprint for realizing award-winning designs and enables consumers to instantly recognize a GROHE product.”
As an alternative way of communicating design, companies perceive research and innovation as a central aspect of their work. (e.g. Philips Design, see Fig. 10, following page). They utilize external communication to position themselves as remotely and uniquely as possible from the usual “design” clichés. At the same time, they provide a comprehensive insight into their approaches, processes and research results. In this manner, they demonstrate their competence. Moreover, with their conformance to current scientific and technological standards and guidelines, they present their openness and readiness for discourse. Therefore, communicating design has not only become intensive, but also the content itself has become more meticulous and demanding.

Often the design approach and the design concept itself are only implicitly communicated. Keywords, such as “architecture” (Bulthaup) or “passion” (BMW) are used to convey the respective brand designs emotionally and make them accessible. (see Figs. 7 and 8 on the following page). At the same time, empty phrases and advertising language often dominate the design presentation also.

“because the spate of words provide a good hiding place.”  

Thus, a mere collection of so-called “high-value words” 7, such as “aesthetic”, “innovation”, “ecology” and “authenticity” results in forming a kind of design philosophy, which seeks to be meaningful, but due to its flimsiness, fails to make a point. The focus on brand communication is clearly demonstrated by texts such as, “The new (...) design language is more than ground-breaking: it triggers emotions. The sculptural forms, flowing lines and unique design details represent technological progress (...).” 8 Such texts convey nothing more than an uncertain and general positive feeling.

This ambiguity is less rooted in the lack of expressiveness, but more in a likewise unclear understanding of the topic among authors. Hence, common clichés are readily used: “Form follows function” or “(...) with simple aesthetics in the tradition of the German Bauhaus School” 9.

As an alternative way of communicating design, companies perceive research and innovation as a central aspect of their work. (e.g. Philips Design, see Fig. 10, following page). They utilize external communication to position themselves as remotely and uniquely as possible from the usual “design” clichés. At the same time, they provide a comprehensive insight into their approaches, processes and research results. In this manner, they demonstrate their competence. Moreover, with their conformance to current scientific and technological standards and guidelines, they present their openness and readiness for discourse.

Therefore, communicating design has not only become intensive, but also the content itself has become more meticulous and demanding.

High-value words 7 are expressions that have positive connotations and are suitable for enhancing what is being specified, whereby grammatical structures and superlatives are usually avoided. They have become indispensable instruments of populism, propaganda and advertising language.
To provide a high quality of content, designers must be able to reflect, communicate and be linguistically competent. Likewise, communicators need to show their design knowledge or competence.10 In large companies, more and more specialized teams take on the demanding task of communicating design. Science communication and art communication may be considered precursors of design communication. Science communication focuses on information regarding content, objectives and methods as well as conveying the relevance of scientific research. Mostly, scientists (with corresponding additional qualifications) communicate the content, since a high measure of expertise and methodical knowledge is essential. In art communication, mostly art historians take on this task. For the most part, they deal with classifying works of art in a historical context, understanding the artists’ intentions, and facilitating distinctive perceptions of aesthetic contents. In both cases, experts with profound technical understanding make the complex content accessible to laypersons without falsifying them and lapsing into clichés. The basis of every type of communication is to know exactly what you are talking about.

“At the moment, we’re developing the topic of design – the design context is extremely important. Even now, we’re still barely out of the basics.”

Business Communication Executive, large company

Fig.6 | Science Communication as Event
Also in science, a clear communication of complex contents is gaining importance. At competitions like FameLab young scientists present their research to a broader audience (Above: 2010 winner Isabelle Steinke)
Photo: Sandra Göttisheim

- Companies are communicating design, the design process, design language, backgrounds, context and inspirations as well as the designers themselves more intensively to the world outside.

- For customers to form a relationship with products, they should be communicated in a way that they are charged with authenticity and meaning. But communication also serves to position design within the company itself (in terms of change processes, etc.).

- The way companies communicate design to the public is often characterized by their use of advertising language, clichés and empty phrases. This effect may result from the uncertainty that designers themselves experience concerning content as well as the lack of understanding among communicators, who have no design background.

- Design communication equally requires expertise and communication competence.
Fig. 7
BMW Design website
“We do not design cars - we trigger feelings! Every line we draw, every detail we debate, every form we create, every model we finish, every thing we do has one purpose: We want to release emotions. Our automobiles are not just the end of a creative process but a beginning! (…)” 11

Fig. 8
bulthaup website
“bulthaup is renowned worldwide for its architecture of living spaces. (…) bulthaup delivers a service that is truly unmistakable: the design of living spaces that are planned holistically, based on the architecture of the room and the individual needs of the customer. (…)” 12
Fig. 9
FLOS website
“Connecting with masters of design. Discovering new talents. Commanding high technical and technological status. Staying tuned into mass culture. These qualities always place us at the cutting edge.”  

Fig. 10
PHILIPS website
“We focus on value creation, for people and businesses and work according to our unique High Design Process - an integrated approach, incorporating all of the traditional design skills, plus all of the new design-related skills needed to respond to the complexity and challenges of the present and the future.”
WHAT IS DESIGN?

RATHER, WHICH DESIGN IS IT EXACTLY?

The nature of design is a topic that has long been intensively discussed among design scholars and experts. However, practitioners themselves seldom have access to this theoretical discourse.
What “design” exactly is cannot simply be explained by an entry in Wikipedia.
As in art, science or culture, social groups (re)model and (re)assign meaning to concepts over time.

This haziness is something that design shares with many other fields.

Essentially, design can signify the process and the result of designing.
Originally from the Latin verb form “dēsignāre” meaning “to mark out” or “to describe”, today the English noun form “design” is also prevalently used in German to mean “Gestaltung”. Especially in English speaking areas, the term “design” is not only applied to aspects of a formally aesthetic nature, but also generally to contexts pertaining to designing and planning, e.g. engineering design, policy design, etc. Terms, such as “design thinking”, show a broadening and diversification of the term to characterize a mindset, method and approach.
As a foreign word, “design” primarily appears in general language use as an enhancing attribute, e.g. “designer lamps”. Moreover, “design” should express exclusivity and exceptionally aesthetic quality.

Often customers and users are not aware of which product characteristics can be attributed to the designer’s work.
Usually, they do not associate such features as user friendliness, intuitive operation or flexible use with design or the designer’s accomplishment. Design is often equated with emotion, “look and feel” and styling.

Also in companies, the understanding of design is frequently shaped by the prescribed common notion of design. Here, it applies to a clearly different, nuanced, and perhaps sometimes unclear understanding of design by the designers themselves. Altogether, these varying and unclear understandings hardly correspond with each other, especially in situations when people do not notice that they are talking about completely different things. Thus, judging design quality or prioritizing design as an aspect without defining and comparing the term “design” has a questionable value.

“Design is something emotional, something unconscious. And something that is unconscious is what you can’t - or is difficult to articulate.”  
Design Engineering Director, large company

“People think that design is styling. Design is not style. It’s not about giving shape to the shell and not giving a damn about the guts.”  
Paola Antonelli
“Like the brand, design is security. If you buy a product, it’s like a seal of quality.”
Marketing Director, large company

“Design is the vast entirety, a holistic user experience.”
Designer, large company

“Design is distinction.”
Brand Management Director, large company

Design: “The meaning of this word has become so hollow from the moment it identifies something or another, that even experts and marketing people can no longer define it.”  
Max Borka

“Design is an approachable emotional feeling.”
Product Manager, large company

“Design is an outer shell that is incredibly charged; it seems emotional, it seems functional, ergonomic, and so on.”
Designer, large company

“Forget design. We grew up with design, but today everyone makes design. For bulthaup, the word is worn out. I can’t forbid it, but I don’t want to hear it anymore. It’s about architecture. About order, value, timelessness and the quality of a manufacture.”  
Gerd Bulthaup as quoted by Hartmut Roehrig in *brand eins*

“Design is anything that deals with the aesthetics of the product.”
Design Director, large company
"Design is primarily an attitude."
Designer, large company

"Design is the face of consumers. It expresses what the brand also stands for."
Marketing Director, large company

SZ: “That sounds very general. Do you have your own definition of what design is?”
Gric: “Not so readily.” 18
Konstantin Grcic in an interview in the Süddeutsche Zeitung entitled “Design is a Form of Thinking”

"What is design? ...a hundred stories immediately come to mind."
Designer, large company

"Design is a word that’s come to mean so much that it’s also a word that has come to mean nothing. We don’t really talk about design, we talk about developing ideas and making products.” 19
Jonathan Ive

"You can design anything. Design can be about creating a form. But it can be more than that. (...) You can design entire ecosystems.”
Design Director, large company

- The term “design” lacks a solid form. Its meaning changes over time according to the social groups that use it.
- Also designers themselves have no clear, formulated understanding of the term “design”.
- “Design” can shape the design itself as well as the fundamental way of thinking. In general language use, the word “design” is often used as an enhancing attribute.
- Often no comparison is made of different understandings of “design” among process partners in the company.
- This leads to misunderstandings and conflicts because a shared basic understanding is missing.
THE DESIGNER’S COMPETENCE

KNOWLEDGE OR INTUITION OR A FEELING OR EVERYTHING?

In a broad sense, design can be seen as a keen human ability. Engineers, craftspeople, politicians and designers alike possess “design intelligence”, which helps them develop methodical solutions for problems and “transform existing conditions into preferred ones.” They may not all consider themselves “designers”, even if “design” pops up more and more frequently in new contexts.

Considering the designers’ frame of reference of industrial processes and scope, their knowledge and competence are to some extent considerably distinct from those of other disciplines when dealing with product development processes.

In this context, recognizing designer knowledge as a specific form of knowledge is difficult for many, even for designers themselves, because it does not correspond to a common concept of knowledge.

Designers consider themselves to be specialists and generalists at the same time, as they can integrate a number of different requirements and aspects of knowledge into their work.

“Design should understand the system, particularly how it influences the system; in other words, design should think systematically.”

Design Director, agency

To many, “knowledge” is what textbooks prescribe and convey: conscious knowledge, that is codable and communicable in writing, declarative and explicit.

Apart from this factual knowledge, also other forms of knowledge exist, without which we could not think and take action: Methodical knowledge (problem-solving knowledge) and procedural knowledge (courses of action and routines) can be explicit as well as implicit and “tacit” if “we can know more than we can tell.”

A designer’s knowledge includes factual knowledge and explicit methodical knowledge. To a large extent, it is also based on experiences and procedural, episodic and socio-cultural knowledge. Such knowledge pertains objectively to formal aspects of design.

“Knowledge is not an image or representation of reality. Rather it’s a map of what reality allows us to do.”

Ernst von Glasersfeld

“Design is something I find very subjective. Many think that they can contribute good ideas, give their input, and just design something. But this is always something difficult – this competence that we have to protect within the company and to say: ‘We have our reasons why we did that and that’s just the way it is.’”

Designer, large company
It is subjective in the way that we integrate our own experiences, aesthetic perceptions and aesthetic expressiveness. It is emotional and emphatic in terms of the user’s experience. It comes from “thinking of the object” and “tactually searching” in the tightly iterative interweaving of doing and thinking. It is metacognitive (thinking about our own thinking) when reflecting on the approach in the design process. When reflecting on the role of the designer and the design itself, these meta-levels can impose a distance on personal actions, yet they can also clarify connections to nearer and remoter contexts.

- In a broader sense, design is a keen human ability to solve problems. The professional “designer knowledge” represents a specific form of knowledge that to some extent distinguishes itself considerably from that of other disciplines.

- Knowledge is not only what we can clearly formulate and communicate (explicit knowledge), but also what we know without being able to ascertain and articulate (implicit knowledge).

- The competence and knowledge of the designer constitute a complex construct of explicit and implicit knowledge, experiences, facts, methodological knowledge and internalized routines as well as objective and subjective aspects, such as empathy, aesthetic expressiveness and the ability to reflect.

“It’s difficult to recognize what a real difference a designer’s expertise makes.”
Designer, large company
THE DESIGN PROCESS

IS THAT REALLY A “PROCESS”? 

In a company, the product design process is often planned and presented thoroughly. As a strict procedure with defined milestones, it ensures that certain goals can be realized at certain times.

Development activity as a planable linear sequence of individual steps, or breaking down a task into “sub-functions”, as described in engineering, exists as a model or mental image in many disciplines.

However, as a creative process of the so-called “fuzzy front end” of product design, such a model of the design process is not suitable.

Moreover, those who understand the term “process” as clearly regulated procedures, e.g. engineering procedures according to the standards of the VDI (Verein Deutscher Ingenieure; English: Association of German Engineers) (see Fig. 13), might feel alienated by the term. Many misunderstandings occur in the product design process largely because in the eyes of other specialists involved in the “mysterious world of creativity”, what designers do is not methodical enough.29

To counteract this, company designers also try to explain their design processes. They often communicate with a procedural model showing how the results and products (ideas, drawings, models) relate to each other in subsequent phases. Such models may provide information on the individual procedural steps, but they fail to facilitate a deeper understanding of the creative process.

The “perceived” image – and also the reality – of what happens in design do not correspond to a strictly linear approach.

(see Fig. 14)

“We struggle with the right words to describe the design process at Apple, but it is very much about designing and prototyping and making.” 30

Jonathan Ive
Fig. 13 | Product development process according to VDI Guideline 2221
A typical process model that clearly defines the sequence of milestones and output.

Fig. 14 | The “perceived” model of creative processes
Diverse models and representations have been developed since the 1960s to elaborate this “mysterious” design process. The procedure of problem-solving in the design process can be understood as a kind of simultaneous evolution of the design task as well as the continual redefinition of the problem itself. Some models, such as the “Design Thinking” process (Fig. 17) (according to the HPI School of Design Thinking), emphasize these iterative aspects (turn the loop, repeat the steps). Others such as the British Design Council’s “Double Diamond” design process model (Fig. 16) formulate a funnel diagram to provide a clear understanding of how divergent (open, spread, experiment) thinking and convergent thinking (compress, analyze, select) alternate. Nigel Cross presents the convergence of the entire process and its iterative loops in a complex model. The different models of the design process and their visual representations help designers to reflect on their personal process of thinking and doing, which they can then communicate to their process partners.
“In the course of a career, design continues to be an increasingly intuitive process and you forget how to explain your own actions. The reasons behind a certain design and its shaping flow subconsciously into the design process. You forget which corresponding words to use to explain it.”

Designer, large company

- Most people understand the design process in companies to comprise clearly described, strictly linear processes.

- The design process is a creative process characterized by iteration (“turning loops”) as well as divergent (opening, broadening, experimenting) and convergent (compressing, analyzing and selecting) thinking.

- The most diverse models have been developed to understand this process.

- These models can help designers with their work as well as help them illustrate and communicate their thoughts and approaches to their process partners.
DESIGN, CREATIVITY AND INNOVATION

ARE DESIGNERS THE ONLY “CREATIVES”?

Today “design” in the sense of product design is no longer about only “giving form.” “Design” is not a clearly defined job profile. Rather, it has expanded and specialized itself as a professional field.

New fields include, for example, perspectives on “human-centered design” 33, “emotional design” and “design-driven innovation” 34, in which the user and the meanings that people associate to a product are focused on. New specializations, such as interaction-design and service-design, have developed into full-fledged design disciplines.

Design is also increasingly integrating scientific aspects. “Design science”, particularly “design research”, has likewise established itself, mainly focusing on how scientific accesses and methods within projects expand the designer's performance spectrum.

“Also engineers can be creative. It’s all about thinking out of the box.”

Design Engineer, large company

Emotional and human-centred design as the focus of external communication
The designer as a “lone artist” in an ivory tower is not in demand in closely interconnected, collaborative processes.

In practice, the designer more and more assumes additional mediator and communicator roles. In co-creative processes, partners, users and customers are actively integrated into the design processes. Management and other areas have integrated approaches that aim at being universal problem-solving methods, such as “design thinking”.

However, the classification and assessment methods of “design thinking” is not undisputed among designers and design theorists who view it either as a “marketing gag”, a “useful myth” or an “essential tool”.

At the same time, companies are becoming more aware of the importance of creativity for innovative strength. The idea of creativity is slowly changing. It is no longer deemed as an exclusive domain of designers, artists, musicians, etc. “Creative Intelligence” is understood as a keen human characteristic that can manifest itself as an exceptional talent. Nevertheless, it can essentially be nurtured and developed in every person.

With its open and experimental attitude and methods, design can function as a creative principal discipline and a change agent for promoting creativity in the entire organization.

---

“Creativity relates to the human ability of bringing about something new. Its basis is the power of imagination as a capacity to visualize what is not there. From this, fantasy develops as a capacity for realizing what does not yet exist.”

From the exhibition catalog “Be Creative! The Creative Imperative!”

---

**Innovation** is about implementing a technical or organizational improvement in the production process, not the corresponding pre-existing invention itself.

---

Fig.21 | Design Thinking Workshop
Experts from different disciplines working together to create innovative ideas and solutions.
“Creativity is the capacity of an individual or a collaborative system, such as a group, network, etc., to produce original works. Depending on the collaborative system, the original work presents itself as a subjectively perceived new approach to problem-solving, particularly solving the resulting problem of the work, or its independent ideas, or the insights acquired in the form of knowledge of the process of creative problem-solving. The original work resulting from these processes does not have to be physically manifested, but should at least be understandable, consistent in itself and sensible.”

“Creativity is the capacity of an individual or a collaborative system, such as a group, network, etc., to produce original works. Depending on the collaborative system, the original work presents itself as a subjectively perceived new approach to problem-solving, particularly solving the resulting problem of the work, or its independent ideas, or the insights acquired in the form of knowledge of the process of creative problem-solving. The original work resulting from these processes does not have to be physically manifested, but should at least be understandable, consistent in itself and sensible.”  

“Creativity is the production of novel and useful ideas in any domain. In order to be considered creative, a product or an idea must be different from what has been done before.”

Teresa Amabile

Fig. 22 | Componential Model of Creativity by Teresa Amabile

“The theory specifies that creativity requires a confluence of four components: Creativity should be highest when 1. an intrinsically motivated person with 2. high domain expertise and 3. high skill in creative thinking 4. works in an environment high in supports for creativity.”

In contrast to the traditional approach, the contemporary approach to creativity research assumes that all humans with normal capacities are able to produce at least moderately creative work in some domain, some of the time – and that the social environment can influence both the level and the frequency of creative behavior. Creativity is the production of novel and useful ideas in any domain. In order to be considered creative, a product or an idea must be different from what has been done before.”

Teresa Amabile
The professional field of design expands and specializes itself with new approaches, scopes and scientific aspects.

More and more, companies are realizing the universal importance of creativity as a fundamental skill for the innovative ability of all their employees.

In closely interconnected co-creative processes, designers transform into mediators and communicators, thus shedding their former status as “lone artists”.

Other areas, such as Management, have adapted “design thinking” as a general problem-solving method.

The idea of creativity as an exclusive domain of “creatives” is changing. With its methods, design can promote this change in companies and bring it to the forefront.
DESIGN ON ALL LEVELS

THE “DESIGN OF THE DESIGN” AS A FOUNDATION FOR DESIGN IN COMPANIES

Company designers demand an earlier, more intensive and far-reaching integration into innovation processes and strive for mediator and leadership roles. This not only influences daily project work, but also generally effects changes in management and the organizational culture.

The kind of design integration into companies particularly depends on the company management’s understanding of design.

“The Danish Design Council’s “Design Ladder” embodies an exemplary model of this integration. The scale ranges from “non-design” to “design as innovation”, wherein design – far from the idea of design as “giving form” – functions as a central driver of innovation. Each step towards the top in this design ladder signifies change and organizational learning. This organizational learning process requires creating awareness and communicating knowledge, whereby design must be controlled, developed and communicated operatively, strategically and normatively in all management levels.

“Without the support of the CEO, it’s just a waste of time. No matter how good you are, how much you love what you do, how much energy and passion your people put inside - you can’t bring that to the company. The organization won’t allow this.”
Design Director, medium-sized company

“If you pursue a career in design today, you have to develop very early the ability to appear credible.”
Romero-Tejedor Boom
The daily organizational operations deal with carrying out projects, administering the resources and ensuring that the strategic contents are realized. On the strategic level, tasks include conception, planning and implementation of strategic contents and concepts (design guidelines, strategies, research) as well as design management processes. They provide the direct framework for operative work and define how design goals correlate with the strategic branding and company goals. Design guidelines formulate the visions as well as the constants of design language. They are based on brand personality and the customer’s perception of the product. They support the designers in their operative work while ensuring the consistency of the brand design. However, design guidelines can often be very abstract or unclear. Their ultimate benefit for the designer’s work in product design becomes questionable. They are reduced to functioning as mere aids for argumentation when defending a completed design that was not developed from the guideline. Realizing the change processes for broader design integration requires a frame of reference relating to the next higher levels.

To create design awareness and make design competence effective on broader levels, the perception of “design” in companies must constantly be uniform throughout the organization.

It is not about creating a definition for the sake of universality, but rather a sensible and valid definition for the whole organization.

“For us, the design guideline is primarily a line of argumentation.”
Design Director, large company
Creating and maintaining a shared understanding of design in the company organization requires reflecting on the personal attitude, values, design contribution for innovation and creativity as well as the “way of designing”. Thus, a close connection with company goals can be established to develop a personal and consistent “design of the design” that can be compatibly formulated, and purposefully communicated. Values and attitudes play an important role for design, as they do for architecture. The continuing discourse regarding “good design” as well as the ecological and socio-cultural dimensions remain a private matter for company designers. Also in this respect, the “self-searching” nature of design can be a fruitful impulse for the entire company.

To develop design foundations, it makes sense not only to promote the integration of scientific methods, e.g. researching usability contexts, but also to communicate the basics and strengthen the perception of design altogether. The explicit knowledge developed by designers can support the argumentation for the operative design. This communicable expansion of design expertise leads to a more holistic perception of design competence in companies.

A design model in a superordinate sense, i.e. driven by the activity of designing instead of the result itself, conveys the conceptual framework, which describes how and why something is not done in a different way.

The “design of the design” is the basis for all operative and strategic activities and is crucial for establishing design as innovation.

“Businesspeople don’t just need to understand designers better – they need to become designers.”
Roger Martin, University of Toronto, Rotman School of Management

“Those involved in developing the design guidelines have an idea about it [the product], but once it’s communicated, it’s over…”
Design Director, agency

“You can’t educate other people about design until you have a credible group of people that really understand what design is.”
Design Director, medium-sized company
A company that integrates its designers early and intensively into the innovation processes brings about effective changes far beyond these processes.

The position of design in companies depends largely on the company management’s approach to it.

As an instrument of strategic design, design guidelines often remain very abstract and therefore difficult to carry out. Nevertheless, they can still be a valuable building block for communicating the brand design outside as well as inside the company.

To make design in companies comprehensively and sustainably effective, designers need to think and act operatively and strategically. They also have to assertively communicate their contribution to innovation and creativity in the company.

“The task of design is to explain to process partners where and at which position something can be done and can’t be done.”
Design Director, agency

“If design is not anchored in the company strategy and supported by company management, then good design doesn’t work.”
Designer, large company

“I would think presenting backgrounds to argue for the design is important because it boils those people over, who consider design superficial.”
Design, large agency

“Most companies view design as a tactical service. ...You’re a process section, but not a process guide – and not strategic and not visionary. The company direction is not influenced by the designer’s participation, but rather by marketing people, distribution people, strategies.”
Design Director, agency
ORGANIZATIONAL CULTURE
A CONNECTING PATTERN

Scientific studies have long proven that organizational culture can considerably influence the company’s economic success.\textsuperscript{50} There is definitely more to this “soft” and ambiguous concept than what is officially announced and seen from outside.

The concept of the organizational culture was introduced in the early 1980s as a way of describing the culture of customs, values and behaviors that shape the unique social environment of an organization.

According to one of the important pioneering theorists of organizational development, Edgar H. Schein defined organizational culture as: “A pattern of basic assumptions – invented, discovered, or developed by a given group as it learns to cope with its problems of external adaption and internal integration – that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.”\textsuperscript{51} Culture therefore emerges from a group’s learning process.

Schein distinguishes three levels of organizational culture: at the first level, all visible behavioral patterns, structure and processes as well as physical products, technologies and the shaped environment, signs and symbols as well as rituals and myths.
At the next level, propagated values and justifications of the organization, i.e. how things should be and probably are. Some parts are visible, such as official guidelines, while others are not.
The last level comprises the shared basic assumptions. These are mostly derived from unspoken fundamental beliefs and perceptions that are so deep-seated, such that they are no longer questioned. The fact that such assumptions are not reflected upon is not to be underestimated, as they have a decisive influence on the behavioral patterns and the culture.

“The organizational culture is seen as an iceberg: the largest part is not visible and is submerged under water.”

Tension and rifts occur if the officially propagated guidelines are not implemented, especially when the management itself does not exemplarily “practice what they preach”.

The organizational culture controls the setting indirectly and informally. It offers a basic orientation, creates an affiliation and simplifies the process of interpreting the situations. It can make sense, strengthen and mediate.\textsuperscript{52}
The “central nervous system” of the organizational culture is communication, which is influenced by the organizational culture and communicates it.\textsuperscript{53}

Design relates best to the organizational culture if it strongly characterizes the brand. Design passes on the culture and thereby communicates it through concepts and drafts as well as its values, approaches, and its specific processes and methods. Therefore, design becomes an integral part of the specific organizational culture within the company as well as the wider social culture outside of it. Both influence design and vice versa.

“You can spin it however you want. In the end, it’s all about identity and culture, about values.”\textsuperscript{54}
Roland Bickmann, Business Consultant, in the business magazine, \textit{brand eins}
Organizational culture comprises the visible environment, rituals and symbols, norms, and to a large extent, the basic assumptions lying underneath the surface, such as values and learned behavioral patterns.

It provides a basic orientation, is meaningful, conveys affiliation, and influences people’s thoughts and behavior.

Outside of the company, design is a cultural conveyor and communicator. Design values, approaches, products and processes are very influential parts of a culture.

“Cultural development is the basis of design. Without culture, you can’t design a product.”

Design Director, large company

Fig.24 | Iceberg Model of Organizational Culture
Most of the elements influencing organizational culture are hidden and unconscious.
COMMUNICATING IS MORE THAN JUST INFORMING

IF YOU WANT TO BE UNDERSTOOD, YOU HAVE TO WANT TO BE CLEARLY UNDERSTOOD

Communication is the reciprocal content-based and relational interaction among humans. It is based on the production and interpretation of the most diverse signs. In communication, information is relayed and meanings are conveyed through media, such as language, gestures, writing and images.

Communication is a conscious action. But also the refusal or failure to communicate can be an unintended transfer of information.

“One cannot not communicate.”

Paul Watzlawik

Therefore, there is no communication if the information is simply put out there in the open, but it only starts to happen when there is a reciprocal and mutual understanding. For this, “active listening” is as important as sending clear messages. Essentially, all communication partners are responsible for the communication flow as well as for the results of the communication processes. Moreover, if we want to be clearly understood, we need to consider the outer and inner contexts and the inner logic of communication.

The factual information of a communication has to fulfill certain criteria of quality, so that the corresponding communication partner can and wants to process it. It has to be accessible, clear and understandable, interesting, relevant and believable.

Understanding from the perspective of the conversation partner alone does not create understanding or motivation. However, the way we communicate influences the kind and quality of our relationship. Therefore, communication occurs for the purpose of developing and stabilizing relationships. It decides at which level we achieve our goals, convince our conversation partners and motivate them towards certain actions. According to the communication theorist Paul Watzlawick, the factual levels, the pure exchange of factual information and its rational balancing determine only approximately 1/7 of the decisions and reactions of communication partners.

In contrast, we receive and interpret the larger part at the so-called relationship level.

Reactions and apparently also rational decisions are determined by trouble, anger or sympathy and happiness, etc.
The receiver then has to take the message regardless of whether the information contained therein directly affects him. The conditions for a real successful communication are thus not always fulfilled. Communication problems, tensions and misunderstandings can arise.

In the daily work routine of many companies, people perceive internal and external communications as being independent of each other. In contrary, the goal of so-called “integrated communication” is to achieve synergy effects by coordinating the contents, instruments and interests of all relevant internal and external target groups. At the same time, communication in product design processes and projects remains as hidden as possible.

For the most part, a simple understanding of communication exists in the daily routine of an organization. Particularly, the organization’s external communication usually deals with a piece of information, while its internal communication often deals with the structures, processes and the media of communication, i.e. frequency of meetings, presentation forms (PowerPoint slides, flyers, etc.).

Based on varying experiences, some people perceive internal communication as an “automatic” experience, whereas others perceive it as a “communication corset”. Mainstream literature on marketing theory, innovation research and project management provides a very simple sender-receiver model of communication. This understanding is quite practical and allows the illusion of control: “[...] because we can consider the transmission of a message, or the contact with it, as already being successful.”

The receiver then has to take the message regardless of whether the information contained therein directly affects him. The conditions for a real successful communication are thus not always fulfilled. Communication problems, tensions and misunderstandings can arise.

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At the same time, communication in product design processes and projects remains as hidden as possible.

“Designers and engineers – they’re both autists.”
Marketing Director, large company

“You can impress people close to the product, such as those in product design. But with people way up in the management level, (...) it’s more difficult. Because you have little time to communicate complex contents. You have to get your topics across with pinpoint precision. Within two minutes you have to quickly explain why it [a design] is like that.”
Design Director, large company

“The right communication achieves a good result.”
Design Engineering Director, large company

“In the end it always boils down to the topic of communication. And communication strongly depends on the participants’ personal sensitivities.”
Design Engineering Director, large company
THE BASIC STRUCTURAL AND ECONOMIC CONSTRAINTS OF THE EXTERNAL CONTEXT:
- the competition for limited resources in the organization
- the spatial separation, temporal offset in processes and time-limited collaboration (projects)
- the high differentiation between tasks and organizational structures

THE RESPECTIVE CURRENT SITUATION, INTENTION, AND GOALS OF COOPERATION

THE DIFFERENCES AMONG GROUPS, GROUP CULTURE, AND DISCIPLINES:
- competing specialized goals and interests, competences, contents, procedures and methods
- explicit and implicit values and cultures
- the presence or absence of knowledge of specialized competences, goals, contents and methods of “others” and the resulting false expectations and clichés

- different terminologies and concepts
- affiliations with different social groups
- intensified identification with respective group goals, basic assumptions, perspectives and values

THE INNER CONTEXT OF PARTICIPANTS:
- personal competences, knowledge and experiences,
- abilities, preferences and talents,
- learning style and situational preference for accessing information (visual, audial, reading and writing, kinesthetic)
- character, personal goals and values
- thought patterns (heuristics)
- “daily format” and situational emotions

Many of these factors are unconscious and seem so straightforward that they are seldom personally reflected upon or rarely prompt a communication with others.
Organizational culture and communication culture considerably influence the quality of the collaboration in daily processes and in the company altogether.

The more intensive the collaboration and the more heterogeneous the “teammates” are, the more demanding communication and collaboration become.

“Communication is unlikely. It is unlikely, although we experience, practice it every day and we wouldn’t be able to live without it.”

Niklas Luhmann

“Communication can be understood [...] as a reciprocal construction of meaning between two or more partners.”

Gerhard Roth

“Most of the time, designers are not capable of finding the right facts for an argumentation.”

Design Director, large company

“Communication skills are important for designers because design is subjective. They have to find a vocabulary that is relevant to the person they are talking to. There are differences between engineers and marketing guys – they have different filters. Consider this! Try to empathize! What is important? Design has to sell, convince and communicate the benefit. Really say clearly why.”

Design Director, medium-sized company

- All those involved in the communication process have a shared responsibility towards a successful communication.

- The information to be conveyed has to be accessible, clear and understandable for the target groups.

- The way we communicate influences the kind and quality of our relationship with our conversation partners and their motivations to take action.

- A communication culture that considers the needs of the communication partners and the influential factors can positively affect the quality of the collaboration.
EXPERTS AND LAYPERSONS

THE CONNECTING POWER OF KNOWLEDGE

A collaboration comprising different areas and disciplines is usually a collaboration among experts (from one area) and laypersons (from a different area).

According to psychologist Keith Sawyer, for a team to really work creatively together, the participants need trust above all, they should be familiar with each other and share a clear common goal.76 By reflecting and exchanging, familiarity arises from shared experiences and a shared goal.

Trust arises from knowing the knowledge of others as well as the awareness of their meaning.

Thus, the ability to self-reflect and adopt other perspectives – in other words, the ability to look at the world through different eyes – plays a monumental role in the team’s functionality.77 “T-shaped skills” are a good example of building a bridge in the interdisciplinary teamwork. Professional flexibility is combined with openness towards references and connections to other disciplines.

From that, a so-called “transactive knowledge”, i.e. knowledge of what others know or do not know, and connectability develops.78

Making an expert’s complex knowledge and abstractly intellectual concepts clear for laypersons is always a difficult task for all experts.79 That is even more so the case for design, which operates largely on implicit knowledge.

Perhaps more than some disciplines, design in companies is a socially negotiated process of collaborating with experts of other disciplines. Thus, it is highly dependent on communication.

Designers need a high degree of awareness for the meaning and functionalities of communication and the corresponding competences.80 However, such awareness and competence are only partially present. Designers might consider communication important, but they often do not count it as a core competence.81

“Engineers should be taught design skills during their training. If necessary, they should make up for those missing skills in the company.”

Design Director, large company

“I believe the biggest difficulty or one of the biggest difficulties is that for me as well as many designers, design is the center of the universe.”

Design Director, large company
Interdisciplinary collaboration usually means working together with experts and laypersons.

Trust, familiarity and a common goal are the most important conditions for a successful creative collaboration.

The ability of looking “at the world through different eyes”, empathy and “T-shaped skills” nurture the development of transactive knowledge and connectability.

Design processes in companies cannot run smoothly without intensive, communicative collaboration.

Corresponding competences must be consistently and deliberately developed.

“A designer, who communicates his work to us, doubtlessly spends 30% of the time explaining what kind of effects his goals would have on our work.”

Design Engineering Director, large company
THE MEANING OF LANGUAGE

A MEDIUM OF UNDERSTANDING AND A THINKING TOOL

For humans, language is the most important medium of communication. We express our thoughts, feelings and desires through language. It serves as a universal medium of communication and is therefore a basis for collective action. It is a thinking tool. Complex thinking processes are not possible without it. A diversified command of a language demonstrates a diversified thinking capacity.

Language is a system of signs possessing structures that shape the way we perceive the world.

Language is identity and culture; it forms our relationship to our environment.

As an example, in many native languages, the grammatical gender attributed to the corresponding words for persons, objects and characteristics can influence the speaker’s perception.83 (see Fig. 27)

“Language is a purely human and non-instinctive method of communicating ideas, emotions, and desires by means of a system of voluntarily produced symbols.” 86
Edward Sapir

“Language is the house of Being. In its home man dwells.” 87
Martin Heidegger

“Key“

Native language: German „Der Schlüssel“
Attrition: hard, heavy, jagged, metal, serrated, useful

Native language: Spanish „la llave“
Attrition: intricate, little, lovelly, shiny, tiny

Fig. 27 | The Influence of Language on Perception
The grammatical gender of an object in the respective native language can influence the speaker’s individual mental attribution of characteristics to that object.
Source: Boroditsky, 2002

“That’s the designer’s problem: You learned visual communication, but then you also need verbal communication.”
Designer, large company
Whether spoken or written, language is simply a controllable, flexible and dynamic medium.

The quality and power of the spoken language not only depends on the content, but also the way it comes across.”

Spoken language is informal and simply structured; the information is quickly communicated. When speaking, the speaker knows his addressee and can receive immediate feedback from his listener. In contrary, written language is structured more formally and complexly. The feedback is missing and therefore the message must be formulated in a clear language. Writing requires analysis and comparison, developing and discarding ideas, and turning iterative “loops”. Simplicity, structuring, conciseness and persuasion are essential in expressing what you want to express. Writing is therefore a demanding creative design process.

“I write, therefore I am. I need the intellectual and emotional stimulation that the act of putting down ideas in the form of words on paper and screen gives me. Writing is the culmination of a process of conceiving, researching, analyzing, ordering, and structuring. Writing is design.”

Steven Heller

“Without writing, you can’t think; at any rate, not in a complex and connective way.”

Niklas Luhmann

- Language is the most important mode of communication.
- Linguistic and thinking capacities are directly intertwined in a causal connection.
- Language shapes our identity and culture.
- Spoken language and written language essentially distinguish themselves in terms of structure and complexity.
DESIGN AND LANGUAGE

LANGUAGE SHAPES DESIGN

Drawing and drafting are generally considered to constitute the designer’s main activity. An activity that particularly combines making drawings or models. This type of communication is clear, easily accessible and easily understandable. Most people derive more pleasure in looking at well-made images than studying, for instance, dry Excel tables.

In the era of the “iconic turn” 90, we are more and more accustomed to having information, including complex information, conveyed to us. This “turning towards the image” also causes product design disciplines that are less visually oriented, such as mechanical engineering and marketing, to increasingly accept the serious and relevant nature of the visually conveyed content.

At the same time, the communicative demands on designers are growing. Today they have to communicate numerous and complex contents to target groups.

They have to assess and negotiate their interests together with everyone involved. And this is only possible through language. It is the dominant medium in organizational processes.

Communication becomes an integral component of design processes as well as the designer’s core competence. 92

“I believe that generally you have to focus on explaining things that seem straightforward.”
Designer, large company

“Designers have a lot at their disposal to motivate and promote understanding. Designers can compress complex procedures into a combination of sentences and images to make them comprehensible.”
Design Engineer, large company

“Most people are not aware enough of how they use language. It’s like breathing. You just don’t think about it.” 96
Stefan Goes

“In this context, designers have a responsibility to communicate their thinking in a language which can be easily understood by colleagues more used to interpreting words than images.” 97
Mike Press & Rachel Cooper
Designers need words and terms for their tacit train of thought and drafts, for forms and structures, their aesthetic effect, expression and significances. Designers talk about their thoughts with others during their developmental process to gather, deepen and assess their ideas. During the project process, designers have to explain concepts and their contexts by telling stories and scenarios. They have to plan conceptually and argue and negotiate their designs. For this they require self-awareness, argumentation skills, and the motivation to also want to be really understood. They have to adapt their language also to the internal and external goals and target groups in order to reach them.

“The designer has the task of making something inspirational. He doesn’t have to present it in a technically plausible way. But he has to get it across so that the fascination just leaps out. And it can only leap out if I manage to make people enthusiastic about something. That’s why it’s also necessary to accept every person’s capabilities. Otherwise you just promote a defiant reaction.”
Design Engineer, large company

“Regarding design, you may not be able to decide democratically, but you have to at least try to take people along and to explain and to understand. For this, communication is VERY important.”
Design Director, large company

“...then its practitioners must be both fluent and confident in undertaking translation between verbal and visual modes of communication.”
Mike Press & Rachel Cooper

- The communicative demands on designers are growing, as they have to communicate numerous and more complex contents.
- Cooperatively developing, assessing and negotiating in design processes only works by using language.
- Designers need verbal competence: a diversified vocabulary and the ability to express themselves in a goal-oriented and target group-oriented manner.
DESIGN TERMINOLOGY

TERMINOLOGY IS GOOD - TERMINOLOGY IS BAD

Is there a “design terminology”? Does design really need a terminology?
Designers and design researchers have divided opinions about this topic.

Terminologies and vocabularies in general strive for clarity.

Terminologies facilitate a differentiated perception of phenomena and contexts. Moreover, they enable the reflection and understanding of complex topics.99

A terminology creates the necessary depth for interdisciplinary discourse and the development of a discipline. However, terminologies can also be distancing. Most of the time, this occurs unintentionally because experts use their own terminologies on a daily basis. At other times, they deliberately apply them to define and stage their own expert status.100

“Terminologies, specialized terms and specialized vocabularies convey expertise. ...that’s what’s lacking in design. The more specific [people are], the more confident [they are].”
Designer, large company

“You can’t rule out that people use a terminology in certain cases to blur things deliberately in order to impress [other people] or to distance themselves, etc.”103
Riklef Rambow

“I believe there’s no terminology. Of course, there are specialized terms, etc. But design in this sense is not a science....”
Design Director, design agency
Design is a comparatively younger discipline with a younger terminology.
Designers tend to adopt words from everyday language and then reinpret them in a „design-specific“ manner.
Furthermore, this tendency of relying on everyday language results from the recurring circumstance that designers experience: “so far, the time was too limited for the arduous process of agreeing to use specialized signs.” 101
Essentially, as design is very practice-oriented, the desire for a scientific character as well as the need for a diversified design terminology has only existed in a relatively short period.

“This shouldn’t deny the significance of terminologies at all: Particularly with lexis, every discipline needs special terms, and some sciences need other signs, symbols, etc. However, if everyday language is essentially considered as a common basis, then it facilitates the necessary communication with non-specialists, and hence the interdisciplinary exchange.” 104

Katrin Kohl
In practical design, specialized terms are mostly applied. Particularly in describing the characteristics of form, structure and construction, design draws from the technical vocabularies of geometry, cultural studies, architecture and engineering. Such a shared vocabulary facilitates the diversified exchange among experts.

Nevertheless, the basis for design communication in companies is common everyday language. It facilitates “barrier-free” communication with non-specialists and interdisciplinary communication. Yet everyday language entails the risk of being imprecise. When speaking with others, we often assume that the recipient shares the same understanding of a term as we do. We readily assume they possess a knowledge of something, when in fact they do not have a clue. Because misunderstandings occur on a daily basis, we are not aware of the danger they present.

Therefore, designers need both: a specialized terminology to express themselves in a diversified manner and a reflective way of dealing with everyday language and terms.
WORDS AND TERMS

CLEAR AND VAGUE

A precise angle. For an engineer, “precision” can mean adhering to measurements. On the contrary, a designer understands “precision” to mean an aesthetic quality that cannot be expressed in numbers or figures.

Misunderstandings can already arise at the level of individual words and terms, particularly when communicating with other disciplines and social groups. For anyone, words and terms can seem connected to a universal, clear and distinct meaning.

However, meanings can actually vary or be shifted according to a previous personal experience, social or professional environment and linguistic context.

This also applies to terms that designers need in their work. Such terms as “process” or “concept” can reveal very different individual meanings.

Thus, it can happen that, for instance, disciplines with very well defined processes cannot make the “design process” consistent with their own concepts of “process”.

But also within the social field of design, terms can have vague or varying meanings.

An example of this characteristic is demonstrated by the following answers that Scandinavian architects presented to the question of “What is concept?”:

- “A formal idea that can be realised in practice.”
- “A form that gives the intuitively right answer to a given problem.”
- “A navigational tool for the design of architectonic solutions.”

The basis for successful communication, it is necessary to clarify terms and share a common vocabulary.

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Denotation – Connotation

In semantics, denotation is the content core of a word, while connotation represents the variable, subjective and contextual secondary meaning of a word.

Terms are ascribed a scope of meaning by convention and definition to distance them from other terms. However, these scopes are not constant. They can be significantly shifted according to the context and social prerequisites.

Connotations embody individual or deeply symbolic meanings; they characterize not only the facts, but also the qualities that an individual ascribes to a given fact; or in other words, their effect is what resonates by using words intentionally or unintentionally.
To be able to express yourself in a diversified manner as a designer, you need a comprehensive personal vocabulary. Design work requires on the one hand, the exact and factual descriptions of forms, structures, dimensions, references, interactions and constructive aspects.

On the other hand, designers need words and metaphors to describe an aesthetic effect, a character and value in order to arouse their listeners’ associations, emotions and “internal images”.

A form is rationally ascertainable and objectively perceptible. The description of the form is correspondingly factual and therefore aims at conveying an impression that closely corresponds to reality.

Designers have an extensive vocabulary at their disposal for factually describing forms and structures. This vocabulary is a compilation of mostly borrowed terms from other terminologies, such as engineering, geometry, biology and art theory.

Terms such as “gap”, “projecting”, “amorphous”, “lanceolate” or “concave” reflect the heterogeneity of their origins. Designers must be familiar with this vocabulary so they can identify “things precisely by their names” when factually describing their design or a concept. In most cases, they learn the vocabulary successively during their studies by the process of “learning-by-doing”; but they seldom specifically develop it.

To counteract this lack of vocabulary, there are visual-verbal dictionaries available in the meantime, which usually identify form-descriptive words based on exemplary products or abstract geometric figures. (See Fig. 30)

“You have to know words and use them [properly]. You have to be able to articulate yourself in a designer-like way. I can’t do that because I don’t know which words to use to be able to consciously describe an ‘unconsciously perceived appearance’.”

Design Engineering Director, large company

“A Duden [German dictionary] alone cannot help you speak.”
Designer, University

Fig. 30 | Examples of German design dictionaries and lexicons
Basics, Wörterbuch Design, Körper, Flächen, Schnitte - Bildlexikon für Gestalter, Formfächer and design-design - Fachwörterbuch für Gestalter
The verbal description of aesthetic and affective qualities plays an important role not only in communicating a draft, but also at a much earlier phase of the design process. They are used to define and negotiate demands on impression, character, effect and significance.

The vagueness and ambiguity of individual words are often underestimated by all those involved in this process. “Elegant”, “simple” or “urban” are not definite terms that can be translated into the context of formal design without losing their meaning. Short descriptions, approaches through accompanying terms and images help to create a concrete “realm of possibility” for design.

Contrary to clear forms and structural features, laypersons mostly perceive the aesthetic and affective qualities of products unconsciously. To that effect, it is often difficult for them to verbalize their impressions.

By communicating these aspects and terms designers can provide their process partners a diversified perception.

- Words and terms can have different meanings for different social groups as well as within a group or a given discipline. Thus, terms have to be clarified to ensure a common vocabulary and a common ground.
- Designers need a comprehensive vocabulary to be able to identify forms factually.
- To communicate all phases of product design successfully, designers also have to convey aesthetic and affective qualities of their products as well as be able to negotiate with their process partners.

sharp, vibrant, snappy, snap-crackle-pop, electric, intense, bright, precise, daggar-like, zing, tongue-curling, acidic spark, “cherry-like acidity”, “squeez of lemon”.

An example of verbally expressing sensations in a refined manner is the so-called “winespeak”, which aims at describing each nuance of taste by using figurative speech and metaphors. This terminology, which seems pretentious to some extent, has developed as a way of roughly describing an impression of taste that is actually not conveyable without experiencing it for oneself.
IMAGE AND LANGUAGE

A PICTURE IS WORTH A THOUSAND WORDS!
... AND WHICH WORDS EXACTLY?

Design communication is traditionally based on visual presenta-
tion forms.
Designers are suitably adept with two-dimensional or three-di-
mensional media and use them in diverse ways.
Hand drawings, renderings, mood boards, animations, photos
and other visual presentation forms.

Presentation forms can indirectly reflect
the developmental level of a design: a
rough sketch is “more open” than a “per-
fekt” computer rendering.

They summon a direct, emotional experience – an adequate com-
municative form for the concrete design of a product.
Visually, not only can designers specify and graphically commu-
nicate their concrete designs, but also their contexts, concepts
and more abstract connections.
(see Fig. 31 - Fig. 34)

“Words and images are correlates
that look for each other constantly…” 108
Johann Wolfgang von Goethe

“...If you can’t offer any solution, then I believe
you better leave it at a certain level, where it’s
clearly recognizable that it’s not about the finished
product. For instance, rough sketches convey ‘a
provisional state’.”
Designer, large company

Different presentation forms communicate different aspects. What is interesting is the use of a line
drawing as a featured image in a newspaper article instead of the official press photo on the right.
Contrary to language, images are perceived holistically and almost without effort. They can communicate complex contents faster than words, possess a high level of credibility and will be remembered longer. They provide an extensively semantic potential and can subtly convey attitudes and feelings. Subtleties of form, surface conditions, in other words, spatial and formal aspects can be better conveyed with images than with language. Due to its logical syntax, language is processed according to logical rules. Texts and verbal communication are for the most part clearer in their messages. Due to their multifaceted semantic levels, images can never be absolutely unequivocal.

“...that you can’t just standardize a presentation format – that’s what’s actually good about it. Because you have to look at people and tell them what they are receptive to.”
Design Director, design agency

“Linguistic signs are indeed ambiguous – Images can convey some ideas more clearly.”
Gabriele Blod

Fig.33 | Sketching as the medium of communicating design
Designer Tom Schönherr presenting a collection of bathroom fittings
Source: www.baulinks.de

Fig.34 | Design drawings as original artistic work
View of the exhibition “Ronan & Erwan Bouroullec – Album” in the Vitra Design Museum Gallery
© Vitra Design Museum 2012, Photo: Barbara Kern
As with a visual statement, the perception of an image is likewise open. The viewer’s gaze sweeps over the image in a somewhat organizing manner, but the direction of the gaze cannot be gauged. Pieces of visual information can therefore remain unnoticed, or be interpreted differently than intended.\textsuperscript{115}

Terms and verbal explanations can influence how we perceive images, in that they act like a “filter” or a “frame”.

Words define the context for which the image should be perceived, thereby giving it a concrete sense.

Language is therefore capable of steering perception while making visual statements more distinctive.\textsuperscript{116} Alone the process of “identifying an object of perception thus influences the perception of this object.”\textsuperscript{117}

Design needs both image and language. For a successful communication of design, one has to master both forms of expression and know their advantages and limitations in order to use them accordingly in an ideal interaction.\textsuperscript{118} Image and language support each other mutually. They make each other interpretable, clearer and more understandable.

“We seldom talk (...) directly about the design of the object or the things that we do. We always try to navigate people towards it with emotional components, by touching, by using, by engaging.”

Designer, large company

“...because an image says nothing; it can only present something. A statement can first be formed in its context.”\textsuperscript{120}

Otto Schierl

“While a picture is said to convey more than a thousand words, pictures never tell the entire story. They cannot say ‘no’; they cannot give reasons; they cannot plan; and they cannot provide feedback on how they are being understood by others.”\textsuperscript{119}

Klaus Krippendorf
Images are vivid. They can quickly communicate complex contents and possess a high level of credibility. Images can communicate spatial and formal aspects better than language.

Visual statements are open and ambiguous. Verbal explanations can therefore act as a “filter” and “frame” as well as influence the viewer.

In design communication, image and language have to complement each other so that they are mutually interpretable, clearer and more understandable.

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Visual statements are open and ambiguous. Verbal explanations can therefore act as a “filter” and “frame” as well as influence the viewer.

In design communication, image and language have to complement each other so that they are mutually interpretable, clearer and more understandable."
OBJECTIFY DESIGN?
- ARGUE DESIGN!
NEGOTIATING INSTEAD OF DEFENDING

“...being able to present design not only in so many words, but also with substantiated content. Many people can be verbose, but really going into the matter, such that others go along with it... – there’s no communicable basis.”
Designer, large company

Communicating a design solidly in a visually and verbally descriptive and comprehensible manner can positively influence the understanding and the enthusiasm of the process partner. However, time and time again designers must face the demand of making their work and the benefit of their design objectively and quantifiably appraisable.

On the one hand, this applies to the participation of design in the added value of the company. Design institutions have prescribed such a task in terms of design promotion. On the other hand, there is the desire of measuring and even making “good” or “the right” design (for a certain target group) or aesthetically ideal forms predictable. Evidence of such efforts can be seen in the research of “the golden ratio” since the renaissance period up to the “numeric aesthetics” in the era of the Ulm School of Design (Hochschule für Gestaltung Ulm). Altogether, the actual aesthetic effectiveness of these principles is highly disputed in science.

Quantifying is system-intrinsic for economic systems.

Numbers and facts form the essential decision-making basis for managing companies.

“Designers aren’t willing to show their cards, be measured, be criticized at all, or to even consider that other areas also have their competences.”
Marketing Executive, large company

“Everything is derivable, everything is (...) predictable. (Design) is (...) quantifiable – through acceptance tests, clinics.”
Marketing Director, large company

Decisions based on a personal entrepreneurial “gut instinct” are made more in owner-managed companies (e.g. about Steve Jobs of Apple Inc.: “Steve looking in the mirror every morning and asking himself what he wanted”).

In marketing and market research, there are numerous methods and tools for researching customer wishes and product perception. Their goal is to create catalogs for new developments from the gathered findings.

Various methods have also been developed in the area of engineering by using aesthetic effectiveness and affective values in clearly predictable parameters (e.g. Kansei Engineering).
Most designers are rather critical about the attempts at objectifying and quantifying design; arguing that such attempts are futile due to design’s complex nature. Moreover, they see the dangers of innovation hindering design altogether and their creative freedom being restricted. In this context, deep-seated “intercultural” conflicts between the disciplines often arise. Designers themselves complain about their lack of persuasive arguments. To negotiate design, designers find themselves defending their position against their partners by emphasizing their expert status (“I am the designer...!”).

“Companies don’t take design seriously because it doesn’t present hard arguments.”
Design Director, large company

“I would think presenting backgrounds to argue for the design is important because it bowls those people over, who consider design superficial.”
Designer, design agency

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**Fig.37 | Design of a convincing line of reasoning**
Opinions and appeals must be supported by facts and reasons in order to be recognizable by others.
However, negotiating something convincingly requires clear and comprehensible arguments to respond effectively to possible critics. An argument only becomes powerful if facts and reasons for an opinion are given and if logical conclusions can be drawn from the verifiable premises. (see Fig. 37)

A finding must be presented, so that others can consent to it.

Facts can include hard facts that comprise quantifiable data, research results and expert opinions. Moreover, obtaining and presenting hard facts from areas, such as design research, particularly findings, approaches and methods, can be convincing for design decisions. Also visual presentations and models can be convincing facts.

The design experts are the designers themselves. Recognizing this fact requires clearly defining the scope, proving this expertise as well as gaining the process partner’s trust.

In collaborating with process partners in the development process, there is the danger that positions (e.g. “That should be stainless steel...”) are negotiated instead of the interests (e.g. values, user friendliness). (see Fig. 38)

To find a joint solution, it is highly important to recognize and negotiate the interests behind a given position.

“Design contents can’t be expressed in quantifiable values.”
Engineering Director, large company

“Designers have to adapt their way of communicating according to whom they’re speaking with. Designers don’t often express their contents so clearly and precisely. You have to have a clear stance to be able to discuss it. It’s difficult for many because they’re right in the thick of the creative process. You don’t even know where it all leads to if the product should be presented as something more final than it already is.”
Designer, large company

“A compelling chain of argumentations for why it’s like this and not otherwise is absolutely necessary to prevent unqualified opinions and assumed competences.”
Designer, large company
In many companies, designers feel that their process partners expect them to objectify and quantify design.

In such a setting, many designers see their creative freedom being restricted. However, they feel that they lack hard arguments to negotiate with partners.

For arguments to be convincing, they need to be supported by comprehensible reasons and facts.

Negotiations can be successfully conducted if interests instead of rigid positions are negotiated and if they are assessed based on the criteria that all parties share.

Fig. 38 | Positional bargaining does not help in finding joint solutions.

Fig. 39 | When a problem is defined in terms of the parties’ underlying interests, it is often possible to find a solution that satisfies both parties’ interests.

“Affective design values are hardly objectifiable.”
Designer, large company

This only works on the basis of the criteria and values that all parties equally recognize and share, or by connecting their own criteria to these commonalities (see Fig. 39). Therefore, a stable common ground is the basis and at the same time the goal of all communication and negotiation processes in design.
BACKGROUND, METHODOLOGY AND AIM OF THE STUDY

The study “Do you speak Design?” was conducted from December 2011 to December 2013 by Professor Anne Bergner and Ulrike Rogler (Research Associate).

The study focuses on the verbal communication of design. “Do you speak Design?” examined these communicative processes, their principles and success factors in order to identify and develop the resulting approaches, strategies and methods for the successful communication of design within and outside of companies.

In the book, the authors define “Design Communication” as:

- The communication of product designers in product development and organizational processes with their process partners and stakeholders within the companies (internal communication).
- The communication and conveyance of company design to the public in the form of self-representation, public relations and events (external communication)

From this perspective, the term “design” is understood to be the organizationally composed production design area of a company, the design process and the result.

The results are based on:

- Qualitative research in the form of 37 guided interviews with people of different hierarchical levels from the areas of design, marketing, product management and engineering within large companies and concerns, medium-sized companies as well as design agencies and research institutes. The product portfolio of companies, who described themselves as consistently design-oriented, count themselves in the top or premium segment.

The interviews dealt with the following topics:

- The role and self-concept of design in companies, communication and cooperation with partners and stakeholders in the developmental and organizational processes, external communication of and with design.

To some extent, the interviews dealt with sensitive and personally difficult topics. Therefore, the original quotes from interviews were presented as such to protect people’s anonymity. For the data collection, half-standardized interview guides were used to ensure the comparability of answers and thematic orientation. The analysis was performed using content analysis.

- A comprehensive literary research and the assessment of materials and sources from academic publications in the areas of design, design management, communication studies, organizational research, innovation research, management, visual studies and linguistics as well as magazines, periodicals, online resources and blogs.
- Workshops with design practitioners and researchers (from the areas of psychology, linguistics, organizational communication, literature) to discuss and develop the research results.

Reasons for selecting the qualitative research methods:

Compared to quantitative methods, qualitative research methods are characterized by openness and flexibility. Particularly the guided interviews have the advantage that it affords an open discussion by expanding the scope of the answers and the interviewee’s frame of reference. At the same time, all the relevant topics can be addressed. The feasibility of personal interaction between the interviewer and the interviewee made it possible to question backgrounds and clear up any uncertainties.

Thus, a deeper informative content of results is achieved without making representative and numerical statements.