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CORE DESIGN IDEA (CDI) AS NUCLEUS FOR INDIVIDUAL, INNOVATIVE DESIGN SOLUTIONS

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design theory and methods, field study, design concept

ABSTRACT

The paper presents intermediate results of an ongoing study about conceptualization in early design stages – core design ideas. From the view of industrial psychology, the core design idea is the most important stage in the design process, because its availability determines the success regarding the design object and process. A core design idea is the first solid unit of knowledge in design processes with ill-defined problems. In the Design Process Planning, which is based on the industrial-psychological Action Regulation Theory, core design ideas act as a compact guiding principle. They include the anticipation of the result and regulate the course of the design process. In this paper first hypotheses will be derived from a qualitative description of features of core design ideas. An experimental, theory-based field study in transportation design rests upon these hypotheses. Early results as well as investigation methods will be presented. The aim of this study is to clarify the existence as well as the description of mode and function of core design ideas.

1. THEORETICAL BACKGROUND

1.1. ACTION REGULATION THEORY

The fundamentals of a theory of core design ideas (cdi) are a theory of design knowledge and a particular procedure planning model, which illustrates the design process in a profound manner. Based on the psychological Action Regulation Theory, this model describes the stages of the design process and thus the collecting, processing, and usage of knowledge within design.

The design process runs in accordance with the 'features of the human brain', following certain regulatory mechanisms that cannot be influenced deliberately. These features have priority over the contents of the design task. Such mechanisms are well-known in psychology and are a permanent figure, for example, in industrial-psychological action regulation (Hacker 1998, Hacker/Richter 2003) under the keyword Action Regulation Theory. So far they have above all been scientifically verified for gainful employment. However, they can also be employed to explain design processes. This is done for the first time in ‘Design Process Planning’ (Uhlmann 2005).

Each design starts with an assignment or an idea that shall be converted into a result – the goal. The task requires the goal as the mental preconception of the result and also the anticipation of the way and the means to attain the goal. The hypothesis set forth states that a core design idea is a crucial link between gaining aim-relevant knowledge and achieving the intended design goal.

The cdi is the concentration of all knowledge - collected in advance when the task is determined - about the design object and the tools required implementing it. The cdi serves to define the goal and contains all essential features of the design as a 'nucleus'. Another hypothesis says, if there is no core design idea or if it is insufficiently developed, the design process and the result will be unsatisfying.

The connection between the core design idea and the practical result of the design process is hardly verifiable as it is not observable. On the other hand, the design process, which is also an external process, can well be observed. A step-by-step systematic approach, which is also characterised by a continued positive general mood of the designer, is an example of such observable indicators that point to the existence of a core design idea.

The main question of this study concerns the existence of a core design idea, its status in the beginning of the design process, the highly aggregated content, and the description of its mode and function.

1.2. EXPERIENCING

The study is based on a theoretical concept of design in which *experiencing* plays the key role.

In UHLMANN one finds an amazingly intensive occupation with the term experiencing, from the beginning. This occupation is still usually not reflected in such a way in international literature about the design process. When PRESS writes about his understanding of design experience, one finds a few parallels to the view of UHLMANN. Both agree about putting human experiencing into the centre of the design and understanding the production of the product character for appropriate experiencing as a goal of the design process.

> *"'What people seek is not the meaning of life but the experience of being alive." (Laurlee Alben in Press, Cooper 2003)*
>
> *"Design is a core skill, a central economic activity; it is intrinsic to industry/organisations not only as part of the innovation and image building process, but also as a way of thinking about 'life experience'. How we can create experiences, and how these affect human behavior and the world, both material and immaterial, is the domain of design." (Press, Cooper 2003, S. 64)*

The main difference from other views of the design process (especially in design engineering) consists in orientating oneself towards experiencing a product at the starting point of the design. So far, all single aspects such as functionality, form, appearance and many others – which were compiled individually and often in certain order – are summarized. However, it is important to UHLMANN to place the object into the centre of the design. Under any circumstances, an object-free virtual design is not the goal.

Now the main difficulty is to handle this experiencing and transfer it into a specific design solution. Here holistic frameworks, associated with the ability to bear uncertainty, plays a key role.

The compilation of the specific experiencing of the product and its transfer into a definite and determined character are the main content of the work within the cdi phase.

2. FUNDAMENTALS AND BASIC TERMS OF CDI

The two main functions of the cdi defined by UHLMANN – the structuring of the process and the definition of the product character – are of such a high importance for designers and the design process that empirical research is urgent.

Knowledge needed for developing a cdi consists, first, of methodical knowledge about the structure, function, and genesis of cdi, and second, of factual and episodic knowledge about the design object itself.

The cdi is understood as a definition of the essence of the object to be designed, and is also highly subjective. It is based on so-called world knowledge as the subjective reality of knowledge. Considering this, cdi's are observable results of qualitatively processing knowledge that has been collected in the previous stage.

What are the significant main and individual features of core design ideas that shall be discussed for the sake of better handling? The following is a brief description of the features derived from or observed in the 'Design Process Planning'. They also form the basis of the study hypotheses:

Core design ideas are the first stable knowledge units of the design process (compare to first principles of Cross 2001, principal solution Roozenburg 1993).

> *"A principal solution is found, recognized, the moment someone sees how some laws of nature can be 'forced' to produce a desired effect by a specific form and way of use of an artefact. Speaking of the kernel of the design process, I have particularly this moment in mind." (Roozenburg 1993, S. 12)*

A core design idea is the summary of an intended design result at the very beginning of the design process in one or very few thoughts (central thought, nucleus). This thought contains cognitive, conative and emotional components of implicit and explicit knowledge and is – in this unity – a holistic thought (Mangold 1993).

The key content of the core design idea is the subjective definition of the essential design objective. The cdi can be seen as a knowledge bundling of all information collected during the task clarification and all methods attained to solve the task. The cdi is goal setting; as a "nucleus" it holds all nature-determining characteristics of the design. "CDI is the definition of the object's essence..." (Uhlmann 2006)

One of the major functions of the core design idea is to guide the designer in the whole process from a highly aggregated mental idea to the actual result of the design. It preconceives the result mentally and provides methodical guidance of the design process on the way towards attaining the goal. The central idea of the design may therefore also be called a guiding principle.

If a cdi is missing or if it is insufficiently pronounced, results and process of the design are unsatisfactory (Ulrich, Eppinger 2003, S. 98).

> *"The degree to which a product satisfies customers and to which it can be successfully commercialized depends to a large measure on the quality of the underlying concept." (Ulrich, Eppinger 2003, S. 98)*

A core design idea is most subjective. This subjectivity includes objective knowledge. The core design idea processes towards its final state during its formulation (compare to “particular perspective” in Cross 2001).

The cognitive basis of core design ideas is the so-called world knowledge (Klix 1998) of the designer. The use of episodic and biographical knowledge in the elaborated sector of the declarative memory is essential. The core design idea equally contains implicit and explicit knowledge (Mangold 1993).

A cdi is the first stable knowledge unit of tasks with an open goal. In procedure planning, based on the theory of psychological action regulation, the cdi functions as a highly compressed, goal-leading basic idea. It works as a mental anticipation of the result and structures the Design process. Therefore the main tasks are to prove the existence, the impact and the function of cdi.

The study focuses on the development of cdi’s (nuclei), including the processing of knowledge available from the designer himself. The cdi itself plays a key role in developing the designer’s own episodic (experiential) knowledge - and thus his biographical background as a basis of personal knowledge - into innovative solutions.

3. RELATIONS TO OTHER DESIGN RESEARCH ABOUT DESIGN CONCEPTS OR CONCEPTUAL DESIGN

> *"Conceptual design is an important phase of the design process. However, [...], design theory and methodology has little to offer in support of this crucial activity." (Roozenburg 1993b, S. 222)*

This is confirmed by ULRICH, EPPINGER, and MACMILLAN (S. 190), as they state that few actions or patterns for the concept phase can be found in design literature.

The explicit use of strongly concept-oriented working patterns in practice of product development and design is, however, still comparatively new.

> *“Concepting is a relatively new idea within product development." (Keinonen 2006, S. V)*

On the other hand:

> *"Design has been more than just object-oriented for a long time, despite terms like ‘good form’ and similar are still frequently used. Design contains today above all a conceptional problem solution; one cannot see it simple as such,*

one can only recognize it by practically experiencing it." (van den Boom 1994, S. 13)

Nevertheless the classification of what one connects with a concept in the Design is so far very vaguely described (Keinonen 2006, S. 16).

According to the basis general views of design the definition attempts for a cdi, design concept or similar expressions can also be differentiated. Oriented at the arrangement of the models of the design process (Roozenburg, Eekels 1995) one can differentiate three model types of concepts, regarding the three hierarchy levels of a design process: task-oriented, engineering design-oriented and development-oriented. An especially experience-oriented type of model does not exist until now.

This paper distinguishes between:

Construction-oriented, determined as technical and functional, in the heritage of the engineering design concept model (Roozenburg 1993a, S. 12);

Development-oriented, economically based concept model, frequently used in the field of design management (Ulrich, Eppinger 2003, S. 98);

Experience-oriented, as a holistic concept model with the character definition as central content and oriented towards experiencing the product (Uhlmann 2005).

According to the basic design understanding as experience-centred, a referring definition for the design concept/cdi is chosen for the investigation. Since this is the most comprehensive definition it contains the main content of all other models. From this results that a cdi cannot be understood as an additive composition of characteristics, but must rather possess a new, integrating, focussing quality. Thus the design concept corresponds to a nucleus in the best sense.

4. STRUCTURE OF THE STUDY

Past studies (as Uhlmann 2002) and observations stated that design-concept-based working is of high value especially in transportation design while in other design fields comparable procedures are less important (Krzywinski 2004).

Due to the decision for the field of transportation design the selection of possible education institutes and industrial enterprises reduces drastically. Therefore the Hochschule Pforzheim is selected as basis for the investigation. This is due to the fact that the very is accepted as one of the five best and most recognized universities for transportation design. Two relevant points result for the investigation: Firstly, the level of expertise of the test persons is supposed to be

at a high level. Further on one can assume the design process itself in the industry is considerably influenced by Pforzheimer graduates.

The restriction of the investigation on this defined area – with a comparatively clearly defined design process – reduces the number of variables and is important for the qualitative design of the study. The preliminary investigation described was accomplished with seven students during their first transportation design semester. The topic was developing a soapbox for races in GB or the US (Fig. 1, 2).

Up to now the following research methods were exemplarily examined: observation, different forms of journal, documentation analysis and different interview forms.

The final research will use the following investigation instruments:

Documentation analysis supported by interviews

Observation supported by interviews

During the next step an interview manual, an observation record and a category protocol for the content analysis will be accomplished. The other assigned forms (journal, concept questionnaire...) are discussed with the obtained results, but discontinued to use.

Fig. 1: soapbox by Florian Scheinhütte

Fig. 2: : soapbox by Florian Sieve

The presented preliminary study is a qualitative field study with a comparatively long observation period (core time 14 days) within the field of the transportation design.

In the preliminary study the following instruments with different emphasis were tested:

With open and guided journals actions during the Design process were noted over several weeks. This collection gives thereby references to two specific aspects: Use of the cdi and critical actions for the development/change of the same.

With a journal concerning personal stress an attempt was undertaken to note the mood of the designer. That measuring instrument itself has proven to be unsuitable.

Based on KRZYWINSKI and JUNG verbal and written questionings with different questionnaires were accomplished to reveal contents and use of cdi's. This instrument was used both in parallel to the design process and retrospectively. It forms a basis for the interview manual of the main investigation.

Open interviews with different designers about the design concept, the procedure and the biographic background formed an emphasis of the preliminary investigation (Further examples of examined projects can be seen in fig. 3 and 4).

In the end one has a collection of design-relevant, biographic data. These designer profiles lead to a first attempt of a categorization, to examine the connection between cdi and episodic memory.

Fig. **3**: example for 7. semester interior project NISSAN 2015, Andreas Zimolog

The preliminary study on the design concept, completed so far, differs thereby in three substantial points from the majority of past research project to early phases of the design process (Restrepo, Christiaans 2004; CROSS et al. 1996; CROSS 1999): These are a comparatively long investigation duration of at least two weeks, the qualitative approach of the investigation and the renouncement of restrictive laboratory conditions. The field studies appear necessary, since a description of action regulation processes can only be carried out with recordings of the entire expiration of the design process and/or at least the cdi developing phase.

A restriction of the time period or the sources of information accessible to the Designers is estimated as unsuitable for an investigation of the production of a cdi or its application. In contrast, the study tries to link – by means of pre- and main investigation during three terms – longitudinal and cross section investigations with each other. The broad portfolio of investigation instruments appears suitable to win – at least for a small group - a very intensive and detailed view of the origins of the design object, the early phases of the design process, the cdi and the designer.

Fig. **4**: "Meo", example for 8. semester diploma project by Patrick Faulwetter

5. CDI'S DEVELOPMENT

How does the development of a cdi take place? Despite a multiplicity from publications about creative techniques the process itself remains vague. Within the design process all other phases appear by far more intensively investigated.

> *"The concept development process includes the following activities: identifying customer needs, establishing target specifications, concept generation, concept selection, concept testing, setting final specifications, project planning, economic analysis, benchmarking of competitive products, modelling and prototyping." (Ulrich, Eppinger 2003, S. 16–17)*
>
> *"five step method: clarify the problem, search externally, search internally, explore systematically, reflect on the solutions and the process" (Ulrich, Eppinger 2003, S. 99)*

The listing after ULRICH makes clear that one can understand almost everything under cdi. Beyond that he offers an image of a structured concept production within concept generation. However these five steps appear very general and thus scarcely helpful for an exact knowledge of the process behind the concept development.

However it can be stated that the development of a cdi is - with high probability – not a pure sequentially running process.

> *“Rarely does the entire process proceed in purely sequential fashion, [...] In practice, the front-end activities may be overlapped in time and iteration is often necessary." (Ulrich, Eppinger 2003, S. 16)*

Explanations for that can be expected within psychology under the focus of problem solving; e.g. in DÖRNER. Others (e.g. ROOZENBURG) speak of abductive reasoning as the key action during the concept development.

> *"Innovative abduction is the key mode of reasoning in design and therefore highly characteristic for this activity. But it is not unique to design. In both science and technology, and in daily life, abductive steps are taken in the search for new ideas." (Roozenburg 1993a, S. 17)*

A further approach to the new cross-linking of thoughts, under exclusion of the generic connections, which usually appear first, can also be found at FAUCONNIER (2003).

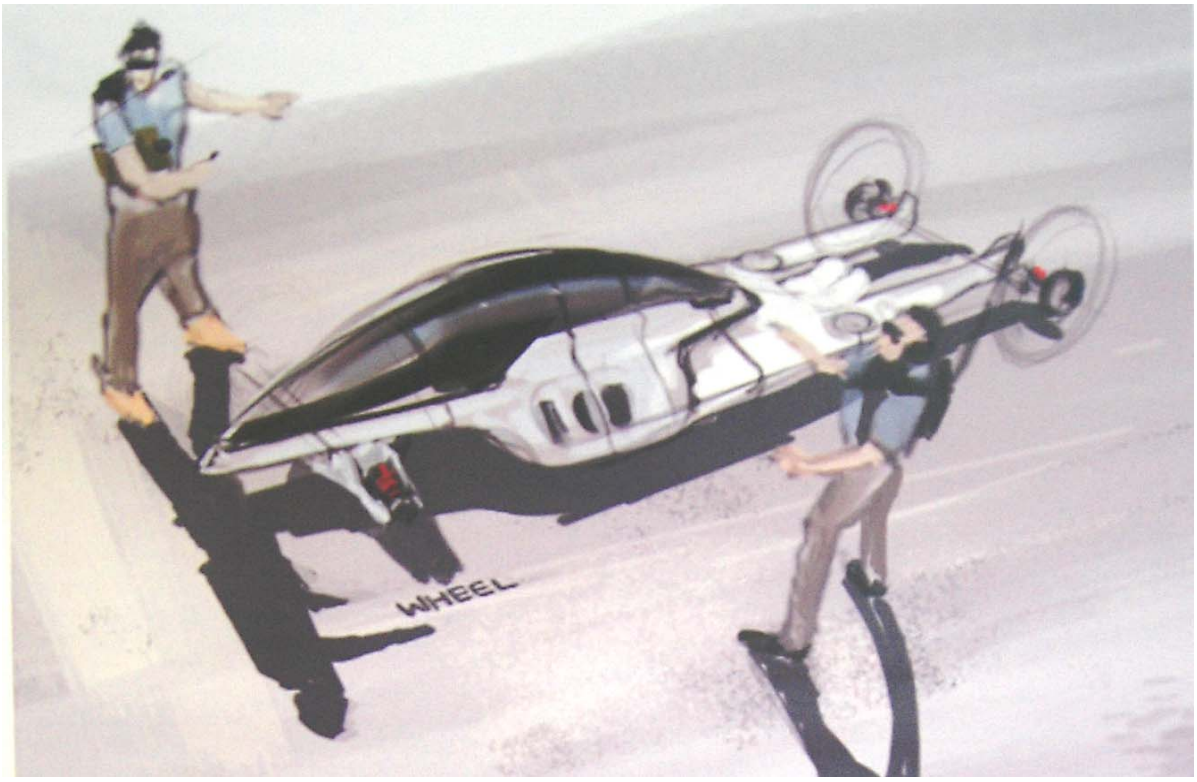

Fig. 5: starting sketch by Florian Flattau

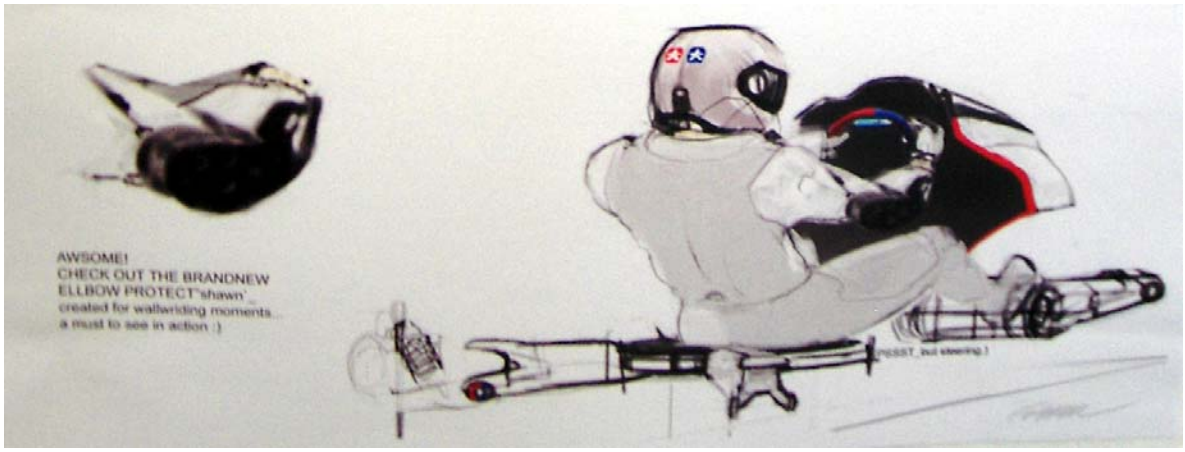

Fig. 6: idea of an alternative seat based steering system, Florian Flattau

Furthermore there are two general methods of generating cdi's: extracting and compiling. They can be assigned to different fields: transportation design (extracting) and industrial design (compiling). The compiling method can be understood as the creation of a cdi from a blank sheet. It often starts with a detailed investigation in different media rather than with drawing. The extracting method first starts with sketching and drawing. Afterwards, one cdi is chosen from a number of versions. The extracting method creates a large number of comparable versions, whereas the compiling method focuses on the content of a single version of a cdi. In both methods the cdi is developed iteratively while working on first versions.

Examples for the extracting method can be seen in the different cdi's of Florian Flattau (Fig. 5, 6 and 7, 8). Fig. 5 shows a typical beginning with a scenario where the later product is shown in a very characteristic environment. An alternative starting point is using existing objects and subjects as inspiration for the cdi, seen in Fig. 7, 8.

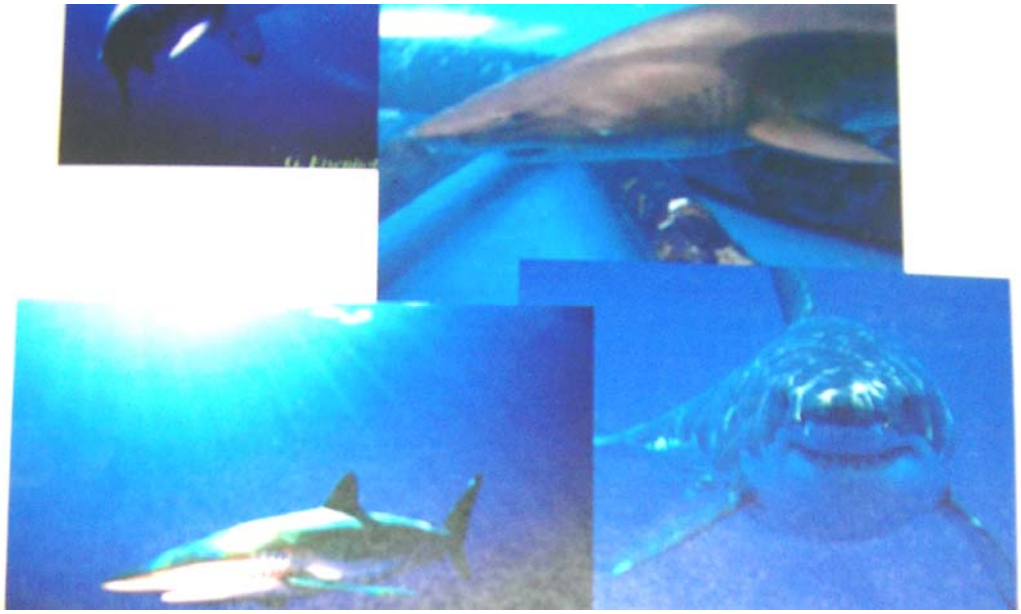

Fig. 7: image board for a shark-like concept, Florian Flattau

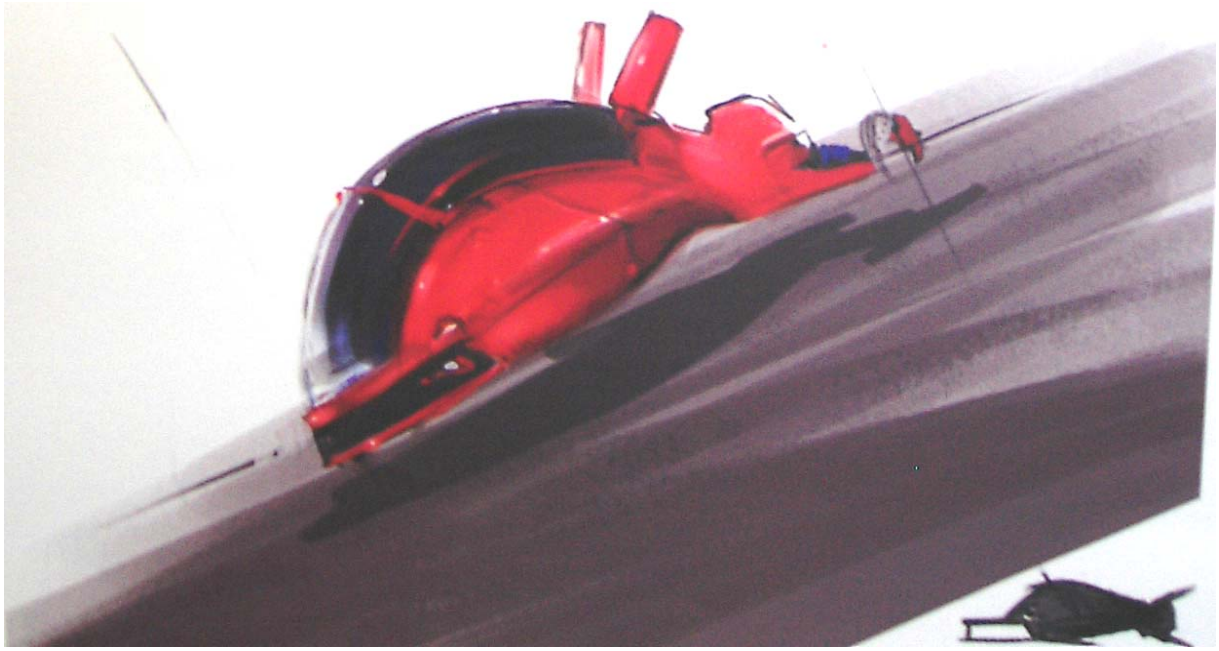

Fig. 8: a second possible concept shark, Florian Flattau

Sieve (Fig. 2) and Flatau (Fig. 5-10) both do not feature a certain automobile way of designing. While Sieve is imprinted more by his preceding studies of industrial design in Bremen, Flatau's background rather shows influences by graffiti and video (in the US and Munich). Accordingly the developing designs are less automobile conform and place another emphasis – more free and unusual.

In the result the pictures of the represented objects and the type of representation differ much from those of their more automobile-driven fellows. Both pursue formally two completely different directions: clear, industrial, reduced (Sieve, Fig. 2) and in contrast amorphous, complex (Flattau, Fig. 10).

Also purely formally Flattau decided in favour of a remarkably exceptional variant: The driver sits/lies with spread legs in a kind of "trouser chassis", thus a direct connection between the wheels and the "trouser legs" is possible (Fig. 9/10). This thought is already contained in the first starting sketch (Fig. 5).

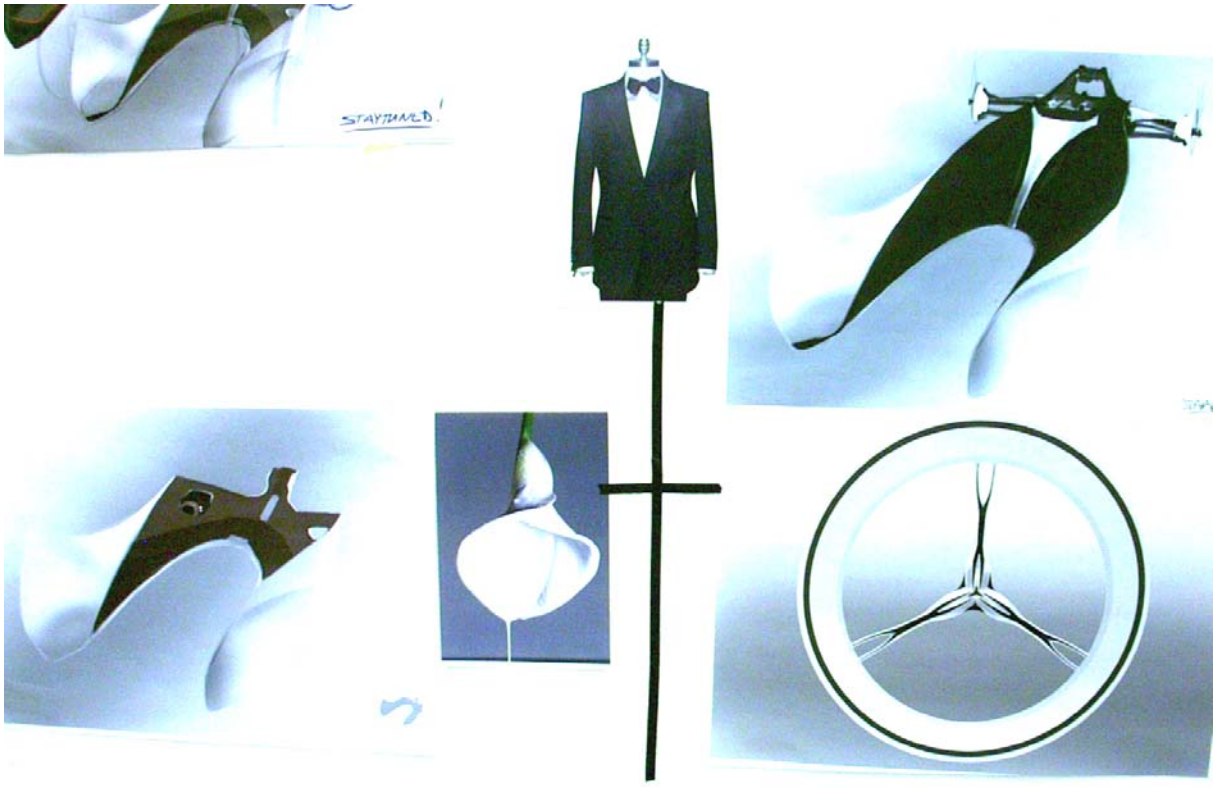

Fig. 9: later Imageboard for the final concept, Florian Flattau

Fig. 10: the final design of the tamiya soapbox, Florian Flattau

Regarding the central question, the intermediate results – based on the applied investigation methods – validate the existence of core design ideas in early stages of the design process. The cdi is a requirement for straightforward and successful designing in the field of transportation design.

6. RESULTS AND REFLECTIONS

The aims of this research are firstly to explain the cdi as an instrument to transform personal, subjective experiences into consequent and innovative design solutions, and secondly to assist these processes. Using empirical data, it will describe the important early stages more deeply to support the generation of cdi's in the future.

In the following the intermediate results are described and examples out of several interviews are shown. The examples are taken from different investigated projects, those are: soap box car, tractor, off-track car for Honda Formula 1 drivers and Audi Design.

Interviews, questionnaires, and previous content analysis show that almost every design process incorporates a core design idea in its early stages.

> *The concept was there at the beginning and has itself not changed up to the end. (interview 042)*
>
> *I'm convinced of my concept idea, in any case. It stood already long. It stood right from the start. And I haven't added anything or so in order to make it more interesting. (interview 072)*
>
> *How important is a concept for your design? A: The most important. To describe beautifully afterwards or build a nice model one can always do at the end. But the most important is the concept. (interview 121)*
>
> *For which purpose do you use the concept? A: As starting point for the further steps. I have mostly several concepts and which are worked further. (interview 131)*
>
> *How important is a concept for your design? A: The one and only. That is the only one, with one differentiate from others. And that is the main task (interview 131)*

Concerning the genesis of core design ideas, at least two different methods have been qualitatively validated: generating a core design idea on the basis of collected and compressed knowledge and extracting a core design idea from a selection of rather intuitively generated approaches.

> *I enumerated different concepts now. But I think it comes also particularly when drawing afterwards that there are still more ideas to come. … You start from all sides to find out different beginnings easily, you will see afterwards which works and which not. (031)*

The ulterior motive was, to show a concept pallet as broad as possible, from the very small one to the really large one. … And I believe, completely at the beginning I began to think about very different vehicle concepts. (052)

At the beginning there is a bunch of many different things, which merge themselves then together, somehow. That the one thing, which one continues at the end, where one works on it. The fact is that one fans out all this at the beginning, with every aspect in it and then concentrate it more and more. (121)

Actually I collected ideas in each case. New ideas, then prepared such the little, but then already made the next one again. Thus those are then only so small designs, not largely represented or prepared, actually the thoughts only. (122)

Drawing for hours until I am satisfied... I cannot draw and think that's it, with the third one. I have to draw 100 design pieces so that I can really select out of it. I need something from all possibilities, and I actually did pretty well this way. … Again I have my sheet with thousand small designs... looking like a wallpaper. Not slowed with details. (131)

Those are one, two, three topics and you change in one way or another. And then select from those again and again and sometime segregate one. Sometimes one of the topics disqualified itself. (522)

Here you have the different suggestions, for me are its important, to open the solution space, because during the process we are going to restrict it. This is an important thing. We are a slightly free at the beginning. (541)

The major function of the core design idea is in almost every case a definition of an anticipated result, which is a goal according to the Action Regulation Theory. This affects two sub functions: The first one is the object function which anticipates the design result and is an essence of the object itself; the second one is the guideline function which regulates the course of the design process.

A general concept is necessary for me, because I must mark my own topic in the given theme, in order to have any borders. (interview 122)

And that were my defaults, which I had consistently pulled through and not let myself be carried away to some nonsense. (052)

You have to look that one has a guidance topic and then get through consequently. Because otherwise it is confusing for oneself and for the viewer. (072)

If the concept is finished, I assume I have all possible information and know how it functioned and how I want to make it. (121)

Both observation and guided interview data show that the genesis of a core design idea is a critical part of the design process, where novices especially face difficulties.

Most of the core design ideas tend to be holistic. They include equally cognitive, konative and emotional components based on implicit and explicit knowledge. Valuable core design ideas tend to be very simple and serve as guiding principles while leaving enough space for interpretations to come.

Small children dream to drive soap boxes. That is for the adults, who, from my eyes, become kids again. Therefore I imagined which my company is in this whole play - Tamiya. (021)

Yes, this would be an other beginning to really make something what fits now the Play Station brand, to Sony in America. This could take part in the XGR as a flagship vehicle. Which carries a little of the high tech image of the Sony I-BO (the artificial intelligence dog) and on the other hand the e fun and play image of the Playstation itself. Then Thinking about: this fun image, which fits there purely? Who is so mad and childish taking part in a soap box downhill? Those are the thoughts by which I decided for the Playstation, actually. (051)

We should sketch a car for a formula 1-Fahrer, out of Honda team, for Jenson Button or Rubens Baricello. Rubens Baricello is probably the more set, the calmer type and therefore more elegant designs will be asked and Jenson Button is rather the Pop star of the two. A goal is to convey the personality of the driver in the design and to sketch a car for one of them. I wanted it also to be radical, which such formula 1 driver has in principle, because it is an extreme sport and my vehicle should also be extreme. (042)

In any case, I think, the best word is really massive. The thing stands. I wanted to make a car, what is safe, shows the space, which the object offers and which has a certain strength and presence. ... For the formula 1-Fahrer, which already knows the whole accident scenarios and then nevertheless is on the road, the car wants to communicate: hey, don't offend me. ... The car is not for aristocrats, in no case, but rather for extroverted person. Without any question is it for a family person. It is an in any case car, which shows rather much presence and therefore nothing for someone, which sets on understatement. ... Thus the concept describes itself probably best with: strength, luxury by space and I see you, but you don't see me. (052)

I want to make something like mother and father and we would have something like the DNA of the TT. We have the mother already within AUDI. It is the car, like it is now; the design reflects strength, solidity, muscles, compactness, pureness. We have continuous lines, volume, large radii - clever and simply at the same time. Then I want to add something else and this new element was the father with speed, dynamics and direction. And that is what you can see in the car at the end. It has more dynamics and more direction. It does not have dynamics and direction, because we want it. But because the car is like this. Engineers had worked much on dynamics, as one can handle the car. It brings more fun to drive, one has more driving experience. Thus one must express that as designer. For me this one of the best Designs, which explains itself, without words, what one will experience in the vehicle. Thus one does not have to say anything to it, read no book in order to see, how one will feel, if one drives it. It is a combination, we must express, how the vehicle is in reality. (541)

The detailed interviews confirm a strong biographical influence on all core design ideas. The personality, views, and individual subjective experiences of the designer can be identified in both the core design idea and the resulting object.

Besides transportation design I'm also in modelling characters a toy sets, everything with milling and injection moulding is mad by us... That's fun. ... And that was in any case then a decision for Tamiya... for me simple a classic. (021)

Whereby I remained very close to a real car. I was clear from the beginning that I want to make a car. I never did a real car and I want to make a real car now. It's time to see if I can do it. (052)

Important for me was, to create an area where he can recover. So I was thinking, about spaces, where persons linger. And then I thought of many airplanes and then motorbuses etc. especially, where one enters in there? One enters in an airplane or bus mainly from the front or the rear. And thus opens a special space experience for the viewer as a result. If one goes through a church door, one has a giant space. And this occurring, is what wanted to represent in the design. (072)

For example, when I was 5 weeks with AUDI, I had the first contact with the A3. This was the car I had over the weekend, a company car... and drove thereby to my parents to Freiburg. Was not spoiled, because I had driven an old car as a student and so I was totally enthusiastic about it... I thought nobody needs more

of a car. ... So I knew the car, but really into the topic, one gets in the moment, in which one develops the personal relationship to the object. (521)

One is the whole time on standby with these things and collects, what happens in the automobile scene, in art, graphics wherever. And if then the starting signal comes, then one has already a small pack collected and ready to access. (531)

The time necessary for developing a core design idea is about two weeks, with only slight variations. In the field of transportation design, concept approaches exist within hours or days, but selection and further development of the core design idea again takes about two weeks.

Comparisons between students of different academic level confirm that there are significant differences in skills and competences for generating good core design ideas. So far, the cause of these individual differences is not known.

NEXT STEPS

In 2007 and 2008 further research steps will be taken, to complete the collected data with the used methodology.

Similar investigations in a professional environment should be executed, in order to control and refine the present results, especially about the process of cdi development.

The collection of comparable data in different design fields, for example in industrial design, could reveal interesting differences and/or similarities.

The development of an assistance tool, concerning the conceptual design phase for educational use, would be a first practically applicable benefit of the research. For these tools first attempts will be made within finishing this research.

Deeper research about the inner processes of developing a core design idea will lead to a more universal understanding of creative activity in general.

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