Midterm Exam / Design Seminar

Stdt. Homero Ruiz García
Design Studies Department
Faculty of Fine Arts and Design. IEU.
homerooruiz@gmail.com, Izmir, TR.

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Ph.D. Özgen Osman DEMİRBAŞ

Directions
Select two (2) of the below questions and discuss them by considering the lectures and discussions that were held during the seminar series. This is an open-book exam and you have three hours of time. You are welcomed to elaborate your answer by supporting your discussion through some references, but do not forget to give proper reference information to the sources that you are going to use. Also please list your references at the end of your answer. Do not plagiarize; remember that your submission will be gone through safe assign plagiarization check engine. So please do not copy and paste or directly copy any information from any source. Your response should be by your own words and interpretation.

Selected Questions by the Author
3. Is digital media an indispensable part of new design thinking and practice? Consider and discuss the relationship between digital media and collective knowledge in design studies.

6. Discuss the concept of innovation in design by considering smart materials. How would Smart Materials be adapted into your field of interest in design research?

Selected Question 1

3. Is digital media an indispensable part of new design thinking and practice? Consider and discuss the relationship between digital media and collective knowledge in design studies.

Digital Media also defined by the Design Dictionary *(Erlhoff, Marshall, 2008)* as Web or Interface Design as an 'area of interface design that is focused on creating interfaces as access points to digital information. It is important that the link created between the user and the digital application contains a level of feedback, in other words, a system that can respond to a user's command, communication, or selection. Interaction design, a significant part of interface design, is responsible for designing the performance of these processes in relation to the user over time'.

Related to if Digital Media is indispensable for the new design thinking I'll like to give some reason and examples of why this area it's not just indispensable but also an area that most is dominated, acknowledged and practiced for the most of the new generation designers in our contemporary society.

As we saw in our seminar series, on the topic of "Beyond Timelines and Data Tables: Visualization Tools for Design History Studies" by Daniele Savasta, there exist small and big data. 90% of the work of UX / UI Digital Media and Data Work it's for exhibition to show to the public what's happening. Good examples of it are the Digital Media Designs created for Museums, Galleries, or other private companies that need to manage big amounts of information to have a better comprehension of their history, acknowledgement of their development or for finding new data that may be you will see for the first time.

Also, we are immersed in a world dominated by the power of information, wide web connectivity and for access to all that information, we use new digital hardware that allows us to access to all that information. It's part of our daily routine now, all the days we get in touch with 'digital interfaces that allow us to comprehend and navigated by the digital world. As Daniele mention in the seminar session, 'Exploratory Graphics' are a very indispensable area nowadays because they show data that is meant to be synthesized by the user.

Finally, I want to talk about the relationship between digital media and collective knowledge in design studies. Related to this, maybe not all the fields in design can apply the Digital Media in their daily work. Of course, a designer need to use digital interfaces for the good development of their professional work as send an email, use a specific design program or make calls to his clients, all theses examples mentioned before can give us a better perspective of how important and natural became for our generation the interaction with Digital Media, something called HCI (Human Computer Interaction & Visualization).

But In what it concerns about making design activities, maybe not all of them can be realised by a Digital Media Interface, because, after all, we still living in a material (not digital) world. We need to stitch a t-shirt, to cut wood, make a line trace or teach others new skills by hand and 'physical' pulse. But of course, you can always argue that all that thigs can be made by CNC or robots on an assembly line. For concluding this answer I'll like to say the last quote mentioned in the seminar session: "Human have shaped computers more that they have shaped us".

Selected Question 2

6. Discuss the concept of innovation in design by considering smart materials. How would Smart Materials be adapted into your field of interest in design research?

There are very nice examples related to the concept of innovation in design by the implementation of smart materials. The most of them are applied in the field of industrial design objects or for the development of new object design concepts.

In the talk given by PhD Murat Bengisu "Kinetic Materials Experience / Transforming the Materials" he explained how some materials react to changes in temperature or magnetic fields by shape change. Also, they don't need any additional electromechanical components/ mechanics.

One example that was given in class that supports the concept of innovation in design akin to the innovation in smart materials was the Lotus Lamp. This lamp (full-wall functional lamp) it's conformed by small and interconnected thin sheets of smart material (metal) that emulates the movement and the form of a Lotus flower. By applying electric resistance and with the implementation of some movement sensors this wall became a totally new experience in illumination and interior design development. Also just for mention another application, there's development in Medical, Eyeglasses Frames, furniture objects and also in fashion. The design approaches and advantages of the use of this kind of materials are that the results could be surprising, expressive erotic, comfortable, presumable, and with a plus value of experience.

Now I'll like to broaden this examples by dive-in into my field of interest in my design research line. By the moment I'm interested in the HCI (Human-Computer Interaction and Visualization) and in the UI/UX in the interface development for new hardware devices for future products. 'Indeed, many major thrusts of HCI can be seen as contributing salient perspectives and technologies. Visualisation aims to help people see structure in data or information; information retrieval is needed to find. Combining all of these aspects of information use defines the behaviours of sensemaking—what people do to make sense of the information in their world'. *(M. Russell, Proceedings, 2008, p.3982)*

For give a very nice example of the potential of a smart material implemented in the HCI it's the Soli Project by Google. Soli sensor technology works by emitting electromagnetic waves in a broad beam.

Objects within the beam scatter this energy, reflecting some portion back towards the radar antenna. Properties of the reflected signal, such as energy, time delay, and frequency shift capture rich information about the object's characteristics and dynamics, including size, shape, orientation, material, distance, and velocity. The Soli chip can be embedded in wearables, phones, computers, cars and IoT devices in our environment.

Soli has no moving parts, it fits onto a chip and consumes little energy. It is not affected by light conditions and it works through most materials. Just imagine the possibilities. Most of the people can maybe argue that this isn't a Smart Material because it's not a combination of natural elements (Au-Cd), (Fe-Mn-Si), or other alloys of elements. But personally, I think that this kind of

materials or elements must be considered as smart materials for the construction of the new generation of hardware for creating new and more natural experiences for the interaction in HCI interfaces. Designers work with SMP or Smart Materials may invest the possibilities of the application of the materials and the development of this concept in the objects. In the future, the objects and the buildings could be no longer rigid in their shape and usability.

Bibliography References

English, L. B., & Lindberg, S. (2008). Design dictionary: Perspectives on design terminology. Basel: Birkhauser, Williston, Vermont, U.S.A.

M. Russell, Proceedings, 2008.
Proceedings Workshop, April 5-10, 2008 · Florence, Italy.

Soli Project Webpage
https://atap.google.com/soli/