Industrial Design in Indonesia: Education, Industry, and Policy
Sulfikar Amir

Introduction

It is quite clear that industrial design initially emerged in developed countries. When it was imported by so-called developing countries, the development of industrial design experienced a different path from that of developed countries due to the economic, political, and social differences.[1] In spite of these differences, it presumably is acceptable that industrial design cannot be separated from the context of industrial development, both in developed countries and developing ones.

From this standpoint, a discussion of industrial design in Indonesia is interesting since this country has some characteristics that are relevant to industrial design development. Situated in the archipelago between Asia and Australia, Indonesia is the fourth-most populated country in the world. With 210 million people, it is considered a potential market for industrial products and, consequently, a promising place for industrial investments. Since Indonesia began its national development program, transforming its economy from an agricultural base to an industrial base, it has seen an economic growth of seven percent per year for more than thirty years, with 25.5 percent of the gross domestic product contribution coming from the manufacturing sector in 1997. This has made the country one of the most important markets in the world.[2] In Indonesia, the government played a strong role in all economic decision making. This condition certainly is relevant for industrial design, since its development is partly influenced by government policy.[3]

Economic and Industrial Development

Historically, industrial development in Indonesia began in the 1930s, when the Dutch occupied Indonesia. After the colonial era, which ended in 1945, the industrial sectors, however, did not experience any significant growth since the government at the time was more concentrated with political aspects.[4] In 1966, the New Order regime took over the government and began a program of economic rehabilitation. Mostly influenced by American-educated economists, the government initiated industrial development.

Mari Pangestu divides the New Order government era into four periods according to the economic condition and the government's roles in industrialization.[5] The first is called the stabilization and rehabilitation period. During this time, the government

1 Gui Bonsiepe, "Developing Countries: Awareness of Design and the Peripheral Condition" in *History of Industrial Design 1919-1990: The Dominion of Design* (Milan: Electa, 1991).

2 Jeffrey E. Garten, *The Big Ten: The Big Emerging Markets and How They Will Change Our Lives* (New York: Basic Books, 1997), 11–12.

3 Jacques Giard, "Canadian Design and the National Agenda: Toward the Year 2005," *Design Management Journal* 7:3 (1996): 28.

4 Thee Kian Wie, *Industrialisasi di Indonesia* (Jakarta: LP3ES, 1996), xx.

5 Mari Pangestu, "Pengantar." in T. K. Wie, *Industrialisasi di Indonesia* (Jakarta: LP3ES, 1996), xxi.

attempted to recover the macro economy by launching deregulation in international trading and the exchange system.

The oil boom marked the second period, from 1973 to 1981. With a large amount of money from oil revenues, the government fostered industrialization by launching an import-substitution policy, by creating new investment rules, and by establishing new state-owned companies.

The dramatic drop in oil prices during the 1980s marked the third period. At the time, the government was responsible for a number of ambivalent policies. Many large projects were abandoned, but the protection policy remained in existence.

It was not until 1986 that the government anticipated the critical nature of the situation. This is when reorientation, the buzzword in the fourth period, took place. It emphasized the improvement of industrial efficiency and competitiveness. The government began to overlook domestic markets and to focus on export ones. Soon afterward, the government launched a set of deregulation policies in order to positively stimulate the market and investments.

In addition to Pangestu's chronological divisions, two problems challenged the Indonesian economy in the 1990s. On the one hand, the General Agreement on Tariffs and Trade (GATT) and other similar agreements forced Indonesia to open its market. On the other, the contribution of Indonesian products to the world market, mainly textile and wood, was still very low, around 0.51 percent in 1997. Wie's study revealed that the problem was rooted in the low competitiveness both in productivity and innovation.[6]

National Competitiveness
The low level of competitiveness, particularly the lack of industrial innovation, was the main problem for Indonesian industry entering the 1990s. The effort to improve national competitiveness initially came from B. J. Habibie, the former Minister of Research and Technology. He promoted high technology as the accelerator of economic growth, with the assumption that mastering technology should begin from the top.[7]

With his strong political influences in the New Order government of the 1990s, Habibie dominated economic policy by accentuating the competitive advantage concept, as opposed to the comparative-advantage idea advocated by most economists before him. Nevertheless, Habibie's high technology program received much criticism from economists. It was said that the program was only burdening the economy instead of increasing economic growth. This was because the program was extremely costly on the one hand, yet had no significant result for the economy on the other, something that made the government run under a deficit budget.[8]

However, reference to Habibie's policy is relevant to the development of industrial design in Indonesia. In spite of faults from the point of view of economists, Habibie's programs impacted

6   Thee Kian Wie, *Industrialisasi di Indonesia,* 223.

7   Bacharuddin J. Habibie, *Ilmu Pengetahuan, Teknologi, dan Pembangunan Bangsa: Menuju Dimensi Baru Pembangunan Indonesia* (Jakarta: CIDES, 1995), 90.

8   Kwik Kian Gie, *Analisis Ekonomi Politik Indonesia* (Jakarta: Gramedia, 1994), 19.

industrial design because it was to be utilized more intensively in industry, particularly in high technology-based industries. Eventually, Habibie's programs shaped the course of industrial design in the 1990s.

Industrial Design Education

Industrial design education in Indonesia was rooted in art education at the Institute of Technology Bandung (ITB), the oldest university of technology in Indonesia, founded by the Dutch government in 1920. In fact, ITB design education initially began in 1957 at the time when the university offered an interior design program. It was not until 1972, however, that the industrial design program began, after two ITB art and design educators, Dibyo Hartono and Imam Buchori, who had been studying industrial design at the Rhode Island School of Design (USA) and the Danish Royal Academy of Fine Art (Denmark), returned from abroad.

During its first years, the industrial design program was based on arts and crafts. Two factors influenced this situation. The first was the dominance of an aesthetic paradigm from the Dutch lecturers on the faculty as Buchori explains:

> The Dutch lecturers (who were mostly brilliant artists and art theorists) taught art criticism, academically based on references of history and the sociology of art, as well as modern aesthetics. However, in reality, design education at the time had more emphasis on the aesthetic element rather than the method of problem solving, which then was practiced in Europe.[9]

The second factor was the consideration that Indonesian industry was still in its early phase and, presumably, did not yet require industrial design.

Within an art atmosphere, ITB's industrial design program became the model for programs elsewhere. In the late 1970s, the University of Trisakti in Jakarta followed ITB's lead and opened its own program. For almost a decade, these two schools were the only universities in Indonesia where industrial design was taught.

After the government launched the non-oil export program as a reaction to the fall of oil prices in the 1980s, the industrial design program at ITB, and later at the University of Trisakti, began to include industrial products in student assignments. Getting more enthusiasm from students, educators quickly turned to industrial-based products and included technological components in the curriculum to balance the aesthetic ones. From that point, industrial design education pointed toward a new direction in which the industrial elements were joined with aesthetic ones. Later, this direction was the basis for the industrial design program at the Institute of Technology Sepuluh November (ITS) in Surabaya, which opened in 1986.

9   Imam Buchori, "The Design Education in Developing Countries: Case Study of Indonesia." Unpublished Paper, Institute of Technology Bandung, (1996): 2.

The number of industrial design courses increased in the 1990s when several private universities in Jakarta and Bandung started their own programs. This was because the demand for industrial designers had increased greatly. Concurrently, the desire of high school students to study industrial design also increased. In 1998, seven universities in Jakarta, Bandung, and Surabaya had industrial design programs.

The first graduate program in design opened in 1989 at ITB. Following this, in the 1998 curriculum, ITB industrial design professors started to implement research-based pedagogy, which included topics such as semiotics, design management, and ecological design. These additions to the curriculum were implemented after some ITB educators came back from their studies abroad and joined others who had completed their graduate studies at ITB. Besides, the nature of ITB as a science and technological university had firmly influenced its industrial design program to incorporate scientific approaches to the design process. This was presumably a strategic move undertaken in order to produce knowledgeable industrial designers with managerial and research skills. The development of industrial design education is illustrated in figure 1.

Even though the number of industrial design programs in Indonesia continues to grow, it is still small compared to the growth of industry. According to Industrial Statistics reported by the Indonesian Ministry of Trade and Industry, in 1995 Indonesia had 2,157, 805 small-scale industries and 21,415 medium and large-scale industries. If every industry requires at least one industrial designer, then thousands of industrial designers are needed, which means more industrial design education programs need to open or the existing ones will have to be expanded.

Figure 1
Chronology of the economic events that have influenced the development of industrial design education.
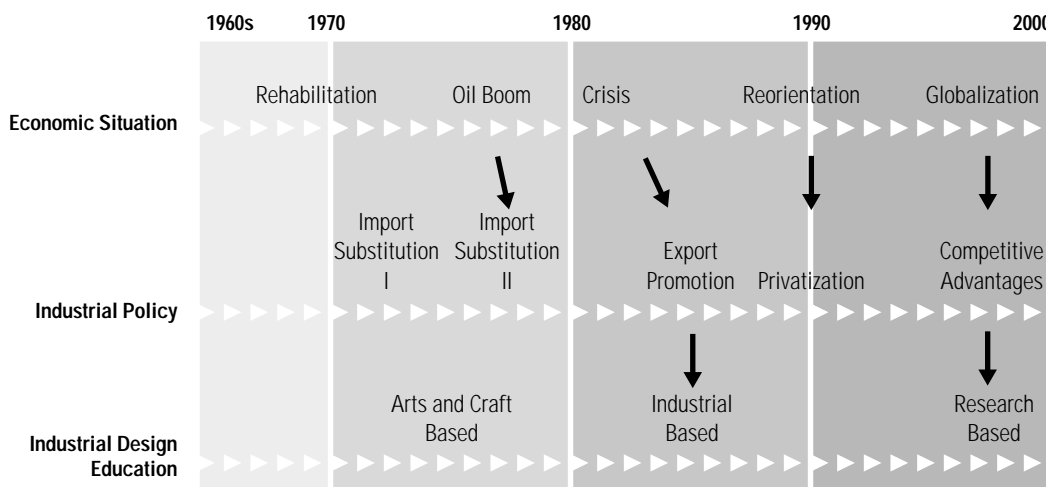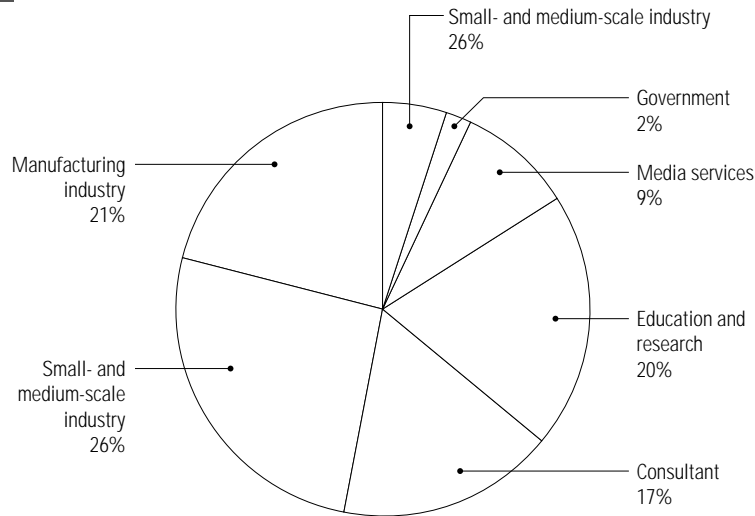
Small- and medium-scale industry
26%

Government
2%

Media services
9%

Education and
research
20%

Consultant
17%

Small- and
medium-scale
industry
26%

Manufacturing
industry
21%

Industrial Design and Industry
Currently, there are approximately three-hundred and fifty univer-
sity graduates in industrial design working in various fields. A
survey undertaken by the author[10] reveals the composition of the
fields as represented in figure 2.

About twenty-one percent work as in-house designers for
manufacturing industries such as electronic, vehicle, aircraft,
telecommunication, and home appliances. Another twenty-six
percent work for small and medium-scale industries either as the
owner or the designer. These small and medium-scale industries
include furniture, leather products, wood and rattan products,
ceramics, and gifts and souvenirs. Another seventeen percent have
established or work for design consultant offices. Yet another
twenty percent work for both public and private universities in
education and research. Media services such as Internet service
providers, television stations, and mass media (nine percent), two
percent are in government agencies—particularly the Department
of Trade and Industry—and 5 percent are in the trading and travel
business. This section focuses on two fields: manufacturing and
small-and medium-scale industry.

Between the 1970s and the 1980s, more industrial designers
worked in small-and medium-scale industries than in the manufac-
turing industry. Two factors were responsible for this situation. First,
the arts and crafts-based focus in industrial design education led
many graduates to work in related fields such as craft-based indus-
tries. Second, and as stated earlier, industry was still in its initial
phase, focusing more on building infrastructure. It did not need
product development.

When the government started export promotion in anticipa-
tion of a heightened economic crisis after the fall of oil prices in the
1980s, industrial design graduates began to enter manufacturing

10   Sulfikar Amir, "The Development of
Industrial Design in Indonesia: A Case
Study in the Electronic Industry."
Master's thesis, Arizona State
University, (2000): 40.

industries. Two factors produced this situation. First, the change of focus in the education system enabled industrial design students to gain more knowledge of industrial products. This better prepared them to enter industry. Second, the government's recommendation for industry to open research and development (R&D) divisions created a place in which industrial design graduates could pursue a career. Nevertheless, the road for industrial design graduates was not a smooth one. At the time, the impact of most industrial designers was on graphics and applied decoration. This was because the perception of industrial design was still strongly associated with fine arts, a perception that hindered industrial designers who wanted to be involved in product development.

Gradually, industrial designers gained more opportunities and better positions. They moved from graphics and decoration to the product creation process. Two factors influenced this situation. First, industrial designers had shown the positive impact of their work on the company's business performances. Second, the competition in the market compelled manufacturing companies to enhance their capabilities in new product development, particularly in the design factor.[11]

From this perspective, it is possible to develop a profile of industries in Indonesia that employ industrial designers, and to see their acceptance of industrial design. Similar to Bonsiepe's categorization of industry in peripheral countries,[12] there are four groups of corporate industries in the composition: multinational corporations (MNC), private local corporations (PLC), state-owned corporations (SOC), and small-and medium-scale enterprises (SME).

The first group, multinational corporations, consists mostly of capital intensive, relocated industries coming from countries where the labor costs are so high that it makes production no longer feasible. Two economic reasons persuaded these corporations to come to Indonesia. First, they were attracted by cheap labor, and, second, they were impressed with the potential market of Indonesia quantitatively. In fact, some of these corporations employ local industrial designers in order to adapt their products to local needs. However, they seldom allow local industrial designers to develop totally new products. Indeed, the government's rules oblige these corporations to have local investors involved as joint partners. Unfortunately, technology transfer, including industrial design development, is not on the agenda of local investors. They do not really care about technological development and industrial design. As a result, industrial design in these corporations plays only a minor role.

The second group is the private local corporations (PLC), mostly capital-intensive industries. This group can be divided further into two groups. The first consists of corporations that are unwilling to hire industrial designers for two reasons: they presume that doing product research and development, which are the duties

11   Sulfikar Amir, "Pengembangan Konsepsi Manajemen Desain Produk Industri Berdasarkan Analisis Variabel Desain." Undergraduate thesis, Institute of Technology Bandung, (1996): 128.

12 Gui Bonsiepe, "Precariousness and Ambiguity: Industrial Design in Dependent Countries," in Julian Bicknell and Liz McQuiston, *Design for Need: The Social Contribution of Design* (Oxford: Pergamon Press, 1977), 15-16.

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of an industrial designer, is costly and uncertain. Thus, they do not want to take risks for product development. And, because there still is no legal protection for industrial design, it is possible for this group to freely copy the designs of existing products in the market. Hence, instead of spending money on hiring industrial designers to design their products, this group uses plagiarism as a means to minimize investment.

The second group of PLCs consists of those companies willing to hire industrial designers. The aim of industrial design in these corporations relates to the strategy of product modification. It seems that what Alpay Er revealed about the function of industrial design in product modification in the Newly Industrialized Countries (NIC), industry can be found in these corporations.[13] However, product modification in PLCs is not only to reduce cost, which is what occurred in the Asian NICs, but also to adapt to local demands, as was the case in the Latin American NICs. Industrial design found its place when these corporations began to develop their own brand, and built research and development divisions.

The high-profile mission for technology development can only be found in the third group or state-owned corporations. As mentioned before, after Habibie began to promote high technology-based industry, the pursuit of technology development was undertaken in state-owned corporations under his authority. Through the Agency for Developing Strategic Industries (BPIS), Habibie embraced the aircraft industry; the heavy equipment industry; the electronics and telecommunication industry; the explosive, military, and precision industry; the maritime industry; the land transportation industry; the material industry; and the biotechnology and petrochemical industries.

Certainly, not all of these industries needed industrial designers. However, it seemed that more positions opened for industrial designers when a number of them entered these high-tech-based industries such as the aircraft, electronics and telecommunication, heavy equipment, and land transportation industries. The Indonesian Aircraft Industries (IPTN) in Bandung represents a good example of how industrial design can play a major role. This company has about fifteen industrial designers working in various positions such as staff industrial designer, department head of the ergonomics laboratory, department head of industrial design, department head of product modeling, deputy of product research and development, and head of the aircraft interior division. Even though the number of industrial designers in this company is not comparable to the number of engineers or the management staff, it showed how industrial design was well accepted in the high technology environment.

Nationalism definitely is the most influential factor that has allowed technological development, including industrial design, to grow in state-owned corporations. However, there is a fault in this

13 Alpay Er, "Development Patterns of Industrial Design in the Third World: A Conceptual Model for Newly Industrialized Countries," *Journal of Design History* 10 (1997): 297.
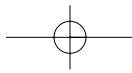
situation since these corporations are highly politically intensive, which means they are very sensitive to political change. It is common in Indonesia that, once the government changes, the policy also changes. Consequently, the position of industrial design is fragile unless these corporations are separated from government involvement.

Finally, the fourth group consists of small-and medium-scale enterprises (SMEs). Even though Bonsiepe sounded unsympathetic to SMEs for their artisan nature, one may not ignore the potential contribution of this sector to industrial design development in Indonesia. It has been the largest area for industrial designers. While it is rare for large-scale industrial corporations undertake research and development, SMEs provide an area for industrial designers to undertake product development. As a matter of fact, the number of SMEs is much greater than large-scale industries.

The aim of industrial design in SMEs is not only product development, but also job creation. This especially is the case because most industrial designers in this sector are designers as well as owners. Even though the content of technology in this sector is not as great as in large-scale industries, it does not necessarily mean that industrial design is relegated to a merely artisan nature, because industrial designers in SMEs have to consider many factors, from production to marketing. This provides them with a more challenging role.

Government Involvement: The Design Center

Qualitatively, industrial design has evolved from a trivial discipline to a significant one in Indonesian industry, even though the number of industrial designers still is low compared to the number of industries. However, industrial design could have a better future if the government, as policy maker, provided political support as Giard says:

> Clearly, industrial design did not and could not exist in a contextual vacuum. In fact, it never has. Industrial design has always been an integral part of the greater picture of a nation, a picture that includes the political system, the economic model, and the cultural milieu.[14]

What Giard stated implies that the government—whether it is reactive or proactive in its policymaking—can never affect industrial design in a neutral way. The Japan Industrial Design Promotion Organization (JIDPO) is a good case study of how government can become involved in promoting industrial design in order to improve the industrial competitiveness. South Korea is another example. Under the Ministry of Trade, Industry and Energy, the Design Policy Division was established in 1996. It has taken charge of setting and implementing design promotion policy in strategic tasks.[15] Indeed, promoting industrial design in industry does not

14   Jacques Giard, "Canadian Design and the National Agenda: Toward the Year 2005," 28.
15   Kyun Won Chung, "Strategies for Promoting Korean Design Excellence," *Design Issues* 14:2 (1998): 13.
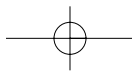
necessarily only come from the government. Some models in other countries show that the policy of design promotion also can be initiated by the private sector. However, considering that the government has a strong position in the Indonesian economy, it needs to trigger the policy to get optimum results.

As a matter of fact, the effort of promoting industrial design to Indonesian industry through a design center has come a long way. It can be traced back to the time when an ITB design faculty team was assigned by the government to design and build Indonesia's pavilion for Expo 70 in Osaka, Japan. More important, the task was not going to be a mere aesthetic challenge, because the team had a mission to present a positive image of Indonesia which, at the time, was just starting a national development program. The project was done with such success and was so impressive that the government realized the importance of design,[16] particularly industrial design, because of its direct connection to the industrialization process.

Since then, a number of seminars and workshops have been conducted on industrial design, such as that held in 1974 by the Ministry of Industry. Following this, Prof. Carl Aubock (from Austria), the former president of the International Council of Societies of Industrial Design (ICSID) in 1975, was invited by the Ministry of Trade to conduct a study on the potency of Indonesian design. The study was endorsed by the United Nations Industrial Development Organization (UNIDO). From his study, Prof. Aubock wrote a report entitled "Indonesian Design 1975," which contained a recommendation to establish an Indonesian design center. The same recommendation came from a meeting called "The First Meeting of ASEAN Experts on Design and Crafts," held by the Ministry of Education and Culture. Based on its recommendations, a national seminar on a design center was held in 1977, in which the Japanese designer, Dr. Kenji Ekuan, the ICSID president at the time, was invited to speak about the importance of such a center. Unfortunately, by the 1980s, it had yet to be built.

A turn of events occurred in the end of the 1980s, when the government formed a ministry to deal with the increasing utilization of domestic products, in order to anticipate imported products. This policy change occurred when the government gradually removed its protection policy. The ministry commissioned ITB staff to conduct a feasibility study for a design center with specific attention to three aspects: institutional function, facilitating resources, and programs and processing. The study lasted a year and culminated in a very important recommendation on the position, the location, the functions, and the financing of the design center. Unfortunately, the proposal was ultimately abandoned as the ministry was disbanded in the next presidential cabinet.[17]

16 Solichin Goenawan, "Desain di Indonesia," in Agus Sachari *Paradigma Desain Indonesia* (Jakarta: Rajawali, 1986), 68.

17 Imam Buchori, "The Design Education in Developing Countries: Case Study of Indonesia," 4.
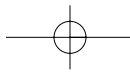
The prolonged procrastination surrounding the design center was the result of two factors, as Buchori indicates:

> The expectation to realize the idea of establishing the design center always has been stumbled by bureaucratic problems, which overly tend to see design from individual interest. This is the first reason. The second is due to the lack of awareness of the design strategic role in a macro economy. Moreover, there is insufficient support from the industrial community, particularly those bound to the investment agreement where design policy is under their counterpart.[18]

It was not until 1996 that the Indonesian Design Center (PDN) was finally established under the auspices of the Ministry of Cooperative and Small Medium Enterprise (SME) Development, following the establishment of the Indonesian Design Council in September 1995. The center is expected to implement design promotion measures on the basis of policy direction recommended by the Design Council.

The center itself has a role to formulate and conduct programs in order to educate the industry—especially small-medium enterprises—and the public about the importance and the effects of design. The design center's programs mainly encompass human resources, public information, consulting, R&D, quality management, and intellectual property rights, cooperation with design organizations, and the provision of information. However, its operations continue to be dominated by its Japanese counterpart, the Japan International Cooperation Agency (JICA) and the Japan Design Foundation (JDF), both in programming and financing.

The establishment of the Indonesian Design Center, however, was not flawless. Even though several programs were launched pertaining to the promotion of industrial design, its impact on Indonesian industry is still far from the expected one. There are two factors responsible for this condition. First, the Indonesian Design Center did not involve corporate industries in its programs. This is unfortunate because the involvement of those industries is very important since they are the ultimate users of what the design center provides. This involvement could be in the form of investment, provision of information, programming, or problem solving. Without this involvement, the programs will not match the industry's needs.

The second factor has to do with the fact that the Ministry of Cooperative and SME Development, which deals with mostly rural-based low economic cooperative institutions, has not the sufficient political force to deal with corporate industries. This is a disadvantage for the design center. This is not to say that cooperatives and SMEs do not have contexts that connect to industrial design because they do. However, the ministry dealing with this sector is not influ-

18 Ibid.
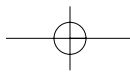
ential in matters of industrial policy. This is definitely not an ideal condition for the promotion of industrial design in industries, either in small-medium-scale industries or in large-scale ones. Under the Ministry of Cooperatives and SME Development, the institutionalization of the Indonesian Design Centers can be said to be futile because of industry's low esteem for the ministry. This had hindered the Indonesian Design Center in approaching industry.

The situation could have been different if the design center was under the Ministry of Trade and Industry like its Japanese and South Korean counterparts. The argument is that, on one hand, the Ministry of Trade and Industry certainly provides the Indonesian Design Center with direct connections to corporate industries, either to small-medium-scale industries or to large-scale ones, which enables the design center to function optimally in fulfilling industries' needs. On the other hand, because the Ministry of Trade and Industry is responsible for national industrial policy, the design center could have more opportunities for incorporating industrial design in policymaking. Most of all, this institutional problem resulted from the inconsistent policy of the government, which was, once again, rooted in the lack of appreciation and awareness of industrial design.

Perhaps the only positive action of the government for industrial design pertains to legal protection of industrial design patents. Although it is considered late on the scene compared to other countries, industrial design recently has received government attention, particularly from the Directorate General of Property Rights, Patents and Brands, an agency under the Ministry of Justice. This is because the inclusion of industrial design in the Trade Related Intellectual Property Rights (TRIPs) in the General Agreement on Tariffs and Trades (GATT) has forced the Indonesian government to implement legal protection for industrial design through the "Industrial Design Act." If nothing else, this change has made the government more aware of industrial design.

Conclusion

What this paper shows is that industrial design in Indonesia resulted from an idea that was imported from developed countries. The idea presumably was aimed at supporting the Indonesian industrialization process. However, this had implications for the development of industrial design, where the idea did not meet the ideal reality of industrialization, which was assumed to leave a large space for research and development activity.

Industrialization in Indonesia started from the import substitution policy, which is a common phenomenon in developing countries. However, the ambiguous policies that existed for almost two decades substantially obscured the effort to promote industrial design in industry. And since industrialization in Indonesia appar-

ently built a big wall hindering industrial design from entering, small-and medium-scale enterprises (SME) with arts and crafts bases were the only sectors in which industrial design could be employed.

Nevertheless, industrial design education has at least experienced a growth. Strong evidence for this statement lies in the fact that it evolved from paradigms based on arts and crafts to ones based on industry and eventually research, incorporating scientific approaches. But quantitatively, the number of industrial design programs in universities has not been growing significantly compared to the growth of industry, neither large-scale nor small- and medium-scale. The small increase growth number from two programs in the 1970s to seven in the 1990s confirms this unequal growth.

The factor that indirectly contributed to the beginning of industrial design utilization was the fall of oil prices in the mid-1980s. Pangestu's study shows that this forced the government to gradually open the economy by diminishing the import substitution policy and by promoting export programs. Certainly, this implies economic liberalization, bringing a spirit of market-based competition to the economy.

Market-based competition, along with the export promotion, was a momentum for industrial design to develop. The momentum had created a situation in which product development was necessary for industrial corporations to compete. Thus, from this standpoint, industrial design built its path in the industrial process, expanding from solely arts and craft-based sectors as it had existed in previous decade. It seems that what Alpay Er revealed in his NICs studies pertaining to the positive correlation between export programs and the advancement of industrial design,[19] worked in the same way in Indonesia.

Nevertheless, the path of industrial design in the industrial process has not been a smooth one. There were some factors that negatively impacted industrial design. The first was that industrial design was—and still is—strongly associated with fine arts. The misconception of industrial design as a fine art, nevertheless, created a gap between the substance of industrial design and its reality in industry. In this manner, Bonsiepe's indication pertaining to the problem of misunderstanding industrial design as an applied art was true.[20] Being strongly associated with fine arts caused industrial design to fall to a marginal role in the industrial process.

The strong dependency on imported technology was another factor that was responsible for creating a gloomy situation for industrial design in Indonesia. Since most industrial corporations were operated by and using imported technology, no space was left for local technology development, including industrial design. This tends to be a political problem since industrial corporations which were original equipment manufacturers (OEMs), did not allow their

19 Alpay Er, "Development Patterns of Industrial Design in the Third World: A Conceptual Model for Newly Industrialized Countries," 298.

20 Gui Bonsiepe, "Developing Countries: Awareness of Design and the Peripheral Condition," 253–254.
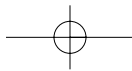
local counterparts to develop technology, including industrial design. Instead, they deliberately perpetuated the dependency in order to keep the market in their hands.

The last factor comes from the actions of the government, which was responsible for the condition that provided no legal protection for industrial design. As a result, plagiarism has been so commonly practiced by local corporations that industrial design has been rendered unnecessary.

The lack of awareness about industrial design was the main problem hindering it in becoming an important issue for the government. It seemed that the government could not accept the correlation between fine arts to which industrial design in Indonesia was strongly associated, and industry. Consequently, this kept industrial design from being included in industrial policies. The problem would disappear if industrial design became associated with technology. From this point, what Bonsiepe suggested that "to be effective, industrial design must be part of a general technology policy, i.e., a set of priorities for technical and industrial development with corresponding allocation resources"[21] is reasonable. And this could be initiated in the Indonesian education system by including industrial design in technological-oriented schools as opposed to fine arts-oriented ones.

21 Gui Bonsiepe, "Precariousness and Ambiguity: Industrial Design in Dependent Countries," 17.