WORKSHOP PROPOSAL

FORM GENERATION THROUGH 3D PAPER FOLDING

Alper KARADOĞANER (lead and contact)
Middle East Technical University, Department of Industrial Design
e-mail: akaradog@metu.edu.tr

Dilruba OĞUR
Middle East Technical University, Department of Industrial Design
e-mail: dilrubaogur@gmail.com

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1 Aim and Scope of Workshop

Physical modelling is an important phase of a concept/product development process to contribute positively to the form development for both design professionals and students. During form development process, the use of different design representation tools, such as physical and pictorial tools, by making transitions between them to support each other makes the form development process more effective. For instance, a quick mock-up as a physical tool could help designers to generate and improve forms throughout the different phases of their design process. Transferring these ideas generated with physical tools to the pictorial tools, such as sketching, is an effective way for form generation and development process.

In this workshop, paper forming as a physical tool and sketching as a pictorial tool will be complementarily used for quick form generation. The workshop participants will experience how 3D paper folding could help form generation process of a concept product that will be introduced to them during the workshop. Participants will be working individually to generate 3D abstract forms from paper and then they are expected to transfer these explorations to a concept product through sketching. Participants will make evaluations on paper mock-ups and continue to develop on these physical models, which will improve the form development process and make a positive contribution.

2 Planned Activities and Expected Outcomes

The workshop consists of four phases.

Introduction (10 min)
A brief introduction will be given about the workshop content and the design representation tools that will be used during the workshop. The examples about the workshop process will be presented to show the expected outcomes of this workshop. The concept product that the participants are expected to transfer their form explorations from paper mock-up will be introduced. The limitations and instructions about how to fold paper to generate 3D abstract forms will be briefly mentioned.

Form Generation with 3D Paper Folding (60 min)
Paper has a potential to generate quite comprehensive forms in a simple and effective way which makes it valuable for quick form generation. In this phase of the workshop, the participants will work individually. They will generate forms with provided bristol papers in line with the limitations and instructions about paper folding, and the design concept given to them. Form development through folding paper will be an iterative process. As folding each paper, participants will evaluate their paper mock-ups and try to make improvements on the following bristol paper. Participants will be guided through the process of generating forms, evaluating them and making further improvements. At the end, they are expected to select which part(s) and line(s) of the explored forms will be transferred to their product concepts. The expected outcome of this phase is to turn flat paper sheet into 3D forms that can be used as an inspirational tool for form generation for the further phase of the workshop.

Transferring Form Explorations to a Design Concept (30 min)
In this phase, the participants will transfer the selected part(s) and line(s) of their paper mock-ups into a concept product through sketching. As they generate forms, participants will form pairs and discuss their processes with each other to stimulate ideas. The expected outcome of this phase is to generate concept for a specific product given to them through inspiring from form explorations they carried out through 3D paper folding.

Presentation and Reflections (20 min)
Participants will briefly present how they transfer the abstract forms they generated through 3D paper folding into their design concepts and share their reflections on the adopted tools and techniques for quick form generation.

3 Length of Workshop

The workshop will be approximately 2 hours (10 minutes introduction; 60 minutes form generation with paper folding; 30 minutes transferring form explorations to a design concept, 20 minutes presentation and reflections).

4 Intended Audience

Undergraduate students, graduate students, design researchers, practitioners and academicians from design fields who are interested in form generation with paper folding and sketching are welcomed. The ideal number of the participants is 12.

5 Space and Equipment

A studio space, 14 chairs, tables that are enough for the participants to work individually, a projector, a white board, 100 33cmX33cm bristol paper, 6 utility knives, tapes, scissors, stapler, bunch of A4 size white paper, pencils, coloured pencils and markers.

Note: Tables should be covered with a protective material because there will be cutting process during the workshop.

6 Potential Outputs

This workshop will make the participants experience using physical and pictorial design representation tools to support each other, and enhance form generation and development process of a product concept. In addition, it aims to explore the potential contributions of rapid mock-up generation to the form generation and development process. The outcomes of this workshop will help further develop SIM and both the method and the outcomes will be shared with the design community to demonstrate the implications of a narrative approach in the design process.

About the Organisers

Alper Karadoğaner, instructor in METU Department of Industrial Design, holds a B.ID. degree in industrial design from Middle East Technical University, M.Sc. degree in design for interaction, joint programme with the Delft University of Technology and Middle East Technical University and continues his Ph.D. in METU Department of Industrial Design about design representation tools utilized in industrial design. He also has professional experience as industrial designer and interaction designer in different fields, and has took part in various research projects as design researcher. His research interests are design representation tools, technology use in industrial design, and digital modelling and fabrication.

Dilruba Oğur, a design researcher and a graduate student at the doctoral level in METU Department of Industrial Design where she also works as a research assistant. She holds M.Sc. and B.ID. degrees in industrial design from Middle East Technical University in Ankara. She is also a design researcher in Sustain Design Research Lab (SustainDRL) since 2014. Her research interests include product design for sustainability, design for behaviour change, generative research methods and design education.