



NEW DESIGN PARADIGM IN THE KNOWLEDGE AND CREATIVE SOCIETY

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ABSTRACT:

The purpose of this study is to define key design values, including the objective, scope and function of a new design paradigm suitable for the knowledge and creativity society of the 21st century, and to present a new direction of the design education and industry today should pursue. Regarding methodology, this study was carried out through studying the literature on changes in design value, through an observational study of changes in the design environment, and through case studies of changes in actual designs.

keywords; Knowledge, Creativity, New Design

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I. INTRODUCTION: KNOWLEDGE AND CREATIVITY ERA - CRISIS AND OPPORTUNITIES OF THE DESIGN DISCIPLINE FIELDS

The design discipline has been developing in the industrial society since the early 1900s and is currently going through a period of new knowledge and creativity. But it has yet to fulfill the needs of this society by developing new directions in the concept of design, design education and the design industry. The absence of in-depth international discussions on the future of design is why the design discipline is unable to share in the visions of the 21st century.

The value of design must change along with the social context. Current designers' indolence and negligence in failing to convert design values according to the changing social values can be compared to the failure of the artists and technologists of the handicraft society to respond to the advent of the industrial society and the consequent loss of their position in society. Energies such as fuels and hard materials were the major resources in the industrial society. In the information society, information and communication on computer networks are the major resources. The resources in the Knowledge and Creative Society are knowledge and its contents. In such enormous social changes, the coexistence of both threatening and opportunistic elements related to the design discipline can be seen in many cases. For example, an international design firm, IDEO, used to provide styling and form-based solutions but converted 70% of their design business to soft business and adopted product strategies focusing on new businesses and markets, researching for new product opportunities, leaving existing designers who have been educated and trained to focus on form fewer places to go to-Threat Factor.

Recently, on the other hand, designers are increasing their design opportunities by getting involved in developing soft and invisible social systems and improving corporate innovation and the social systems of leading firms. ¹ - Opportunity Factor

Both to respond to present circumstances, and for designers in their professional roles to guide the new industrial demands and actively participate in the social demands of the future, redefining the meaning of design and the role of designers according to the changing situations of the era is the most important. A reconstruction of design education and the direction of the design industry is also urgently required. Therefore the purpose of this study is to propose a new meaning of design and a new role for designers, and a new

I SKT, KT, etc which are Korea's leading IT firms have recently made a Corporate Innovative Value Creation Centre constituting of designers, cultural information experts and IT experts.

direction for design education and an industry suitable to the Knowledge and Creative Society. Through this, providing a vision for design professional fields by playing an important role to help realize the value of the future society is essential. Literature study along with expert interviews and researcher's observational research were the basic methods of this research.

2. DESIGN ENVIRONMENT OF THE KNOWLEDGE AND CREATIVITY SOCIETY

Peter Druker along with a group of sociologists suggested the arrival of the knowledge and creative society. Society changed from an industrial society on to an information society, and is presently unfolding into a knowledge and creative society. If energies, such as fuel and hard materials are the main resources of the industrial society, then information and communication on computer networks are the main resources of the information society, and knowledge and contents are the resources of the knowledge and creative society.

According to Fortune Magazine, already in the year 1991, the amount invested in computer and communication products related to businesses exceeded the amount invested in businesses related to industrial equipment, which indicated the beginning of the information society. Also, the software company Microsoft and the internet search engine Google are both well-known international brands. The introduction of Web 2.0 to maximize user creativity in the imaginary world and the globally spreading UCC (User Created Contents) can be regarded as evidence that society is moving from an information society to a knowledge and creative society.²

The industrial society in the past valued analytical thinking, universal and material values, production and consumption, innovation and change, desire and commodities, and etc. The result was a material focused industrial society that brought not only the exhaustion of resources and energies but also environmental pollution worldwide. Theorists' common view regarding the knowledge and creative society is that values such as 'spirituality', which is related to balanced thinking, and 'diversity of values' (region originated culture) are unlike these of the industrial society in that they connect to the 'organic blending of decentralization' through computer communication networks. Taking into consideration in systematic elements and environmental

² Jong-chul Lee, *The creative Management (2003)* Creativity society to human lives is an era taking an importance to creativity operation meaning more consideration towards experience and creativity than possession and consumption

elements from a broad point of view, 'holistic' thinking is valued.³ In particular, the development of the computer communication networks is predicted to underlie along 'the softness of the economy'. Also, society and the human lifestyles follow the principles of 'sustained and stable' economic development to counter-balance the exhaustion of energies and resources and the seriousness of environmental pollution worldwide.

Now with the beginning of the information, knowledge and creative society, the value of the industrial society is unfolding into a new direction. A few of the new social principles and major values in living are 'intelligent soft values, organic unification, balance of nature, sustenance and stability'. Therefore, design plays an important role in creating society and future human living and will actively have to search for new directions according to these changes.

Industrial society	informational society
Natural science	
Conquering nature	harmonious with nature
Analytic	Holistic
Standard	Special
Mechanical	Organic
Social science	
Material	Mind
Contrast	Balance
Elite	Public
General	Various
Specialized	Fused
Element	Total
Life value	
Consume	Sustain
Production orient	Consumer orient
Typical	Personal
Innovation	Tradition
Desire	Attitude
Change	Stable
Economy	Meaning
Quantity	Quality

Figure 1 : Values of Industrial society and informational society

3. THE DESIGN MEANING, BOUNDARY AND DESIGNERS ROLE OF KNOWLEDGE AND CREATIVE SOCIETY

- Design meaning: Harmonized creation and indication of vision

³ Organic holistic outlook is that 'the universe is one living organism and because each part interconnects building a dynamic net, no partial elements can be pulled apart'.

The aim of design in the industrial era was about 'standing in each of the producers and consumers prospective towards water which is produced through the industrial production method and granting a special form quality in the structural and functional correlation'⁴. The traditional industrial design of material commodities valued in the industrial society was 'the effective visible expression of material value in corporate and consumption promotion'. As a result, the designs of this era contributed to the development of industry and to advancement of material abundance in human living, but in such processes brought the exhaustion of resources and environmental issues. There was a big gap in embodying the direction in a desirable and balanced way from. Now, approaching the information, knowledge and creative era, the field of design is in need of a new conceptual frame in order to go beyond the industrial era. Design in the new era is transcending industry and materials. Form-oriented design concepts are shifting towards 'taking into consideration the overall human environment and indicating a vision of the balanced human lifestyle coming from balanced thinking'. In other words, the value of design in the Industrial era was extremely material, functional, general, and production based, but design now of the knowledge and creative society is oriented towards the coexistence of the material and the immaterial, function and meaning, generality and diversity, innovation and continuance, and not only for the benefits of the producers, consumers, and designers who used to be separated till now, but to put into practice the concept of the balanced interrelation of human, nature and tool. Harmony allows the universe to exist and as a fundamental principle enables beauty and harmonious values rather than competition to be the key values of design.⁵

- Design related area and direction: From hardware to software, as well as the expansion of an area and improvement design

In addition, with the beginning of the information, knowledge and creative society together with the passing of the industrial society, the target areas of design will need to be redefined. In particular, traditional industrial design till now has mainly focused on industrial manufacturing, and it is by being granted a form-specific basic object related business that it plays its role in corporate competition. In other words, the target of design has been limited to hardware or material visible products, and the design contents have generally remained in the appearance and surface area. But there are 3-dimensional materials that transcend the values of the hardware area. These are immaterial and invisible knowledge values such as software and contents. These new key values are appearing in the information, knowledge and creative society. Therefore, design fields need to

⁴ Tomas Maldonado, *Notions on Industrial Design* (1963)

⁵ Korean Language Dictionary (1973)

expand their outlook on the design target areas and contents, and a positive attitude is needed to bring these invisible values into the design area. ⁶

According to these viewpoints, designers must play a major role in creating the appearance of game machines or screen interfaces, not to mention the character of the game and its purpose and meaning, and even the scenario and contents. A few years back, at the Sharp Design Integration Centre located in Japan, there was already opposition against traditional hardware oriented product development. So they designed products according to the cultural demand of the people using the products, and suggested the concept of human ware to be integrated in the technological process. Also, America's leading school Carnegie Mellon University and IDEO, a leading design firm, have already invented new services at government offices and service and business improvements, finding new opportunities for companies by designing invisible software and contents.

Designers of the information, knowledge and creative era immerse in the fundamental meaning and purpose of the design object. As they design the physical and mental forms and contents, and the hardware and software, this enables them to carry out the actual synthetic role in designing human living as a whole.

- Designer: Increasing Role of Coordinator as Multiple Interdisciplinary Designer

As mentioned above, the designers of the information, knowledge and creative society must perform with a professional attitude that can interconnect multi-disciplinary professions and break down the boundaries of existing physical design methods.

For instance, e-commerce adopted innovative distribution and broke the boundaries of the field of interior design. Under the design concept of total living, experts from multi-disciplines got together and developed designs to amalgamate databases, imaginary spaces and the imaginary images of the product. Also, with the ubiquitous IT revolution, architecture in future will be oriented toward IT technology, which means designers, architects and IT engineers will work as a design network and be in great demand. In order for current designers to collaborate with professionals in IT, architecture and other disciplines, a generalist-like professionalism is needed.

⁶ Yoo-sup Ko, *The Natures of Chosun Art Culture (1974)*, Korean aesthetician Yoo-Sup Ko said '(Arumdaum; Beauty) appears on the summit in the knowledge' a close relationship being tied between knowledge and beauty can be seen. In a way 'creation of the invisible intelligent concept' plays an important role in creativity of the environment and the lives of beautiful human which is the ultimate design aim.

In other words, designers in the past were professionals creating form-oriented beauty, but the designers in the future must be able to solve design problems by merging design with other disciplines, like an orchestra conductor who knows how to sublimate art into desirable cultural life. So in order to play the role of a Coordinator as stated above, the designer needs a vision of the future and a strategy to actually practice it.

Furthermore, in order to solve the global problem of serious environmental damages, designers must have an insight on society and the environment and have a social conscience. Designers must feel a long-term responsibility for their designs and handle through the continuous changes as time passes – including the use, fix, update and waste factors.

Synthetically speaking, the future of design is related to the following 2 points:

The first is 'the creation of intellectual values that are visible and invisible', and the other is 'solving the overall social system problems outside the industrial product boundary'. And as for the methods, one is 'sustainable value allowing environmental development through harmonious improvement' and the other method is 'a state of balance in harmony with the environmental system'.

Relating to the above aspects, the aim of new design in the information, knowledge and creative society can be thought of in a new way 'as balanced living in human and environmental organizations based on the interrelationship of human, society, nature and the desirable creativity of intellectual and physical values'.

As a conclusion, designers should no longer be able to think in a closed-up system. The meaning of human life needs to be thought of as a scale itself, and the problems through the complexity of people clashing must be solved in a harmonious way.

The following is a quote from Ettore Sotssas

"You may feel satisfied after buying a car, or after you go and entertain yourself at a disco. This is the satisfaction of a temporary desire. There may be nothing left after that. Now, this routine can proceed infinitely and become a series bit of nonsense unless you realize pleasure and satisfaction has a limit. My question to this culture of consumption is this: why do we continue along this way despite the obvious nonsense? So I put my hope into my work: to make people think about life. I do not know what the future will be. Still, what I spoke of earlier could be a substantive response to your question. I think designers need to reflect on their position in society and what they can do as designers. If moral value, such as the good and

beauty, exist in a spiritual sense, then society can become better. But if they do not exist, then I think we are in a world that is moving along and the fact is we shall disappear some instant in the future”⁷

4. THE DIRECTION OF DESIGN EDUCATION IN THE KNOWLEDGE AND CREATIVE SOCIETY.

The aim: The value creation of human life in harmony with diversity, integrity and socio-environmental values.

Education and research in design is the fundamental of design development. The results spread to related industries and the entire society step by step, which makes its role very important.

Now, society is moving on from the industrial society, in which materialism, separation and analysis are prevalent, and is unfolding into the information, knowledge and creative society. In this context, design education, which focused in the past on the industrial society, a society which is industrial and corporate oriented and built on the materialistic economy and competitive logic, should now respect the mental, physical and diverse relations between humans and the socio-environment, and also seek to create a harmonious environment for human life through the balanced development of these values in the information and knowledge-based society.

- The structure: research and development-oriented, advancement in education.

Experts foresee that in the future knowledge-creative society, the creation of new knowledge (software or knowledge base) based on IT and the value of life will be the key to creating additional value, and these R&D centers will be located in the universities. In this sense, the design university will become the general experimental institute for new value creation by connecting the research, knowledge and creative businesses. And due to demand for total design education at these R&D centers, design education will broaden its width and depth, and design education centers will have the tendency to be upgraded to the level of graduate schools, because of the emphasis on the importance of logic, creation and multi-curriculums.

- The content: education related to intellectual and cultural values.

Design education should move out of manufacturing technology development connected to the external and materialistic value of the industrial society of the past, and develop content suitable for a society with an

⁷ Ettore Sottsass (1997.12), AXI

immaterial, knowledge and creativity basis. In order to realize this, future education should be oriented towards the growth and training of manpower, which will lead to the creation of a future environment through the R&D related to various intellectual values, connected with human life, and the acquisition of its methodology. Accordingly, in the educational curriculum, the substantial interpretation of new technology, unique culture, globalization, ecology and water will be taken seriously. The detailed educational programs, besides technological and manufacturing education, will be concerned about the future society and human life. The programs essential for this will cover: 1) the human-socio sciences, like epistemology, phenomenology and anthropology, 2) the most advanced science and technology, 3) the understanding of history, society, culture, the environment and moral establishment, 4) research on information and communication systems and creativity theory, and 5) marketing and management. Such design education will support and provide a diverse range of knowledge and culture related to the designer in response to changes over time. Furthermore, the industries in the future intellectual society will give more importance to the areas following: creation, entertainment, culture, education and research along with the communication media, information tools and information services. Design education in the past was conducted to focus on the areas of the automobile, products, graphics and craftsmanship. Design education in future society will be restructured to meet the requirements of various aspects of human life, for example, education centered on operation, education and entertainment related to human life.

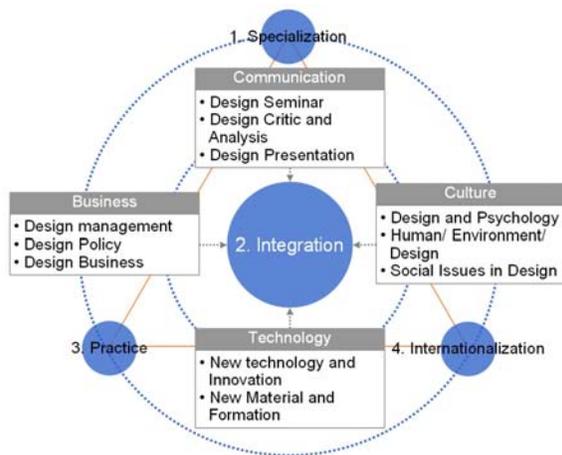


figure 2: structure of new design educational program

- Universities preparing for future design education.

We can see the new educational trends, such as, the amalgamation of R&D functions, the improvement on programs, the multi-curriculum system, and education focusing on intellectual value creation, in the new design educational systems developed by many countries all over the world. First of all, one of the best model programs in terms research orientation, multi-curricular integrated education, intellectual value creation and

program upgrade is the Media Arts & Sciences Program offered by The School of Architecture and Planning of MIT. In this education program, there is research on the major areas of future society related to Information & Entertainment, Learning & Common Sense and Perceptual Computing and teaching method is conducted by way of lectures and research in the Media Lab.

The Media Lab, which was founded in 1985 by experts in the area of perception, education, music, graphic design and holography, has been supported by 150 or so companies all over the USA, Europe, and Asia. The research institute shows the new direction in future design education through research related to the sponsor companies in such areas as education, play, entertainment, artificial intelligence, and interface design. IIT (Illinois Institute of Technology), located in the USA, has a program providing mainly graduate education covering Human Centered Design dealing with the interface of humans and tools and Design Planning concentrating on research and strategic design. IIT leads design research through programs related to design research and social education, such as the Research Initiatives program, the Corporate Research Associates program and the Executive Programs, and adopts a strategy of new design education by merging with industry.

UIAH (University of Art and Design, Helsinki) in Finland has 10 or more subjects in the design department, and more than 21 graduate school courses. UIAH has a special program composed of a leadership program related to the education of industrial designers and the international design business program (IDBM) of design, technology and management specialty, and the program is run successfully. The new media department at UIAH University aims towards the future information and culture society and runs the program jointly with the Finland national media research development center (LUME).

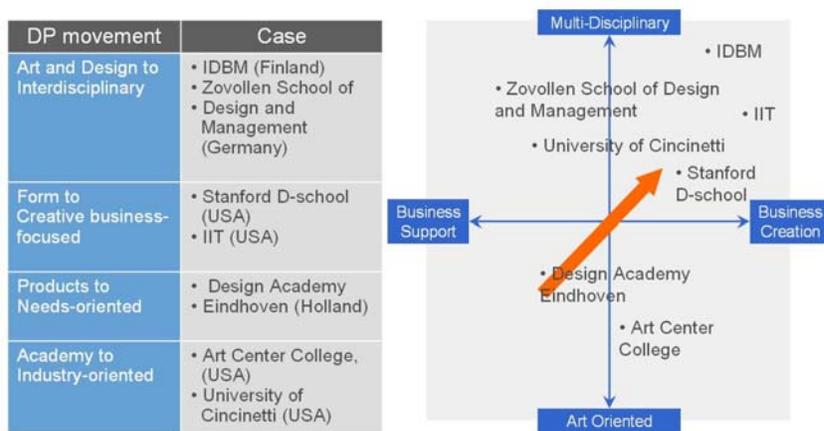


figure 3 : design program movement

5. THE KNOWLEDGE AND CREATIVE SOCIETY AND DIRECTION OF THE DESIGN INDUSTRY

- The increase of design opportunities and diverse intelligent value and imaginary space

Design in the Industrial era was viable as the physical technology and production markets were highly related to it. The overall physical value has in the knowledge and creative society converted to an intellectual value. Together increases in design activities in actual and imaginary spaces, opportunities in design are noticeably expanding. Design business in the knowledge and creative society has moved away from the past form-oriented operation and emphasizes operating in a total conceptual mode. According to a paper by IDSA: (Industrial Designers Society America) 1) entrepreneurs are moving from creativity-oriented basic formation, and are looking forward to creating innovative concepts, 2) the higher importance of design activity in product strategy, product defining, and detailed development structures is reflected on greater expectations, 3) from the design of a single product, towards managing the entire process through industrial innovation, 4) giving the job to a company with staff from various professions rather than to a simple design firm, 5) entrepreneurs are increasingly using experts from the outside and the environment of design businesses are changing rapidly.⁸

- The change from the consultancy business to creative venture design business.

Furthermore, the notion of future design business will expand from the simple professional design consultancy of the past to the independent development of creative design and branding, and the number of businesses which provides total service will increase. Especially as the manufacturing, distribution and service businesses become more active, together with the development of computer communication networks, opportunities in value-added ventures in design branding will increase further. The arrival of the decent and harmonious human life and the society established on the basis of design may make the designer's creative ideas more short-lived than they were at the time of venture business. The Media Lab at MIT connects the various values required for human life, such as electronics, communications, multi-media and games, with technologies, and creates diverse experiments on the extraction of invisible values and meaning. The Media Lab plays a pioneering role in venture design in the information and knowledge era. The creative design venture business can enable the designer's vision to harmoniously integrate human lives with technology. For a successful operation in design venture business, comprehensive know-how including design ideas, production, distribution and advertisement is also required.

- The systematic connection, research and innovation and design business organization in consideration of user participation.

⁸ 1996 Consultant Office Operated, IDSA (1996).

While the production infrastructure in the agricultural society is land, it is the factory in the industrial society. Likewise, the production infrastructure in the knowledge and creativity based society is the organization, and the organization of design activities will become a very important factor in future design competition. The direction of design's re-organization should be focused on the creativity of the group concerned, and, for this purpose, the following things must be taken into consideration: decentralization, material saving, diversity, agility and flexibility, the serious consideration of response, user-orientated work, swift response to market and horizontal mutual relations. In particular, the closed-up design work by in-house design organizations should be opened up and connected with diversified organizations such as outside design consultants and university research centers, in order to cope efficiently with the various requirements of the future and obtain different information and ideas. For example, major Japanese companies such as Sony, Cannon, Nissans Auto and Japan Electric have jointly formed the Tokyo Design Network (TDN) to research on the notion and possibility of new design and uniqueness of the Japanese products, and put the research results into industrial practice. One of the ways to create new designs can thus involve expanding into networks outside the company.

Moreover, the major role of the future design activities will be concerned with outlook, imagination, experimentation and creativity. The formation of a design-friendly environment for such activities and to build cooperation will become more important than anything else. It follows that incessant R&D investment in research on future design ideas and their development is needed, and all the personnel concerned should participate in the research process in a democratic way. The development of computer networks will make participation in this process more convenient. The Computer Science Lab (CSL) emphasizes traditional design R&D and experiments relating to human life in cyber space by using the new media and with user participation. And the Lab always tries to embody the venture ideas of young people all over the world, and helps new products enter the market by inducing users to participate in the design process.⁹

6. CONCLUSION

Now, the arrival of the knowledge-creative society and greater requirements on designs are bringing many changes. The design business should see through the essential value of the future design, reinterpret it, and find actively ways to cope with the changes in its environment. The following is a summary of the values of the knowledge-creative society that have been discussed throughout this study.

⁹ <http://www.sonyosl.co.jp>

1. Design aims to propose a vision on the balance of material, intellectual, cultural and ecological values, emphasizing its harmony with the entire environment and human life.
2. Design's target areas include immaterial, imaginary and notional design values such as software, the new media and the social system, and will become deeper and wider.
3. The designer should play not only the roles of the general coordinator who integrates the various values in the diverse cultural and social value system, but also the role of the strategy planner to lead the development of these values.
4. The design industry has a soft value including intellectual values, imaginary space and social systems, and its opportunities will further increase as it expands.
5. Design business will develop into the creative venture design business oriented to high-level value added independent design brand development.
6. Design techniques and organizations based on the network will go beyond confined areas in an open and decentralized way, and will develop close cooperation with different areas.
7. As the initiator of the creativity movement, design education will integrate its advancement with the function of R&D. The university will strengthen its cooperation with the industries in the provision of multi-curricular education in the technology, management and literature in order to lead creative activities.

In the above research, the proposed concept of new design concept of the knowledge- creative society and designer's role, design education and direction of the industry are all discussed and shared in the field of design. Through this, designers' contribution in leading the knowledge and creative society is anticipated. On the basis of these new design values, designers will take control of social demands and contribute to the core of social life. This is when the 21st century unfolds into the design era with advances in the national economy and improvements in human lives and culture.

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