COMPARING ACTIONS OF CREATIVE DESIGNING

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General principles of constructive design actions – based on the qualitative analysis of established conceptions and experts' statements of technical and non-technical (artistic) design processes – are presented and discussed. On the basis of the derived continuum of design processes the discipline "Technisches Design" (Technical Design) is categorized. Individual design processes in this discipline are regarded as multiple and complex problem solving processes (consisting of so called sub-problems). These sub-problems are characterized as belonging rather to the technical or the artistic pole of the continuum. Finally, a preview with regard to the consequences of the results – e.g. the support of design processes– is given.

THE INLFUENCE OF THE DESIGNER'S GENDER

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Product design from a gender perspective is a rather new and important area to focus on. Current product design is divers and often adjusted to the needs and wants of the consumers. A differentiating aspect in the design could be the way products are designed as every designer has influence on their designs. Distinct differences have already been found in two dimensional designs such as business cards and websites. This study analyses whether these criteria are present in three dimensional designs, such as consumer products, as well. The positive indication of the results and possible options for further research are discussed.

EXPERIENCE WITH CULTURAL INFLUENCES IN DISTRIBUTED GERMAN-CHINESE DEVELOPMENT PROJECT COOPERATIONS

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In international development cooperation, project members come from various countries and continents, from different cultures, educational backgrounds, and native languages. It is helpful to be aware of the profiles of the various cultures and the different processes during the planning of the project teams. In this paper, the experience of project managers and engineering designers who have worked on international projects is discussed and characterised to clarify the cultural influence in German-Chinese project cooperation. The conclusions can be helpful for engineering designers and project managers working on international product development projects with German and Chinese members.

IDEA GENERATION IN CONCEPTUAL DESIGN

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Creative idea generation is a vital part of the engineering and the new product development process. This paper is based on a number of studies which have analysed idea production during brainstorm sessions and has led to the provision of a new method by which to analyse the ideas produced. Real engineers, design tasks and design processes are analysed for ideas and evaluated objectively in terms of the actual concepts formed by the ideas. It was found that the rate of idea production appeared to be constant throughout each session until roughly 60mins. The results showed that over half the appropriate ideas of the session are produced within the first 10 minutes and the majority of the ideas behind each concept are provided by 20mins.

RELIABILITY OF EMOTIONAL RESPONSES TO MATERIAL TEXTURES

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There has been much discussion around the value and impact of designing emotional influences. Nevertheless, a fundamental question not well addressed has been 'just how reliable are emotions as a consideration within the design process?' Texture stimuli were presented to participants in a decontextualised form to reduce the number of additional emotional cues and simplify the test procedure. It was found that reliability of emotional responses to material textures was low, but that there was greater reliability for those textures identified at the extremes of positive or negative emotional experience.

EARLY PROTOTYPES: A STRATEGY FOR EXPLICATING TACIT KNOWLEDGE IN DESIGN ACTIVITIES

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The globalization of design activities has been an ongoing trend in industry for many years and at the same time sparked several research initiatives. One of the major reasons for globalizing design activities lies in accessing the global knowledge pool. Knowledge exchange within this pool is difficult as a large part is only available in implicit form und hence not easily accessible. This paper identifies some of the barriers in explicating knowledge, describes a framework and shows a strategy to overcome these barriers for successful sharing of knowledge and hence development of products or services in global design networks.

THE PRACTISE OF KNOWLEDGE MANAGEMENT WITHIN THE INNOVATION PROCESS OF A COMPANY MAKING LUXURY WATCH

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The present evolution of the industrial environment is characterised by a high level of uncertainty concerning the effective expectations of the market, the available technologies, the abilities to integrate the pressure placed upon companies and the increasing role of information and knowledge on the economic activity. The industrial company's competitiveness and the efficiency of its strategy are largely depending on its ability to control the main technologies linked to its activity area, the relevance of its strategy and of its management of the global process of creation, production and marketing. After laying down the theoretical concepts of KM, this article shall present the organisation that was chosen by a company from the top quality watch-making area. We shall detail the implemented techno-centred approach and the interaction with the organisation chosen by the actors of the company.

ERROR IN ARCHITECTURAL DESIGN PROCESS: TOWARDS A COGNITIVE MODEL

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In architectural design process, the human error has a particular status. The later it is detected, the more expensive it is. Moreover, some errors can not be detected given the current state of the design process and object definition. In this paper, we propose a model based on cognitive theories about human errors, applied to architectural preliminary design. In this model we classify the consequences of a design decision (direct, indirect, detected and undetected), we describe the steps of decision in architecture in relation to the process of errors detection and we introduce the concept of evolutive context.

USING SIMULATION TO SUPPORT INTEGRATION OF LIFE-CYCLE ENGINEERING ACTIVITIES INTO AN EXISTING DESIGN PROCESS: A CASE STUDY

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This paper discusses a case study in which process simulation was applied to support the integration of life-cycle engineering activities into the existing design process at a major UK manufacturer of capital equipment. we demonstrate the practical value of process simulation as a tool to support the specification of changes to a complex, concurrent engineering design process. The paper also liilustrates how development of a design process simulation model can provide significant benefit to companies, not just in terms of the numerical results of simulation analysis, but through the understanding of process behaviour which is gained through validating the behaviour of the model in different iteration scenarios.

PROPOSAL OF A SYSTEM OF INDICATORS TO MEASURE PERFORMANCE OF PROBLEM SOLVING PROCESS IN DESIGN

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Evaluation of performance is of great interests for companies wishing to increase their competitiveness. There can be several ways to evaluate performance, globally on the company level, or individually for each of the company processes. Problem solving is one of the key stakes in inventive design, and presents as particularity to be hardly manageable. Due to its particularities, the question of evaluation of performance for problem resolution in design remains. In this article, a proposal is done to understand the role of different inductors on this performance.