

Extending Mind and Space: Embodying the Model of Design Process in Digital Era

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ABSTRACT

The recent electronic or digital technology has changed the life of contemporary society. From here, a new variant of cultural form is born as a consequence of the intensification of technology usage in everyday activities. This situation is then ended up with the paradigm shift of society's perceptions, experience, and consciousness in almost all aspect of life, including the spatial discourse. The discourse of spatiality in the digital era becomes significant as it also repositions the conventional human spatial experience and consciousness in everyday life. Furthermore, this new spatial discourse may also appear as an opportunity to determine the learning space in the digital era.

This paper emphasizes the topic on the information technology development and its impact on the forming of technoculture. The discussion will then be continued to the spatial discourse in digital era and its contribution in rethinking the learning space, especially the space of design process in academic. Lastly, the paper formulates the hexagonal model as the alternative of expanding the conventional space of design process and learning.

Keyword: Technoculture, Space and Spatiality, Design as Space of Thought, Hexagonal Model

INTRODUCITON

This paper would like to study the relational situation of society and Information and Communication Technology (ICT) in the everyday life. This study is intended to get a comprehensive understanding on the current socio-cultural paradigm and to seek the positive aspects from this paradigm to be implemented as appropriately as possible in the established everyday situation.

Technological change means nothing other than the accelerated sequence of social changes (Nowotny, 1994). In this sense, a civilization and some human achievements will always be affected and be simultaneous with the ever-increasing technology development. The rapid development of ICT allows the networked society to form and establishes what Marshall McLuhan labeled as “Global Village”. Such condition produces a new socio-cultural paradigm that enriches the societal discourse in everyday life. Besides, more opportunities can be found in this digital era, including the opportunity in repositioning our perception about space and spatiality, and the possibilities to implement them in learning space discourse. Furthermore, the current situation also influences the conventional working process, including design process in the professional and educational context as well.

The organization of ideas in this paper is then organized in three general ideas beginning with technoculture and its spatial discourse, design as the space of thought, and the embodiment of design process in accordance with the technocultural discourse of space.

TECHNOCULTURE

Technoculture issue is emerged as a consequence of intensive usage of technology in everyday life. In fact, until today, people are already technocultural as they are well-acquainted with the tools in everyday life since hundred years ago. However, not all products of technology are potential to form a technoculture. In this case, there should be a careful investigation of basic criterions of any technological products that are significant as potential for technocultural discourse. On the other hand, technoculture is not a kind of mainstream culture or sub-culture. It is a cultural situation that is accompanying the mainstream or sub-culture. Hence, the technocultural issue can obviously exist in any form of culture, from the traditional culture to modern culture.

Lelia Green (2001) noted that the technoculture is emerged from the usage of information technology by which human perception of space and time is changed. In this sense, it can be understood that Green emphasized the rise of technoculture in the last two decades, especially when the revolution of communication and information dissemination through a computer network began. Specifically, Harold A. Innis and Marshall McLuhan argued that technology for communication gives a direct influence to the perception and the importance of space and time (Green, 2001). On the other hand, Lars Løvlie (2006) argued that society had already experiencing the technocultural

symptom from the time when the printing technology was invented. This argument is based on the reality that the printing technology plays an important role in shifting the human perception of writing and language. Løvlie (2006) noted that from the 1450s onwards, printing governed our relationship to the word and transformed our relationship to language, for example by extending an oral tradition to written one, a revolution in itself.

This contradiction leads to the primary idea that the rise of technoculture needs a technological invention as well as a technological innovation that really possesses capacities in changing human experience, consciousness, and/or perception. The development of transportation modes, for instance, can be categorized as a potential landmark for technocultural mindset. A long time before Henry Ford introduced his work, people traveled by foot or horse-carriage. The invention of machine-powered car which travels farther and quicker than the horse carriage, gave the opportunities for people to think about their perception of space and time. In this sense, car, as a technology of transportation, relativizes human perception of distance, space, and time. For the contemporary society, according to the Green's thought, it is the ICT that significantly relativizes the perception of distance, space, and time. ICT, as electronic device, also offers an opportunity to raise a symptom in a social situation where almost all aspects of society's life are accommodated and accomplished by electronic devices. The intensification of the usage of electronic devices in everyday life has produced the new way of thinking as well as way of life.

Cybernetics Organism

Within the discourse of electronic or digital society, human becomes cyborg or cybernetics organism. Cyborg, as Løvlie (2006) noted, is a synthesis of human and machine which is presented as a metaphor of a current situation in contemporary society that use to live with machines. In today's situation, the presence of electronic or digital media among the society is inevitable. The interaction of contemporary people with the ICT is actually a kind of cyborg-like where e-mail address and cellular phone number might become the existential presence of self in the society. The existential motives of these technologies are various; from supporting the everyday workloads, doing hobbies, wasting time while waiting for somebody, socializing, or learning. These circumstances depict the situation that each one of us has already become a cyborg; human who relies his/her life on the functionality of machine.

TECHNOCULTURAL SPACE/SPATIAL DISCOURSE

Space connotes movement. It is because people create space through bodily position and movement (Franck & Lepori, 2007). Space is different from place, particularly from the perspective of dynamic. De Certeau (2006) differentiates space and place from their value of stability and practical dimension. Place has an indication of stability where the location of constructive elements is certain. Meanwhile, space is present when the consideration of direction, speed, and time exist. This situation makes space has no stability and refers to a practiced place. In other hand, Paolo Portoghesi defined space as the system of places (Norberg-Schulz, 1980). According to these, space or spatiality emerges when the relation of things or places is being established.

Cyborg's Space

Cyborg lives in two worlds, physical and virtual world. The blend of these spaces is then familiarized with, for instance, the mixed reality or augmented reality. For Gotved (2002), the virtual space appears as the metaphorical space which reconstructs the offline or existing physical world, though there would be some differences of elements between them. This metaphorical space is also present as a shared space that is similar with the public space in the physical world where people can gather together, undertaking some social activities. The presence of both physical and virtual world can overlap each other, and creates the hybrid space.

De Souza e Silva (2006) noted that hybrid space occurs when one no longer needs to go out of physical space to get in touch with digital environments. In this sense, hybrid space is the situation where the boundaries, such as social boundary, are blurred and it is hard for people to determine the distinction between physical and virtual space.

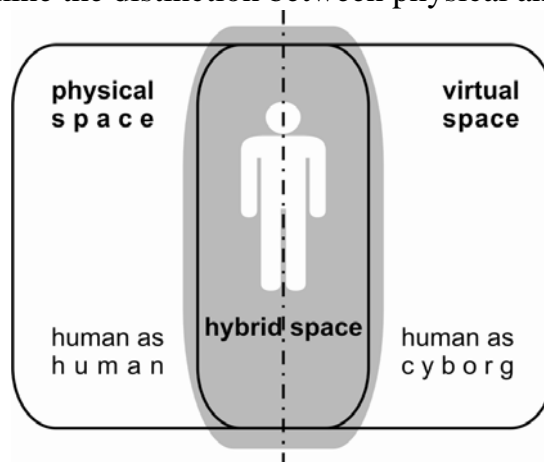


Figure 1: Situating the Hybrid Space

Concerning the concept of hybrid space by De Souza e Silva (2006), virtual space by Gotved (2002), and cyborg paradigm by Løvlie (2006), I generate an illustration (Figure 1) which portrays the situation when the hybrid space occurs. In the physical space, human exists as human in the literal sense which possesses the physical body that is equipped with skin, flesh, bone, soul, and senses. Meanwhile, in the virtual world, human exists as a cyborg that is being reconstructed from the living physical body.

In today's contemporary world, people are living in this hybrid space. The paperless-office is an example of some situations in the current trend of hybrid space.

DESIGN AS THE SPACE OF THOUGHT

Defining design might be complicated. Design, as a word, has various understandings. It can be seen from the definitions delivered by some scholars from several approaches. John Heskett (2002), for instance, describes that design is to design a design to produce a design. In this sense, Heskett is pointed out that the design appears to be a discipline, a process, a product, and a quality. In the first understanding, Nigel Cross argued that design is more a discipline, rather than a science, which seeks to develop domain-independent approaches to theory and research in design (Cross, 2006). Furthermore, in the context of theorizing and researching the design, Cross developed his own taxonomy of design which falls into three categories, which are based on people, processes, and products (Cross, 1999):

1. design epistemology: study of designerly ways of knowing
2. design praxiology: study of the practices and processes of design
3. design phenomenology: study of the form and configuration of artifacts

The main orientation of design is people. In this context, people can at least be categorized as designer, design producer, and user as the acceptor of the design product. As designer, the way of thinking is vital in the process of determining the design problem and seeking the design solution. This way of thinking is applied in almost all phases in the design process.

As the process, design applies a method which comprises three activities: analysis, synthesis, and evaluation (Lawson, 1997). Analysis is the problem-seeking process in which designer will collect all data and then process them to produce a conceptual problem map towards design approach and solution. Lawson sees this analysis as the ordering and structuring of the problem. Synthesis is a problem-solving which will work on the development of design solution based on the previous conceptual map.

And evaluation is the *appropriateness*, a term borrowed from the term by Nigel Cross (Cross, 2006; Widagdo, Zainudin, Saliya, Yustiono, and Piliang, 2000). This appropriateness is equal with the optimization of several users' needs and wants, and design problems formulated in the analysis phase with the offering of solutions which are derived from the synthesis phase.

Design as product is closely related to design as quality. It means that product and quality are reciprocal and have the same direction towards better living for human being. The parameter of this expected quality can be measured from various dimensions. One of these dimensions may be derived from the conception of *Firmitas*, *Utilitas*, and *Venustas*; from Vitruvius, a Roman architect (Mijksenaar, 1997). These three terms are the aspects of the quality of architectural works. However, these terms can also be used to review another objects, such as design products. *Firmitas* is related with the durability of the object. *Utilitas* is related with the functional aspect of objects. Meanwhile, the *Venustas* is related with aesthetical value of the objects, which will lead to the user's satisfaction. Based-on this conception, Mijksenaar develops the three-point formula (Figure 2) which contains reliability, utility, and satisfaction. Reliability represents *firmitas*, utility represents *utilitas*, and satisfaction represents *venustas*.

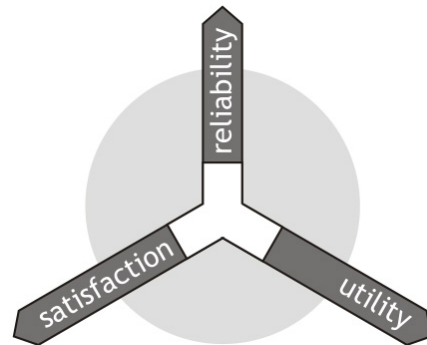


Figure 2: Three-Point Formula
(source: Mijksenaar, 1997)

The previous discussion about design reflects the complexity of design and, at the same time, determines design as the space of thought. In this sense, within the 'body' of design, there is a system of several elements that work and move together to form the quality of design itself. This situation reflects design as human natural ability in making something useful using particular strategies and thinking methods towards better and prosperous life, as Restrepo and Christiaans (2003) noted that the design as the maximum expression of human intelligence and the prototypical case of cognition, as it requires

devising future states of the world (goals), recognizing current ones (initial states) and finding paths to bridge both (transformation functions).

EMBODIMENT OF SPACE OF DESIGN PROCESS

Concerning the previous discussion of cyborg's space issue in the technocultural spatial discourse and the complexity of design process encourage the rise of issue in integrated design process. Integrated design is different from conventional design in its focus on tight collaboration within a multidisciplinary team (Nalin, 2006). Today, the integrated design can perform best by implementing ICT. Through the ICT based network, one can develop a systematic work flow of integrated design process so that the future achievements can meet everyone's expectations. Furthermore, ICT breaks a conventional boundary and establishes a wider network to get more comprehensive design inputs.

Considering the opportunity in establishing an ICT based integrated design process, I was beginning to develop a model of a design process that is relevant with the situation of design as the space of thought, and with the current spatial discourse in society. The model is then labeled as the hexagonal model of design process (Figure 3).

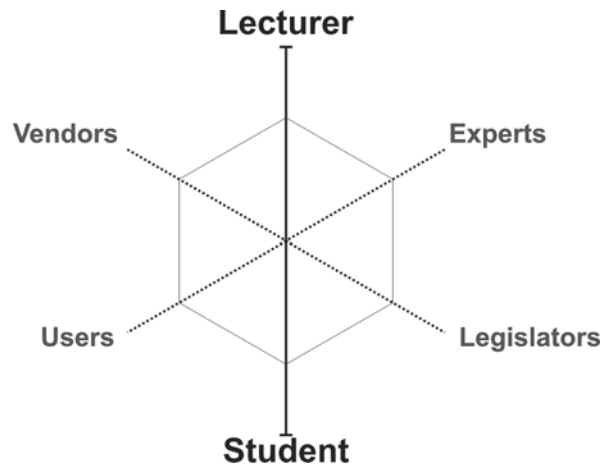


Figure 3: Hexagonal model of design process

Currently, the hexagonal model is being developed for the context of educational purpose, especially for the interior design studies. The core of this model is the relationship between lecturer and student. They are in physical world. Some complements are determined based-on the generators of design problems (Lawson, 1997) which are designers, clients, users, and legislators. They actually exist in the physical

world. However, in this model development, these generators would be considered to occupy the virtual world and are considered as consultants to the students.

In this model, student plays the role as designer. This model is then being elaborated by building an interpretation to Lawson's generators of design problems (designers, clients, users, legislators) into vendors, users, experts, legislators. In almost all situations in design education, the clients are sometimes being neglected as they might be fictitious and can only be an assumption derived from the existing data. In this case, the client is being replaced by the expert. Through the vendors, the students are expected to learn about, for instance, the trend of color scheme, recent construction technologies, new trends of furniture designs, and new building materials. From the legislators, students can learn about the building regulations, such as fire safety. Meanwhile, from the users, students are expected to be more sensitive to socio-cultural issues in society by understanding people's desires, emotions, imaginations, needs, and wants. Related to the users, the experts are expected to help the students in understanding the user's situation based-on theoretical approaches, such as sociology, psychology, or cultural studies.

The hexagonal structure is representing the synergy of six participating roles which consists of lecturer, student, vendors, users, experts, and legislators. However, this model can obviously be modified to another shape depending on the complexity of the design problem itself.

I consider every party involved in this hexagonal model as cyborg. The logic of this hexagonal model implementation can be illustrated as Figure 4.

Figure 4 depicts the situation of computer-based networked society. As a single entity, a person creates a personal space. In this phase, the boundary of space and time is distinct and may separate people physically. As a multiple entities, especially when establishing a network through the internet, the personal spaces become integrated under the similar motives and purposes. The boundary of space and time becomes permeable, in the context that the physical situation does not seem to matter anymore. As Coyne (1998) noted that information technology is a technology of the mind, then what the matter now in this constellation is the connected mind or networked mind. Finally, the center is the location where hexagonal model is being implemented. This is actually the place where ICT plays its supporting role in the conventional design process, especially through its capacity in establishing connectivity and accessibility. Thus, this situation may benefit to the students in developing methodology and strategy in approaching any

design problem. According to the context of design epistemology, ICT also helps the hexagonal model in mapping an alternative of designerly ways of knowing for the students by exploring and gathering more ideas from relevant sources and competent persons.

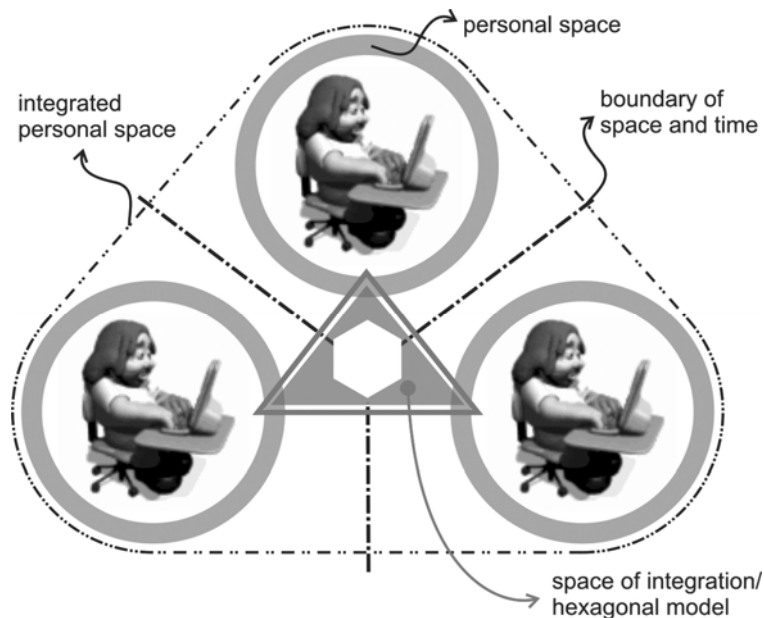


Figure 4: Logic of hexagonal model implementation

The model is developed for the purposes of integrating both physical and virtual space. This hexagonal model is expected to simulate the real situation in design practice, and is useful for students to:

1. be more critical and sensitive to the design problem and situation, in accordance with the analysis phase
2. be able to take some necessary actions, especially in accordance with the synthesis and evaluation phases
3. be more critical to the situations that are important to design solution (seeking *appropriateness*)

I develop this hexagonal model in the framework of completing the conventional design process method in face-to-face classroom method in physical world. This model is a representational model of the existing “ways of designing” in academia. The work from Bender and Vredevoogd (2006) is one of the good examples of implementing the online educational technologies into the design studio and developed a modified design

studio process. In this case, my work on this hexagonal model development can complete the framework of modified design studio process proposed by Bender and Vredevoogd. Furthermore, the hexagonal model possesses several benefits which:

1. can be developed to keep the design at its status as the space of thought
2. can be implemented with ICT towards an integrated network of the related parties
3. can be relevant with the discourse of the space and spatiality in the digital era

Although this hexagonal model may serve the current learning situation of design process, it should be a continuous investigation and improvement to make this model more grounded to the cyborg's needs, and more relevant with the technocultural spatial discourse.

CONCLUSION

As a human extension, technology offers itself as a threat or opportunity. The hexagonal model demonstrates that the incorporation of ICT in the design education can support the conventional method of design education itself. The effort in incorporating ICT in the design education process is not intended to change the conventional face-to-face learning method. In fact, ICT helps the design students to reach any resources of ideas or design inputs through its capacity in connectivity and accessibility. These features of ICT provide an opportunity in establishing an extended space of learning towards better design education outcomes. In this sense, the hexagonal model maps the situation of physical and virtual space for the technocultural students who enjoy the living in the hybrid space. In other hand, the model can also help the students to prepare an appropriate way of thinking in approaching any design problem before they are able to deliver some significant professional contributions to the society.

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