Cultures, the Traditional Shadow Play, and Interactive Media Design

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1 Introduction

Interactive design in the computer medium is a product of the last half of twentieth century. However, some argue that interactive design has been a part of the human experience much longer.[1] Packer defines interactivity as the ability of the user to manipulate and affect his / her experience of media directly, and to communicate with others through media.[2] Preece bases his definition of human computer interaction on the visibility and affordance concepts of Norman, who identifies those qualities essential for good interaction with everyday objects.[3, 4]

With respect to the above definitions, the literature shows us that there are many examples of interaction design in the history of art, ranging from literature to cinematography, and from plays to opera.[5, 6] Digital media, as a kind of interaction design, is a form of art. As the two-dimensional and three-dimensional technologies continue to develop in the future, this art will gain, change, and reform itself into new and exciting formats.

In our design education, we try to differentiate between the nonlinear interactive structure of the new media and linear structure of traditional print media and cinematography. We help our students to develop visual, audible, and "clickable" designs within the limits of a computer screen. Because of the attractive possibilities offered by technology, many designers today are using digital media to do their design work.

Actually, throughout history, different cultures had different techniques for the art of interactive performance, in parallel with the available technology. These techniques were quite different from today's computer screen format and way of looking at interactive design. Perhaps, if we can understand the philosophy behind the techniques of different cultures from different parts of the world, we can produce interactive designs that go beyond the limitations of the current two-dimensional screen.

The challenge is reinterpreting the early performance techniques using today's technology. If this is possible, we can add new dimensions to our concepts of interactive media design by examining the techniques of the "art of show from past cultures."

There are many examples in history to answer these questions. One of them is the technique of "shadow play," which has

1 N. Shedroff, "Information Interaction Design: A Unified Field Theory of Design" in *Information Design,* R. Jacobson, ed. (Cambridge, MA: MIT Press, 1999), 269.

2 R. Packer and K. Jordan, *"Overture" in Multimedia, From Wagner to Virtual Reality* (London: Norton & Company, Inc., 2001), xxx.

3 J. Preece, *Human-Computer Interaction* (New York: Addison-Wessley, 1996), 6.

4 D. Norman, *The Design of Everyday Things* (Cambridge, MA: MIT Press, 1999).

5 R. Packer and K. Jordan,.*Multimedia, From Wagner to Virtual Reality*.

6 J. Gasperini, "Structural Ambiguity: An Emerging Interactive Aesthetic" in *Information Design,* R. Jacobson, ed. (Cambridge, MA: MIT Press, 1999), 301–16.

many parallels to interactive media. In this paper, by looking into the typology of the traditional "shadow play," we will explore the possibilities for developing new concepts for interactive media.

2 Shadow Play and Interactive Design

References shows that the philosophy of the shadow play first appeared in China. When rooms were lit at night, the shadows of the people in the house were projected onto the paper-covered windows. Some time later, people started watching this "show" from outside.[7]

"Ombromanie" or "shadowgraphy," which once was very well known in Europe and today is mostly a child's game, is the oldest shadow play in history. In this performance, an artist in front of a light source creates the shadows of people, animals, and objects by using his hands and fingers.

One of the earliest phases of the shadow play was the religious Schaman commemorative ceremony of their ancestors in Asia. In these rituals performed around the fire, the shadow of a puppet created by using a dead person's skin was projected onto the walls and the ground.[8]

The theatrical shadow play on screen was first found in South East Asia around 1000 B.C. This art, which became quite popular around the seventeenth century, has been handed down through Indonesian (Java and Bali), Malaysian, Siamese, Turkish, and European cultures.[9]

In this kind of shadow play, the performance consisted of a screen, spectators in front of the screen, and a light source and an artist behind the screen. The artist created shadow portraits, which were cast onto the screen. Like a theater play, this show also had a scenario and was performed accordingly (figure 1).

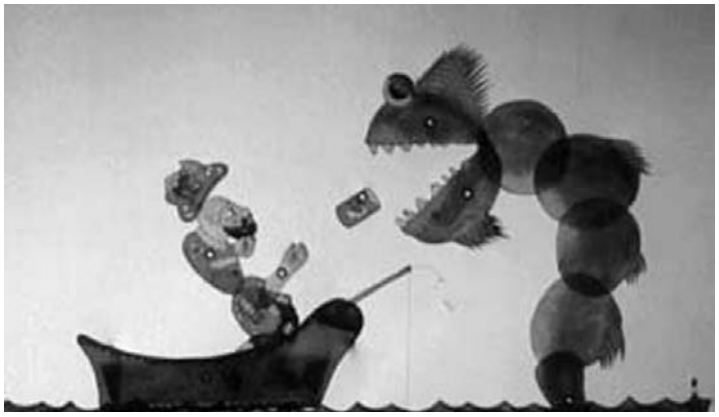

Figure 1
A scene from *Karagoz,* traditional Turkish shadow play © 2001, Cengiz Ozek.

7 Richard Karutz, *Das Schattentheather des Orients*, (Lubeck: Schmidt, 1919), 3.

8 Metin And, "Dunyada ve Bizde Golge Oyunu" ("Shadow Play in the World and in Turkey") published in Turkish, (Istanbul: Turkiye Is Bankasi Kultur Yayinlari, 1977): 20.

9 Ibid., 221.

Figure 2
A scene from ombromanie performed in a French café concert towards the end of nineteenth century.[10]

Like interactive media design, the shadow play also has an interaction between the performance and the spectators. For example, in the art of "ombromanie," which is based on the formation of the shadows of different figures formed by hands and fingers, the artist and the spectators are in the same place. The spectators also can join the show by creating their own figures. In this way, the spectators' involvement in the play is at a maximum, and there is continual interaction between the play and the artist-spectator.

In the traditional shadow play, which is performed behind a screen, there is a classical theater tradition that is based on the shape of humans, animals, and objects. The artist can direct the performance with improvisations according to the spectators' response—demonstrating the essential features of an interactive performance.

From the analyses above, it is possible to understand the historical development of the shadow play under the influences of cross-cultural phenomena, starting from simple shadow figures and leading to contemporary art productions performed by professional puppeteers. However, if we can study the typological development of the shadow play rather than its historical development, it may be possible to evaluate contemporary ideas for interactive media design.

From this point of view, we can classify four different types of performance in the shadow play, which may help us improve the conceptualization of modern, interactive media design:

1 *Viewing from both sides of the screen*:
In the traditional Turkish shadow play, most of the spectators chose to watch from behind the screen. The tradition of watching from both sides of the screen mostly comes from the Indonesian *Wajan Koulit* shadow play. In this kind of play, the women used to watch from front and the men watched from behind the screen.[11]

10 The author is unknown, *The Kingdom of the Shades* http://arcanemagazine.free.fr/DossiersMauriceSaltano/RoyaumeDesOmbres/RoyaumeDesOmbres.html (accessed on 08/24/01).

11 R.L. Mellema,*Wayang Puppets: Carving, Colouring, and Symbolism* (Amsterdam: Royal Tropical Institute, 1954), 58–77.

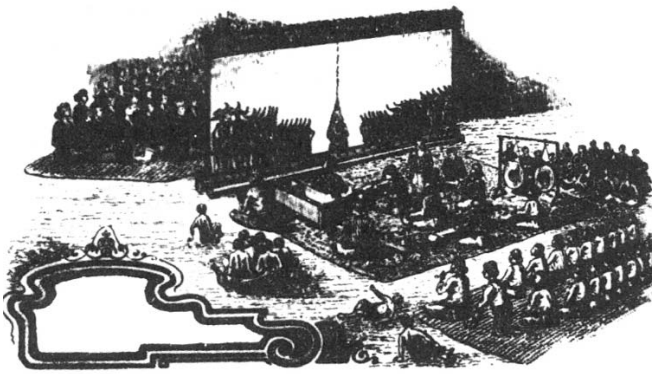

Figure 3
The way of viewing in the Indonesian *Wajan Koulit* shadow play, © 1977, Metin And.

2 *Spatial Viewing:*
In ancient times in Asia, some of the techniques of the shadow play were developed during religious ceremonies, during which the participants sat around the fire. The performance was made up of a fire in the middle; the spectators sitting around the fire (who also participated) and a wall, a huge rock, or a tent which served as a screen onto which the shadows were projected.[12]

3 *Performing without the screen*:
The *Wayang Lamah* shadow play, found in Indonesia-Bali, is performed in daylight and without a screen. The actors carried big, two-dimensional puppets in their hands. In this way, both actors and puppets participated in the show. The shadows of the actors on stage, which were projected onto the ground or the back of the stage, also were a part of the show.[13]

Figure 4
A Performance of the *Wayang Lamah* shadow play, © 1977, Metin And.

4 *The interaction between the actor and the image*:
This method, quite widespread in the European theater, was used in some shadow-plays. The shadows of the actors were cast in front of and behind the screen, and the actors physically participated in the show. In recent years, these techniques have been interpreted in a different way. One example is the choreography designed for a British dancing company, DV8, by Lloyd Newson and Liam Steel. In this choreography, a ballet on stage that appeared to be physically touching a water screen was performed by means of a video film of a ballerina projected onto that water screen.[14]

The four techniques described above are different from today's digital electronic media, which appear on a computer screen because the performances are spatial. Besides, while using the computer screen is an individualistic action, the shadow play spectators are all together in a theater, where they can physically interact with each other. This shows that the shadow play creates a social environment.

12 Joan Halifax , *Schaman, The Wounded Healer* (London: Thomson and Hudson, 1994), 89.

13 Colin McPhee and Jane Belo, eds., *The Balaniese Wajang Koelit and its Music* (New York: Colombia University Press, 1970), 150–151.

14 DV8 Physical Theater: *Can We Afford This / the Cost of Living*, (Stage production, co-produced by DV8 and the Royal Festival Hall in association with Dance Umbrella. Originally commissioned by Sydney 2000 Olympic Arts Festivals, http://www.dv8.co.uk).

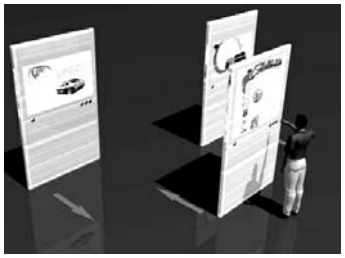

Figure 5
Conceptual work, re-illustrated by Hurol Öztürk, supervised by Oğuzhan Özcan.

Figure 6
Conceptual work, re-illustrated by Hurol Öztrük, supervised by Oğuzhan Özcan.

3 Conceptual Designs for Interactive Media Based on the Typology of the Shadow Play

After examining the shadow play and its typology, we now can ask:

What kind of ideas can be produced for interactive media design using the typology of shadow play and newly developed digital media technologies?

First of all, the different screen placements and ways of viewing the shadow play can be analyzed in order to make them more attractive when combining them with today's and tomorrow's techniques.

For example, we can assume that the two-dimensional screen is made up of different geometrical parts, and that the screen can move and turn within a definite scenario when the spectator pushes or touches it. In this way, it may be possible for the user to move and change the shape of the screen in addition to having visual, audible, and graphic information shown on it (figure 5).

Beyond this, another idea is that, from two sides of the screen, different images can be arranged and put together in a way in which these images can be seen together or apart from the two sides of the screen. With the help of motion-capture techniques, the spectators or user groups on both sides of the screen can move images on the screen in parallel with their own motions. In this way, different compositions can be designed by the participants using motion-capture and the images they form on the screen. This idea can be developed further by using many two-sided screens within the limitations of the space, and making the interaction much more attractive and richer (figure 6).

Further, we can imagine a three-dimensional screen with which the user can interact with his or her performance, both in or beyond the three-dimensional geometric screen (figure 7).

Figure 7
Conceptual work, re-illustrated by Hurol Öztrük, supervised by Oğuzhan Özcan.

We also think that, using "wearable" computers, a person can interact with an image, or with another person or people, without the use of physical screens, and can build up three-dimensional interactive compositions with holographic images in free space.

Although the above scenarios, whether possible or impossible, recall the screen organizations of the shadow plays, it is hard to say if it will have the same effect as the rich cultural visual and audible structure, and mystical atmosphere, of Asia's shadow play. These techniques, by themselves, will not improve design practice.

Our intention is to explore a new blend in interactive design, using the current technologies together with the typology of the traditional shadow play.

With this objective in mind, we worked with our students on a concept project. In this project, six main factors, developed together with the four types of shadow play performance described above, were:

1. The flickering and the changing pattern of light coming from the fire used in the shadow play.
2. The use of the portraits in the shadow play, that are half transparent, half flue, and blurred on the screen because of the intersection of many shadows merging into each other.
3. The use of the special state of being half mobile and half motionless that can be characteristic of puppets.
4. The reference of the color red used in the traditional Turkish shadow play.
5. The creation of the atmosphere of actors / spectators sitting and chatting, which is a feature of Asian cultures, especially Shamanizm.
6. The use of four performance types: *Viewing from both sides of the screen, spatial viewing, performing without the screen, and the interaction between the actor and the image.*
7. The use of the interactive capabilities of digital media.

From these bases, our students developed a conceptual design named "Pool Project." In this project, they examined and experienced the structure of the shadow play and today's technology, and also dreamed of new technologies yet to be developed.

Pool Project is a design concept based on a swimming pool. The students used the idea of water, which has the ability to bring people together, chatting and having fun; dating back from ancient Romans and Ottomans, and reaching to today in Anatolia. The students, who were brought up in such a culture, wanted to create an atmosphere of a Roman bath. Above the pool, they put a video camera, which would capture images from inside the pool and project them onto a screen placed perpendicular to the pool (Figure 8).

The students proposed placing a big, two-dimensional puppet in the pool, which was as mobile as the shadow puppets used in Turkish shadow plays. The puppet was conceived as a portrait of a

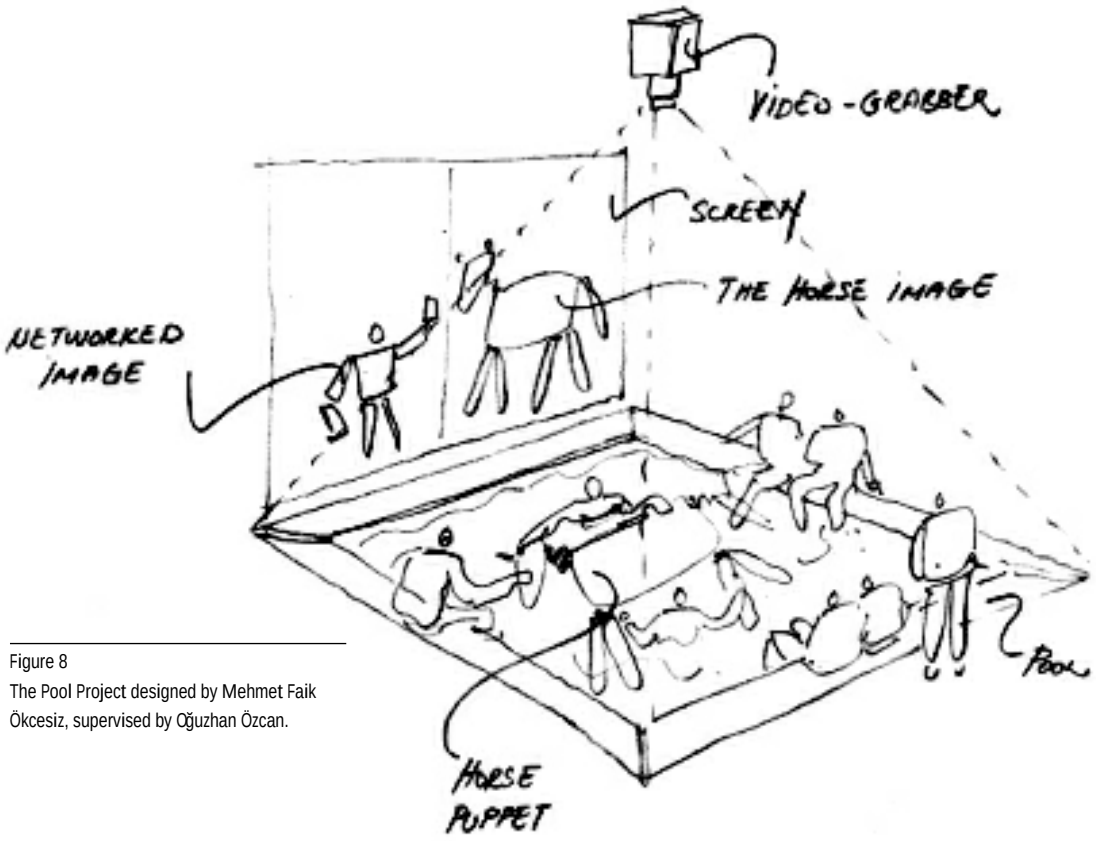

Figure 8
The Pool Project designed by Mehmet Faik Ökcesiz, supervised by Oğuzhan Özcan.

horse. The joints of the horse were to be connected to the body with ropes. The puppet would be made of a buoyant, translucent material. The color would be red like the ones in the Turkish shadow play.

By positioning the light source at the bottom of the pool, the shadow of the horse puppet was projected onto the screen by the video camera. The shadows of the portrait on the screen, the motion of the water, and the shadows that were produced by the refraction of the light source in the water formed a pattern of shadows that was quite similar to those in the Turkish shadow play.

The participants sat around the pool or swam. All of their actions in the water, as well as their interaction with the puppet could be seen on the screen placed near the pool. The people also were able to view their play with the puppet from the screen.

In a similar pool-based concept, two portraits would be projected live onto a screen with a networked system, which was placed perpendicular to the pools. In this way, the participants could see the portraits that each was creating, and they created a play in which two portraits interacted with each other.

The "Pool Project" developed by our students was a kind of experience that involved technology, traditional culture, and the techniques of physical interaction. We believe that these kinds of activities, like the networked communication which developed with

the popular use of the Internet by the end of twentieth century, and merged with social activities in physical space, will improve the communication skills, which today are becoming more individualistic, to become more social. Besides, the traditional culture that seems to be disappearing today will be remembered, thereby enriching our daily lives.

Conclusion

In this article, we discussed what could be done to improve the skills of interactive media design. We explored the possibility of using our traditional culture as a starting point. The typology of the traditional shadow play was examined within the framework of current interactive media.

The key to the typology of the traditional shadow play is the arrangement of the screen and actors and spectators, as well as the techniques of puppetry. The ability of the screen to be viewed from both sides, and the play to be a spatial performance, were found to be most significant.

On the other hand, the two-dimensional images of the puppets projected onto the screen are of the primitive cartoon type. It must be seen in a different way so that, in using the structure of the shadow play with limited technology and material, the style of the art comes from the limited motions of the portraits and the pattern that is formed by the reflections of many translucent shadows from the flickering light. Some producers of cartoon films have tried this style in their productions.[15]

Actually, with the advent of computer graphic technology, the techniques of playing and the arrangement of screens of the shadow play have been greatly improved. Flat, twistable, and even wearable screens used with motion-capture software can improve this experience. But we think that this will not bring a new dimension to interactive media design, especially for student designers. It is obvious that networked communication, the practice of motion capture, and interactive displays alone cannot replicate the typological applications obtained from the shadow play by themselves, although they may enhance them. However, exercises in which the student is not aided by a computer are important, especially for design students. They teach us that interactive media design is not only composing text, images, and sound, but also questioning the media in a physical environment. This will not only help us to see many points of view, but also aid us in developing new ideas for the use of interactive spaces. Making typological analyses of traditional cultures will help us to understand the performance types of shadow plays and to integrate them with modern technologies.

From this point of view, these practices help us to examine and compare the traditional cultures with contemporary cultures and past techniques with present techniques.

15 Emanuele Luzzatti and Giulio Gianini are two who are known as the masters of cartoon movies. The producers used the technique of "découpage" to produce a style of similar to the shadow play in their movies. See Luzzatti Emanuele ve Gianini Giulio: *Il Flauto Magico* (Export Agent: Atillio Vanenti, Genavo, 1999): 45.

The "Pool Project" exercise described above is one of the experiences of interactive art. Yet we can ask this question: Do such projects contribute more to art and art education than to design?

These exercises, without doubt, contribute to interactive design practice directly. We should not forget that interactive media design is part of the whole universe of audio-visual arts, information sciences, and general design theory. Although these exercises may not seem to target interactive media design, they help the designer to create original ideas for the design of info-spaces that are open to the public, such as museums and exhibitions. Especially in a design project serving a public need, the assimilation of traditional culture and the interpretation of its experience will add much more functionality to the design, and help to produce better results. This also is proof that technology does not have a radical point of view, but also can relate with tradition and its typology.