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SECRETS OF SPORTSHOE DESIGN

VARIOUS DESIGN METHODS AT ADIDAS, IN AMERICA AND SWITZERLAND

MOHOLY-NAGY UNIVERSITY OF ART AND DESIGN
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DISSERTATION FOR DOCTOR'S DEGREE

THESISES:

1.* Sport Shoe Design Philosophy at Adidas
Write Adidas' Design Philosophy
Development and implementation of the Foot-Map

2.* To use the Foot-Map for the UnderArmour Football Shoe development

3.* Is it possible to develop DeeLuxe Snow Board Boots without the Foot-Map?

4.* Teaching the Foot-Map in the Educational System

A short English version

1.* Sport Shoe Design Philosophy at Adidas

ADIDAS, as one of the largest manufacturer of Sporting Goods exists since 1948. Footwear production is one of the two major product lines they make, starting in 1949. In 1992-93 as the Chief Designer, I was appointed to write the “Adidas’ Design Philosophy”.

From the company’s tremendous historic heritage I targeted all the product development and manufacturing process, the products. This philosophy introduced a “common language” to be used. It’s language was easily understandable to all people in the company and could be proud of using it. This philosophy had to be flexible and adoptable for the ever changing times and evolution world wide. This was successfully achieved in 1992 and it’s still being used today.

* **Adidas’ Design Philosophy:**

What is the meaning of this? According to Adidas it should be possible to design and develop the best possible footwear for the best athletes in the world, including everybody else who has the desire to be active. This activity which is full of innovation, cutting edge technology, the highest quality, done by thousands of well organized workers. Where everybody has a key role including the Design department. All this activity pays attention carefully to the Social and environmental implications today. Since 1992 this Philosophy is active and it’s alive today at Adidas.

- **The Development of the Foot-Map:**

The Foot-Map became an important tool at Adidas, as well as for other designers, too. I use it successfully for all my shoe design projects. The human foot consist 27 bones, nervous system, blood supply, the muscles, tendons which work well in harmony. A well designed shoe takes into consideration all of these and provide a comfortable, safe environment for the foot in all conditions. What is happening in the shoe? My dissertation is built on observing these elements and suggests to use a Foot-Map which point out parts of the foot which should be and has to be supported and at the same time points out areas where the foot can not be, shouldn’t be supported. Where are the critical areas where the foot bends, where are the toes, the ankle, etc? The Foot-Map guides the designer where are those elements which comply with it (red and green) and has a visual impact what the new shoe design will look like. So this is how a shoe can be functionally as well as aesthetically pleasing. The F-M considers these anatomic and biomechanical conditions and simply guiding the designer. The best part of the F-M is that it can be used anywhere in the world and for any type of footwear. My special thanks goes to Adidas giving me the chance to develop this tool.

2* The Foot-Map is useful for the development of the UnderArmour, American Football shoes, too:

UA is a company which develops and markets clothing, outfits, shirt and pants for one of most dynamic American sports, American Football. In 2005-06 UA commissioned Dr. Simon Luethi Biomechanical expert and myself to develop the very first UA football shoe collection. (called: Cleats). The difference between European soccer shoes and the American football shoes is: The football shoe is 100% kicking the round ball. The American football shoe is not for kicking the oval shaped ball (hardly kicking the ball) they are for running 99% of the time.

Our work was based on the existing Design Philosophy of UA. We paid most attention to functionality, light weight, flexibility, maximum dynamic support of the foot, high-tech materials and last but not least the visual impact. The design process took into consideration the following:

Ventilation: (wet clothes or wet shoes are = heavy) High-tech web like textiles were used, also to keep the uppers strong, flexible and ventilated. Fresh cooler player plays more efficiently.

The new 2 piece sole system: For the dynamic performance and agility of the football player could be achieved by keep a one-piece traditional sole and cut in half. This construction provided 25% weight savings, too under 200 gr.

New cleat design: This is the spike design. Traction needed to be increased, so new design and lay-out turned the cleats diagonally and they were blade-shape. Base is wider, tip is smaller, narrower. More traction better efficiency for the players.

Implementation of the Foot-Map: Whether functional or visual the use of the F-M was very strong. The various layers of material used in the construction of the upper, made the design visually exciting and provided a valuable product.

3* Is it possible to develop a Snowboard Boot without the Foot-Map?

This subject deals with one of the most exciting new winter sports, Snowboard Boot Design. There is only 1 board and a pair of boots. There are 2 types of snowboarders. “Soft” or “Hard” boot users. They both have different riding styles. One is stitched from traditional materials, less technical, less

expensive. The hard boots are more complex, full of technical and mechanical components. Our target was to design the best hard boot in the world! The new design is fresh and avoids to be a “me-too” product, full of innovative complex elements, systems which work in harmony. The outside construction is injection molded shell which articulates mechanically and geometrically adjustable. There is an inner boot also which provide safety, support, comfort dry feeling for the rider. The 2 boots fit into each other perfectly.
From the beginning to the end of the design process the Foot-Map was used extensible in order to provide maximum dynamic support for the rider’s feet. The facts of the F-M provided ways to make a functional, logical geometric lay-out and visually ground-braking aesthetic results. It became a very asymmetric very sculptural looking boot. The whole boot is adjustable, via 4 ratcheted mechanical buckles . Several other adjustments were also considered, like: canting, soft or hard flexing forward leaning angles, walk mode, etc. The final product turned out to become the pinnacle of hard boots, a high performance snow board boot.

These 3 examples of successful implementation of the benefit of the Foot-Map shows you how useful and adaptable tool it is.
The benefit it provides the designer led me to suggest that the teachings of it could be, should be part of the Educational process of industrial designers, who are interested of learning about high-tech footwear design.

4.* How could the Foot-Map become part of Education process of designers?

- Design Education

Having worked for so many years in a wide range of industries worldwide, I developed a unique point of view on keeping my footwear design experience extensive and pass this practical knowledge on to my clients, and Design Institutions and their students. I recognized the ever changing world, businesses, globalization and naturally influenced my perspective regarding Footwear Design and Design Education. I try to keep my vision focused on the future, innovation, new technology and generally stay at the cutting edge of progress.

What are the essential ingredients of the product development process for active in-house designers, independent design consultants, innovators, engineers, developers, or, multinational companies, manufacturers, and marketing firms? By nature, practicing designers are connected to every aspect of the product development process from the initial ideas through to the end, till the product hits the market. They work with investors, financing, marketing, engineering,

sales forces, gathering useful information which all find ways into their daily design activities. Their practical knowledge of how the development cycle works is very valuable to any company, client or institution specially students and young designers who are keen to learn.

During the last decade more and more corporations found in-house design departments too costly hence they chose and use outside design consultants, specialists who can greatly help their business needs. This is costly also perhaps less so, then in-house design departments. Some firms turn to design institutions or organize design competitions to get the right designs for their needs from the younger generation. For example some manufacturing companies don't have the expertise to organize and communicate with various design institutions and students. I saw the opportunity to set up "live-projects" between my clients and Design Institutions and act as a mediator, advisor, and mentor. Projects, timelines, budgets are established and with my coordinating effort fantastic design projects and results can be achieved with a fresh approach with a low budget. The clients, the design schools and students both benefit from this kind of design activity, using the mediator's experience. At the end everybody is happy. Working this way, I became an educational entrepreneur as well as keep on practicing as a special footwear design consultant, servicing my clients worldwide.

Thank you: Laszlo Tapolcai, IDSA
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