H. Alpay Er

Development Patterns of Industrial Design in the Third World:
A Conceptual Model for Newly Industrialized Countries

This article first critically examines the early literature on the role of industrial design in the Third World and subsequently sets out to explain the dynamics behind the development of industrial design in a group of Third World countries categorized as Newly Industrialized Countries (NICs). For the development of industrial design activity in NICs, the vital ingredient appears to be competition. This is also conditioned by the market orientation of economic/industrial activity, which itself is largely determined by the governmental development strategies in the context of a globally organized world economy. The article concludes with a new theoretical model for the development patterns of industrial design in NICs.

Introduction

In today’s global market industrial design is recognized as a powerful corporate tool, and it plays an increasingly critical role in competitiveness. In an increasing number of design studies, the link between a properly co-ordinated design activity and the competitive performance of companies is widely acknowledged in the industrialized market economies of the West and Japan. In most of these studies, design has been defined as an activity in which market information is transformed into initial ideas—design concepts—and then into a specific configuration of materials and components—technical specifications—to manufacture a new product. In other words, industrial/product design may be defined as a strategic process containing that knowledge about a product from which it can be materialized and positioned in the marketplace, the answers to the basic ‘why’ and ‘how’ questions about a product.

However, little is known about the development of this strategic industrial activity outside the core countries of the global economic system.

Since industrial design has been usually associated with the product innovation activities of the industrialized market economies, the lack of literature regarding the design issues of the Third World may not be surprising to many. Nevertheless, a growing number of peripheral countries have begun to play an increasingly active role in the international economy over the last two decades. Yet, despite the academic attention given to the development of those countries in the economics literature, the development of industrial/product design capabilities in the Third World has long remained under-researched. As Bonsiepe stated in 1977:

Industrial design has advanced considerably in dependent countries, whether for good or ill. Design organisations have been established. Design promotion programmes have been sponsored by local governments in semi-industrialised countries. But, we still lack a critical evaluation of these projects—their success and failures.

This statement remains true, twenty years later. The subject has been largely marginalized in studies of design as much as in studies of technological change and development in the Third
World. Woudhuysen\textsuperscript{3} and Madge\textsuperscript{4} point out that the Third World is generally absent from contemporary discussions of design. As Margolin\textsuperscript{5} also states, little writing on the issue of industrial design in developing countries appeared in the design literature. This lack of interest seems to be related to the general trend that defines design only in the context of the industrialized market economies of the West and Japan.\textsuperscript{6} According to Bonsiepe,\textsuperscript{7} the apparent lack of study on design in the Third World fits into the ideological pattern and parochial self-interpretation of industrialized countries which claim to be on the forefront of history and see everything that happened—and happens—in the periphery as a second-hand history and not something original in its own right. In his own words:

It is all too easy to look at industrial design in the periphery as a second-rate, resource poor and delayed replay of a process through which the industrialized countries have passed during the nine decades in the 20th century when industrial design was transformed into a social reality. However, such parochial vision—admittedly quite common in the center—would not permit to perceive the differentiated reality and achievements in the area of industrial design in the periphery.\textsuperscript{8}

However, the expanding scale of design activity and the level of concern for the development of industrial design education and practice by the governments of some countries in the Third World appear to have a growing impact on world markets,\textsuperscript{9} and such developments have raised issues regarding the nature of industrial change in different social, economic, and political contexts which can alter theoretical constructs of the role of design. In this respect, as a diverse reality which has been marginalized for a long time in the design literature, the emergence and development characteristics of industrial design in the Third World require investigation as an objective fact and deserve to be systematically explored.

With the aim of initiating discussion in this emerging field, this article first critically examines the early literature on the role of industrial design in the Third World, and then sets out to explain the dynamics behind the development of industrial design in a group of countries categorized as Newly Industrialized Countries. There is a great diversity among the countries of the so-called Third World, a general term that is not well defined, together with related terms such as ‘Developing Countries’, ‘Less Developed Countries’, ‘Underdeveloped Countries’, and ‘Periphery’ or ‘Peripheral Countries’. The differences between these terms depend largely on different theoretical approaches. However, all of these terms refer to the same geographical parts of the world, including Latin America, South and South East Asia (except Japan), Africa (except South Africa), and the Middle East (except Israel). The study\textsuperscript{10} from which this article draws its data focuses on the particular sub-group frequently described in the literature of development economics as ‘Newly Industrialized Countries’. These are the same countries that have attempted to gain design capabilities in parallel to their industrial development for the last three decades, although industrial design is still an unknown industrial practice in many parts of the Third World.

**Industrial Design in the Third World: Early Literature**

The design literature on the Third World is limited to a small number of early studies in which the introduction of industrial design into the industrial, economic, and social contexts of the Third World countries is associated with ‘development’ in these areas.\textsuperscript{11} In other words, industrial design was perceived as a ‘problem-solving activity’ directed towards the basic development problems of those countries. Some early and influential studies on the subject even suggested specific ‘developmentalist’ roles for industrial design to play in this new context.\textsuperscript{12}

Of the texts which appeared during the early 1970s, Victor Papanek’s influential *Design for the Real World* (1972) was the most popular. However, Papanek’s work was not primarily about the Third World. His main concern was much more with design in the ‘First’ world and consumerism, and his approach, which can be described as an idealized combination of the ‘basic needs’ and ‘appropriate technology’ concepts, emerged as a by-product of his radical criticism of the role of industrial design in the Western capitalist societ-
ies. According to Papanek, industrial design has, or should have a morally motivated idealist—anti-consumerist—role in the Third World on the basis of those countries' own basic needs. Nevertheless, Papanek's approach, however socially responsible, did not offer any explanation of the dynamics leading to the emergence and development of industrial design in those countries. Neither did it explain the actual role of industrial design in this new context. Although Papanek revised some of his early arguments later, he still maintains that designers have a moral role to play in the development process of the Third World.

Gui Bonsiepe is the second Western designer who looked into industrial design in the Third World. He initially worked as one of the leading figures at the Hochschule für Gestaltung Ulm. After the closure of the school in 1968, he went to Chile to undertake a series of projects for the socialist government of Allende. For most of his professional life, Bonsiepe has lived in Latin American countries where he has made his reputation as a designer/theoretician addressing the design problems of Third World countries. His first significant contribution was a working paper prepared as a basis for discussion between representatives of the United Nations Industrial Development Organization (UNIDO) and the International Congress of Societies of Industrial Design (ICSID). This paper is the first document in which industrial design was clearly defined as a specific tool for the development process of the Third World.

Industrial design should be used as a tool in the process of industrialisation of developing countries. As a matter of fact, industrial design constitutes an indispensable instrument for endeavours towards development.

According to Bonsiepe, the significance of industrial design was based on the argument that it could help in the development of those countries. He definitely shared, though in a specific context, the idea of a 'developmentalist' role for industrial design with Papanek, without referring to the capitalistic nature of industrial design activity. However, the similarity between Bonsiepe and Papanek ends at that point. While in Papanek the absence of a debate on the capitalistic nature of industrial design resulted from a rather naïve and moralist approach, for Bonsiepe it was a result of an ideological perspective. Bonsiepe's theoretical framework for industrial design in the periphery, in which the influence of neo-Marxist and Latin American-based Dependency Theory can easily be detracted, was mainly supported by material from the practical conditions of countries such as Chile, Argentina, and Brazil. He defined industrial design in the periphery as 'the dialectical counterpart of industrial design at the centre', and from this perspective perceived industrial design as a technological variable in the development context of Third World countries. As he pointed out, 'the question of design in the periphery is linked to the problem of technological dependence, and by implication, financial dependence.' In a typical dependency school fashion, Bonsiepe maintained that the technological and financial 'dependency' of national economies in Latin American NICs on the capitalist core through transnational corporations (TNCs) was the main reason for the failure of industrial design to root itself in the local industries.

Bonsiepe, by establishing the first theoretical link between industrial design and socio-economic dynamics in the context of peripheral countries, can be fairly acknowledged for being the founder of this new study field in the design domain. Nevertheless, his early theoretical analysis of the subject, which often reproduced the general arguments of 'technological underdevelopment' of the Dependency Theory, falls short of providing an consistent explanation for the dynamics and development of industrial design in the Third World.

Under the influence of Papanek and Bonsiepe's arguments, the 1970s and the early 1980s witnessed a growing body of design literature with a strong 'developmentalist' tendency, mainly produced by designers from the Third World countries. However, by ignoring the capitalistic, profit-motivated nature of industrial design activity for moral or political reasons, this early literature reduced industrial design to a 'problemsolving methodology', a 'neutral' planning tool that can be employed regardless of its social and
economic contexts. Both Papanek and Bonsiepe ignored the fact that design had to function in a given economic, social, and political system, yet they expected industrial design to satisfy 'basic needs', to reduce 'technological and financial dependency', to transform 'craft industries', to create a 'cultural identity', and to improve the living conditions of the poor masses, thus playing a 'developmentalist' role in the Third World. Although such expectations seem to have remained unconfirmed, the idea that, on moral and political grounds, design should function as a development agent in the Third World has persisted. The influence of this early literature can still be traced in some recent studies looking at industrial design in developing countries.

Historical Model of Development for Industrial Design in the Periphery

The most significant recent contribution to the issue of industrial design in the periphery has also come from Bonsiepe. His new, post-dependency approach of the late 1980s offers a historical periodization of the development of industrial design in peripheral countries, and can thus be termed a historical model of industrial design. Bonsiepe identifies six domains as a set of indicators to organize the unstructured mass of disconnected historical data regarding industrial design in peripheral countries:

i. Design Management: i.e. products that are open to design interventions;
ii. Professional Practice: i.e. the insertion of designers into manufacturing companies, the creation of professional organizations and the existence of design offices;
iii. Government Policy: i.e. the integration of industrial design in development and promotion programmes, and the finance of design events;
iv. Design Education: i.e. the development of design education at university level;
v. Design Research: i.e. the production of a critical body of knowledge;
vi. Design Discourse: i.e. the propagation of design awareness 'as a particular system of linguistic distinctions that structure, in a coherent way, a reality; and that allow talk about a particular domain in a consistent manner.' This is achieved through specialized publications.

Using these six domains, Bonsiepe defines a periodization of the development of industrial design in the periphery as a five-stage process:

1. The period of proto-design (from independence to the end of the Second World War);
2. Gestation period of industrial design (decade of the 1950s);
3. Period of incipient institutionalisation (decade of the 1960s and 1970s);
4. Period of expansion and incipient consolidation (decade of the 1980s);
5. Sovereignty phase, that may be reached in the future.

According to this model, which relies mainly on historical data from Latin American countries such as Brazil, the development of industrial design took place during the three decades between 1960 and 1990.

Although Bonsiepe makes a significant theoretical contribution to the discussion of industrial design in the Third World context, his model is far from being complete. It is mainly based on a particular group of countries with large, inward-looking economies, and cannot be generalized to the Third World including the export-oriented Asian countries. Besides, the model does not address the dynamics which determine the progress of the six design domains from one stage to another.

A Study of Industrial Design in Newly Industrialized Countries

Critically reconstructing Bonsiepe's model, the study from which this article draws its data attempts to explain the common and diverse characteristics of the development of industrial design in certain peripheral countries, the Newly Industrialized Countries (NICs). These are the countries that have experienced high growth of output in the 1960s and 1970s, mostly but not necessarily, on the basis of manufacturing exports. There are no commonly agreed criteria...
for membership of this group, and the number of countries included in the NIC category is elastic, as there are two main approaches in defining NICs:

One approach is to define NICs as those countries with an export-oriented strategy for manufacturing: another includes as NICs, those countries where manufacturing has reached some threshold share of gross domestic product (GDP) either 20 per cent or 25 per cent.  

In this study, the Third World countries where manufacturing has reached 20 or 25 per cent of gross domestic product are considered as NICs. The most significant characteristics of all NICs is that they have explicitly attempted to develop their economies on the basis of industrialization. Nevertheless, despite their similar characteristics, there are also differences among those countries. In the economics literature, a distinction is made between the export-oriented Asian NICs and Latin American NICs with domestic market-oriented economic policies, with Korea, Taiwan, Hong Kong, and Singapore in the former group, and Brazil, Mexico, and Argentina in the latter. India and Turkey have similar development experiences to Latin American countries, and Malaysia may be considered an Asian NIC.

There has been an increasing interest in NICs in the economics literature due to the rising importance of those countries, particularly the Asian ones, in the global economy. In the literature of economics the NICs phenomenon has attracted attention for two distinct reasons. Firstly, NICs challenge the classification of the world into North and South with their new image of the ‘middle class of an evolving society’; secondly, the NICs syndrome has provoked policy debates on both the durability of the industrial order and stability of the West and the development strategies of the Third World countries. However, in the design literature the NIC phenomenon has not attracted any particular attention, even though NICs are so far the only countries of the Third World which have attempted and succeeded, at least in some sectors, to establish design as an industrial activity. The discussion of NICs continues in a broader context in which design is rarely mentioned.

This article draws its data from the findings of the author’s Ph. D. study completed at the Manchester Metropolitan University. The study, in addition to an extensive review of design and other related literature, consisted of semi-structured interviews with industrial designers from Brazil, Argentina, Mexico, Hong Kong, South Korea, Singapore, Taiwan, and Malaysia who were studying for postgraduate design degrees in the UK and case studies of Turkish electronics and furniture firms. The following sections present main findings of the study, concluding with a new model for the development of industrial design in NICs.

The Role of Industrial Design in NICs: Competitiveness by Product Modification

The study reveals that while product modification through the redesign of existing products for aims such as adaptation to local manufacturing conditions or cost reduction was the dominant function of industrial design in NICs, creating new product concepts or evaluating market opportunities were rarely considered as roles of design.

Imitation emerged as a major task of industrial design activity in NICs. However this does not necessarily mean that it is simply a full reproduction of foreign products since, in most cases, it is financially inappropriate and technologically impossible for the firms in NICs to copy these products in every detail. Imitating is mainly seen as replicating the product function and its market position; therefore research into need and marketing is bypassed. Imitating foreign products, as a design activity in NICs, involves a ‘reverse engineering’ process to find out the potential restrictions of a product in the manufacturing process, and then ‘redesigning’ it to eliminate these. In an earlier study looking at South Korea, it was also revealed that industrial design developed from the imitation of existing products rather than the generation of innovative design concepts. Therefore, it may be stated that industrial design in NICs is mainly performed as an element of product modification activity rather than new product creation.

Nevertheless, despite the emergence of a common role for industrial design—i.e. product modification—in NICs, the factors motivating...
such an activity appear to be divergent across those countries. For instance, product modification aiming at cost reduction appears to be common especially in the export-oriented Asian NICs such as Taiwan and South Korea. It has long been known that the design of a product can affect price factors and thereby the product’s competitiveness. Yet industrial design has been largely promoted as part of an alternative approach to the price competition, i.e. as quality-based competition, in terms of product differentiation and ‘adding value’ to products in the industrialized market economies. In contrast, in NICs industrial design appears to be considered as part of a price-based competition strategy, and that seems to be employed particularly by Asian NICs competing on the price ground rather than technical excellence in international markets. On the other hand, ‘adapting technology to local needs’ emerges as being more important than ‘cost reduction by design’ in the domestic market-oriented Latin American NICs such as Brazil. Such findings confirm that local technical change activities in inward-looking NICs tend to be mostly adaptation, which appears to be the case for industrial design activities, too.

Differences between the export and domestic market-oriented NICs regarding the factors leading to product modification have also emerged, in a rather similar way, between export and domestic market-oriented industries. It appears that the aim of product modification is to differentiate products for different markets and to reduce product cost in the export-oriented Turkish electronics industry, while it seeks to adapt foreign products to local conditions in the domestic market-oriented furniture industry.

Consequently, the aim and scope of product modification, as the main role of industrial design in NICs, appear to be influenced by the market orientation of an economy or industry. This also leads to the unequal development pattern of industrial design across countries, industries, and products.

The Role of Exports in the Development of Industrial Design

In our study, production for export markets has emerged as the most significant factor stimulating the development of industrial design capabilities in NICs. In export-oriented economies, industries, firms, and products, the extent of the involvement of design was greater and more systematic than in domestic-oriented ones. We have found evidence that in NICs a correlation exists between gaining design capabilities and exporting to international markets. This is particularly true for investment-driven, scale-intensive industries such as consumer electronics.

This finding clearly confirms the results of some earlier development economics studies looking at the nature of technological change in NICs. It also confirms the results of a recent World Bank study of the industrial development of Asian NICs: exports, facilitating the move towards international best-practice technologies, direct the development of local economies towards the acquisition of added technological capabilities. Those added technological capabilities include industrial design. As is stated in the Korean case:

Until some experience has been gained it undoubtedly is most cost-effective, and it may even be necessary to rely on export buyers for product design technology. Not to be neglected in this regard is that production for export provides a potent means of acquiring product design technology through learning by doing, which spills over to product development in local markets as well.

There is also evidence revealing the limited scope and underdevelopment of industrial design activities in the absence of significant export-based motivation. For instance, in inward-looking Latin American NICs, with the exception of a few uncommercialized attempts, industrial design has been most widely practised in the furniture industry for an elite customer group. In Turkey, too, until the more outward-looking 1980s, a similar pattern existed. While design was widely practised in the furniture industry, a design-oriented industry by nature, it was an unknown activity in the electronics industry during the 1960s and the 1970s. On the basis of such evidence, it may be concluded that exporting to the industrialized market economies provides a very important means of acquiring industrial design capabilities across the NICs.

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The Role of Government: Development Strategy and Industrial Design

The increasing acquisition of firm-level industrial design capabilities in NICs has been largely a product of export-led, outward-looking economic activity. However, the shift to such export-led growth policies has not been simply a result of the private sector’s receptiveness to emerging opportunities in international markets, but of governmental strategies for coping with domestic economic and social problems through export-oriented industrialization (EOI). Therefore, the emergence and developmental patterns of industrial design in NICs are influenced by the development policies of governments, which determine not only trade regimes—the direction of market orientation—but also the mode of technology transfer through foreign investment policy, and industrial structure through sectorial policies. The link between development strategy and industrial design indicates the nature of government involvement in the development of design capabilities. NICs have been characterized by state involvement in their industrialization process, and this extends to the development process of industrial design. Although direct government involvement by design promotion has not been widespread across NICs, indirect involvement through development strategies has had a critical impact on the development of design activity at firm level. Development strategies, defining the policies for industry, trade, and foreign investment, effectively determine the nature of the competitive environment in which firms operate. In this sense, the development prospects of industrial design in NICs are related to the extent to which governments are prepared to absorb design as an integral part of their long-term development strategies, rather than to the extent to which they give direct support to design institutions and promotion.

Consequently, the main effect of government involvement in the development of design capabilities appears to be to stimulate manufacturing firms to use industrial design as a competitive tool in domestic and international markets. The absence of this kind of government involvement, in many cases, manifests itself as an underdevelopment of industrial design in the Third World. Therefore, any meaningful attempt to link design to the economic development requires an evaluation of the role of design in the wider context of government development strategies.

The Role of Industrial Design in NICs: Development through Competitiveness

The ‘developmentalist’ role for design in NICs suggested by the early design literature has not been confirmed by our research findings. In other words, direct contribution to the development process of NICs in terms of reducing poverty and satisfying the basic needs of the poor masses, etc. is not a principal role of industrial design in those countries. On the contrary, design activity in NICs appears to be primarily motivated and utilized by corporate commercial interests. Hence, in terms of its principal aim, industrial design in NICs is no different from design in the industrialized market economies. It is a competitive tool through which market and corporate-based problems can be identified and solved at product level, in order to increase or maintain the competitive advantages of a firm in the marketplace. In terms of the development of industrial design, India can be cited as a dramatic example of this fact. Although the original aim was to foster the craft industry in India, the role of industrial design has changed gradually into a profit-oriented task in modern industry. Today industrial design activity in India is centred around solving the problems of rich and middle-income groups. In the light of this fact, an Indian design theorist, who defines design ‘as a problem-solving methodology to be applied as a tool for development’, sadly concludes:

Design has emerged as a high-profile activity, indispensable to quality in sophisticated sectors of manufacture and communication. Yet the original inspiration for bringing design to this land—to lift the quality of life for millions living at the margins of existence in villages and urban slums—remains virtually untouched.

In this context, the ‘developmentalist’ argument of the early design literature, which remained unchallenged for too long, appears to have weakened.
significantly. Yet this is not to deny that ‘design’ in a wider sense of the word could be used to refer to a problem-solving approach to the issues of development in the Third World. Besides, by increasing the competitive advantage of firms and industries, industrial design may still make some contribution to the development process of the Third World countries, but this will be a by-product of its principal competitive role in a market-oriented context. From this particular perspective, industrial design can only be defined as a ‘problem-solving activity’ when it becomes the way through which mainly market-oriented and corporate-based problems can be identified and solved via the design and development of competitive products.

A New Conceptual Model for Industrial Design in NICs

It is now possible to form a new conceptual model that attempts to describe a specific variable, the economic development strategies of NIC governments, as the main dynamic behind the emergence and development of industrial design capabilities across NICs. This model is illustrated in Table 1. The categories used in the model, some of which have been partly adapted from Bonsiepe, serve as guiding principles for depicting the development stages of industrial design in NICs. These categories, five of them being design related, comprise:

1. ‘Development Strategy’ manifests itself in the government policies of industrialization, trade and foreign investment. This is the most important category in the model because it determines the developments taking place in the following design categories, and facilitates a progression from one development stage to another. This category helps us gain an understanding of the emergence and development patterns of industrial design activity in NICs within the proposed conceptual model.

2. ‘Sectorial Scope of Industrial Design’ manifests itself in the nature of industries in which industrial product design is intensively practised. Through this category, it is possible to trace the unequal development pattern of industrial design across industries in relation to development strategies implemented.

3. ‘Industrial Design at Firm Level’ manifests itself in the nature of industrial design activity such as its role, integration into a firm’s structure and strategy. Since design is a corporate activity occurring within a firm structure, this category serves to depict the changing function and organization of industrial design in relation to development strategies.

4. ‘Industrial Design Education and Research’ manifest themselves in the development of design education and research at university level.

5. ‘Government Design Policy’ manifests itself in actions taken to integrate industrial design within industrial development strategy, promotion programmes, and in the finance of design events.

6. ‘Design Discourse’—as in Bonsiepe’s model—manifests itself in the propagation of design awareness.

With the help of these categories, the emergence and development of industrial design in NICs can be described as a process with seven stages: the ‘Proto-Design Phase’, ‘Embryonic Phase’, ‘Emergence Phase’, ‘Development Phases I and II’, ‘Take-off Phase’, and ‘Maturity Phase’. Like all conceptual models, this model does not correspond with the evidence in each particular country, but outlines a common pattern of development stages of industrial design in NICs. Exceptions always exist, such as Hong Kong, which does not fit the same categories as the other NICs due to its special city state status. Nor are the seven stages of the development of industrial design linear and sequential in every NIC. That is because, in each NIC the development pace of design categories is not equal, although it is a combined process conditioned by different economic development policies.

Proto-Design Phase. This phase is defined as a period in which industrial design was formally non-existent, though a form of commercial art might have existed in some craft-based traditional industries as in Hong Kong. This phase, characterized by primary specialization in raw material exports, was simply a pre-industrial growth
### Table 1 Development Stages of Industrial Design in NICs.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Development Strategy</th>
<th>Sectorial Scope of Industrial Design</th>
<th>Industrial Design at Firm Level</th>
<th>Industrial Design Education and Research</th>
<th>Government Design Policy</th>
<th>Design Discourse</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Proto-Design Phase</td>
<td>Primary Specialization in Raw Material Export. Pre-industrial Growth (All NICs)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>2 Embryonic Phase</td>
<td>Import Substitution I (Asian NICs late 1950s and early 1960s; Latin American NICs, India, and Turkey 1950s and 1960s)</td>
<td>Design-oriented low-scale, low-tech industries. e.g. giftware and furniture for home use.</td>
<td>Self-formed artist-designer or architects. Outsider to industry. Design as a cultural mission.</td>
<td>Individual courses are created as extension to art or architecture programmes. First ID schools in India and some Latin NICs.</td>
<td>ID is seen as a sort of development tool, but there is no clear policy about how to use it within an ISI framework. Finance of the establishment of some early design schools.</td>
<td>Articles on ID as a cultural phenomenon appear in art journals. Design is an image of modernization.</td>
</tr>
<tr>
<td>3 Emergence Phase</td>
<td>Import Substitution II (Latin American NICs, India, and Turkey 1960s and 1970s) Export Promotion I (All Asian NICs 1960s and 1970s)</td>
<td>Design-oriented, large-scale, investment-driven industries. e.g. furniture for home and office use, ceramics and some basic consumer goods.</td>
<td>ID as a tool of 'imitative' product modification. Individual designers employed by firms.</td>
<td>First generation ID teachers with art, architecture degrees or from foreign countries. 4 or 3 years ID degree programmes.</td>
<td>Finance of the ID education at university level. Scholarships for postgraduate education in advanced countries.</td>
<td>In architecture, interior and graphic design journals, articles written by industrial designers dealing with ID as a separate discipline.</td>
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<tr>
<td>4 Development Phase I</td>
<td>Export Promotion II (Asian NICs, Malaysia early 1980s) Liberal Trade Policies (India, Latin American NICs, and Turkey)</td>
<td>Investment-driven, standard technology industries. e.g. household appliances and most consumer goods.</td>
<td>In-house ID teams. ID as a tool of systematic product differentiation and adaptation on the basis of product modification (redesign). The recognition of ID as a competitive tool.</td>
<td>Second generation ID lecturers with mostly postgraduate degrees from advanced countries.</td>
<td>Design groups are incorporated into government agencies in some NICs such as small scale industry promotion, but there is no overall design policy.</td>
<td>In related design journals, special sections or issues on ID.</td>
</tr>
<tr>
<td>5 Development Phase II</td>
<td>Export Promotion III (deepening) (Asian NICs 1980s)</td>
<td>Specialized export industries e.g. consumer and business electronics, sports equipment etc.</td>
<td>In-house design teams + use of design consultancy firms. Design as a marketing factor.</td>
<td>Postgraduate ID courses. Faculty staff with professional experience. Localization of ID education starts.</td>
<td>ID is incorporated into some government policies such as export promotion.</td>
<td>Same as above. But ID discourse is differentiated from the others.</td>
</tr>
<tr>
<td>6 Take-off Phase</td>
<td>Global Strategy (Korea ... ? since the early 1990s)</td>
<td>Investment-driven, relatively more capital and technology-intensive sectors. e.g. capital goods such as transport vehicles.</td>
<td>Large specialized ID departments. ID is recognized as part of corporate strategy.</td>
<td>Specialization occurs within design like transportation design. Study programmes get a strong theoretical input.</td>
<td>ID is recognized as part of a national competitive strategy.</td>
<td>Specialized magazines dedicated to ID.</td>
</tr>
<tr>
<td>7 Maturity Phase</td>
<td>...?</td>
<td>New product development is practised in all major branches of industries.</td>
<td>Design as a leading force in company strategy. Product innovation.</td>
<td>Differentiated and fully equipped institutions. Courses contain scientific lecture programmes</td>
<td>ID as an element of innovation is part of industrial culture. Design centres run by professionals.</td>
<td>Books on ID are published dealing with standard practices, history, theory.</td>
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period in NICs. However, the ‘Proto-Design Phase’ occurred at different times in different NICs, and mainly occupied the period before the 1940s in Latin American NICs, the 1950s in Asian NICs and India, and the 1960s in Malaysia.

**Embryonic Phase.** This phase is characterized with the beginning of import substituting industrialization (ISI) policies during the 1950s and the early 1960s. This is the phase in which industrial design began to establish itself as a concept, though it still did not exist as an industrial activity. Design work, when it was required, was done by draughtsmen or engineers in a few industries. However, in design-oriented, small-scale industries like furniture, the early designers were from related areas like architecture and crafts. In investment-driven industries, the design of a product was usually obtained as part of the technology transfer through licensing.

Design, generally seen as part of the modernist paradigm, was perceived as a cultural issue rather than a commercial one. Although industrial design was considered as part of the industrial development expected as a result of the ISI policies, there was no clear idea about how to utilize it within an ISI framework. Therefore, government involvement remained limited to the financing of a few experimental design institutions in the larger and inward-looking NICs like Latin American countries and India. At university level, there was no industrial design degree programme apart from some extensions to art and architecture or engineering degree programmes. Early articles on design appeared in some avant-garde art journals.

**Emergence Phase.** The emergence phase occurred roughly during the years between the early 1960s and the late 1970s. During this period, Asian NICs consistently and aggressively pursued export-oriented industrialization (EOI) policies. Although some Latin American NICs like Brazil broke away from the ISI policies for a short period under heavy foreign currency deficits, the rest continued their ISI-based policies. It was in this long period that the main characteristics of industrial design activity in NICs were largely determined by the development strategies implemented by the governments; ISI in Latin American NICs, India and Turkey, and EOI in Asian NICs.

Individual industrial designers were employed by firms operating in design-oriented but relatively investment-driven industries such as ceramics and mass-produced home and office furniture. At firm level, industrial design played an ‘imitative’ role in product modification. More degree courses were introduced, and the first generation of designers graduated from local design schools. Governments, directly or indirectly, continued to finance the spread of design education. Informative articles by industrial designers appeared in architecture, interior, and graphic design journals.

In this phase, design began to appear as an industrial activity in NICs, although limited to a few industries. Design began to root itself in different industries in two different groups of NICs. In many large and inward-looking NICs like Brazil, the early industries in which industrial design was intensively practised were those with relatively low technology and capital input like basic metal, craft, furniture, and some basic electrical household appliances like irons, etc. Under the ISI strategy, it was reasonable to accommodate industrial design in those industries because, at that time, production technology to manufacture a limited number of products without major investments was available. Besides, during this period industrial design was understood as a tool for fostering development by designing products that could be locally produced and consumed in those countries. In Asian NICs, the early industries that accommodated industrial design and designers were technologically more sophisticated than those in the inward-looking NICs, although they emerged later. In the late 1970s, the consumer electronics and plastic products industries, which were highly export-oriented, started using industrial design on a significant scale. These industries were dominated by foreign buyers, and they were competing in foreign markets on price, via sourcing arrangements with foreign firms. In this system, known as Original Equipment Manufacturer (OEM), products were mostly copied or designed by foreign design firms. The use of design and designers in Asian NICs was strongly under the influence of OEM. In this respect,
industrial design in Asian NICs was understood as a commercial activity to sell commodities rather than a social, cultural, or technological tool to foster development, as has been the case in many other developing countries such as India.

Development Phase I. This phase corresponds to the early 1980s in Asian NICs, and covers that decade for the rest of the NICs. The institutionalization of industrial design and the employment of individual designers became common in many NICs. Some specialized design firms, mostly in furniture/interior design, emerged. Industrial designers started to be incorporated into various governmental institutions. Design education was improved, and some early examples of design studies started appearing in special sections of the related design and architecture journals. In-house industrial design teams were established within firms operating in the most dynamic-scale/capital-intensive industries such as consumer durables. Industrial design was increasingly used as a tool in systematic product differentiation and adaptation activities by export and domestic market-oriented firms respectively. Gradually, industrial design began to be recognized as a competitive tool by local industry.

In the domestic market-oriented NICs, this period was characterized by the end of ISI policies. The ISI strategy was replaced by more liberal, market-based economic policies, or sometimes by export-oriented policies. Latin American NICs, Turkey, and India still seem to be in this phase in terms of their economic strategies and the developmental stage of industrial design. During this period, design capabilities appeared to develop more rapidly than in the 1960s and 1970s, particularly in some capital-intensive sectors like consumer durables. Although there are country-specific reasons supporting this development in each NIC, the following are the most common factors:

i. Firstly, the rapid development of industrial design in the 1980s was mostly accompanied by the changing development policies from ISI to more liberal ones, which led to more competitive domestic markets, and sometimes export incentives to compete in international markets.

ii. The change in development strategies opened domestic markets and industries to global competitive factors like product quality, design, and innovation. The 1980s also witnessed the increasing importance of industrial design on a global scale in international competition.

iii. Finally, as a result of the experience in design education, and to a lesser extent due to the design practice of the last twenty years, the 1980s boom in industrial design found the necessary background conditions in NICs.

Development Phase II. This phase was characterized by the recession in the international economy in the 1980s. Since Asian NICs pursued highly export-oriented policies, they were much more affected by the crisis. During the crisis, these countries also experienced shortcomings of the OEM-based export strategy with low profit margins and increasing price competition from newly exporting countries such as Thailand. It was first in this period that the significance of new product design was recognized by the decision-makers at governmental level, and the role of industrial design began to be fully acknowledged by export-oriented firms experiencing success in international markets.

For Asian NICs, this phase was simply an extension of 'Development Phase I', characterized by the incorporation of industrial design into certain governmental policies such as export promotion. In Asian NICs, industrial design was seen as a tool to move away from OEM to Original Design Manufacturing (ODM), changing their traditional export strategy towards global, own-brand strategies. Industrial design has been an instrumental part of this strategy, particularly in firms operating in specialized export industries such as consumer and business electronics. Design departments linked to overseas marketing units have been established, and design consultants from target export markets have been frequently used by large NIC firms. Industrial design education has started to evolve in accordance with the needs of local industry in this period, and early examples of design research have emerged.

Although some larger and inward-looking
NICs like Brazil may be considered to be in this phase, they cannot fulfil the criteria related to governmental design policy, which appears crucial in NICs. Therefore, only Asian NICs like Taiwan and Korea can be considered to have passed, or to be passing through this phase.

Take-off Phase. This phase is a transition period prior to the Maturity Stage which none of NICs seems to have yet reached. In the 'Take-off Phase', industrial design starts to emerge as an element of corporate strategy. Large industrial design centres with overseas branches are established by large firms. In addition to consumer goods industries, some capital goods sectors such as the automotive industry start to receive an industrial design input. On the government policy front, industrial design is perceived as an important part of a national competitive strategy in the global market. Only South Korea can be accepted as being fully qualified for this phase which has begun recently (early 1990s), due to the distinctive global strategies that have been pursued by large Korean conglomerates such as Samsung, Goldstar, or Hyundai. Although the same may be claimed partially for some large Taiwanese companies like Tatung or Acer, in general Taiwanese firms still seem to pursue the purer OEM route. Global strategy for NICs is beyond the simple exporting activities. It does not only include establishing manufacturing plants in different countries, but also covers collecting market information about different market segments and end users, and translating this information into product strategies. As Porter points out, global strategies not only create new sources of competitive advantage, but also provide a better foundation for proactive innovation instead of passive response to foreign OEM customer requests. This phase is new and uncertain. The success of NICs relies on complex and combined dynamics, not only at national or international, but also at managerial levels.

Concluding Remarks
Apart from a discussion of the early 'developmentalist' design literature, which has had a confusing impact on the local configuration of the industrial design profession in many developing countries, this article has tried to reveal that the emergence and development patterns of industrial design in NICs are not independent of the major economic development strategies of those countries.

The establishment and continuing expansion of a manufacturing sector, while necessary, is not sufficient to bring about the development of industrial design activity in the Third World. Industrialization without design seems possible in many developing countries. The vital ingredient for a healthy development of industrial design in those economies appears to be competition either in domestic or international markets. It appears that the recognition of the competitive role of industrial design in the Third World, as in the 'First' one, is inevitable. The findings from our study also indicate that export markets have advantages over domestic markets in facilitating the necessary competitive environment. In export-oriented Asian NICs, industrial design has rooted itself more firmly in industry than its counterpart in domestic market-oriented countries. Therefore, it may be concluded that in NICs the overall development of industrial design is conditioned by the market orientation of economic/industrial activity, which itself is largely determined by the government development strategies in the context of a globally organized world economy.

Consequently, without taking account of these factors, one is unlikely to develop a successful strategy for industrial design at national, or corporate levels, or even to use design as a 'development tool' in the Third World. Our study has many other implications for the design issues of NICs and other countries, ranging from the role of design in the government policies to industrial design education. One of the most significant contributions may be to provide a model for studies looking at the history of industrial design in the Third World. No doubt, this model may be improved and, if a history of design in peripheral countries is ever to be written, more studies of industrial design in the context of the Third World are needed in order to test such conceptual tools. In particular, empirical studies at firm and industry levels are vital, since industrial design activity does not occur in a vacuum.
but within the corporate structure of a firm, and this appears to be a persisting fact of industrial design in any part of the World regardless of prevailing economic conditions.

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Notes
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1 Some significant examples of these studies are Christopher Lorenz's The Design Dimension: The New Competitive Weapon for Business, Basil Blackwell, Oxford, 1986; and Davidson Ughanwa & Michael Baker's The Role of Design in International Competitiveness, Routledge, London, 1989. Also various studies by the Design Innovation Group of the Open University and UMIST.
8 Ibid.
9 ‘Design and the state and the state of the design’, Design, no. 495, 1990.
11 For a review of the literature in English language on industrial design in the Third World, see; Er & Langrish, op. cit. A short version of the same paper also appeared in ICSIDNews, under the title of ‘Developing countries in the design literature’, vol. 92, no. 6, 1992, pp. 5-6.
16 The association of industrial design with corporate industrial capitalism relies on a historical evaluation of its emergence as a specialized activity within the labour process. According to John Heskett, professional industrial design emerged at the beginning of this century as an essential feature of commercial and industrial activity, a specialist element within the division of labour implicit in mass production and sales. John Heskett, Industrial Design, Thames & Hudson, London, 1980. In a similar vein, Tony Fry argues in his book, Design History: Australia, Hale & Iremonger, Sydney, 1988, that industrial design as a specialist kind of labour is as much as a feature of modern capitalism as mass production, robotics, or advertising. In this sense, the emergence of industrial design in Western countries was an outcome of the development of industrial capitalism. Supporting this conclusion, Penny Sparke in An Introduction to Design and Culture in the 20th Century, Unwin Hyman, London, 1986, points out that by the end of the nineteenth century, all the factors necessary for the development of industrial design had already occurred in both Europe and the United States, such as the expansion of mass production and the emergence of the mass market. Therefore it seems highly problematic to consider industrial design as a ‘neutral’ development tool that can be used with the same effectiveness in different economic models.
17 Er & Langrish, op.cit., p. 4. See also Madge, op.cit., p.154.
This can be best demonstrated by Bonsiepe's own words: 'Very little is to be expected of global corporations towards the promotion of local industrial design because they have a congenital hostility towards any local autonomous technological development', in Bonsiepe, op. cit., 1977, p.15. However, Bonsiepe changed his views on Transnational Corporations in the late 1980s. In a recent article he points out that 'since design is a strategic activity, it is not surprising that corporations controlled by outside capital prefer to concentrate their innovative activities at their central headquarters. Nevertheless, the presence of multinational firms does not explain why local firms have not explored more intensely the possibilities that design has to offer'. Guı̈ Bonsiepe, 'Designing the future: perspectives on industrial and graphic design in Latin America', Design Issues, vol. 7, no. 2, 1991, pp. 17–24.


H. Alpay Er, 'Industrial design in newly industrialised countries: an exploratory study of the factors influencing the development of local design capabilities', IAS Research Papers, RP-72, Institute of Advanced Studies, Manchester Metropolitan University, 1993.


Bonsiepe, op. cit., 1990.

Ibid.


Kim, op. cit.

Ughanwa & Baker, op. cit.

Er, op. cit., 1994, p.125. For example, in the interviews with designers from the Asian NICs, 'reducing product cost' and 'redesigning products for improvement' were ranked as the most important two functions of industrial design. 'Estimating and controlling costs' was also described as one of the necessary skills that industrial designers should possess.


42 Bonsiepe, op. cit., 1990.
43 Matthew Turner, 'Early modern design in Hong Kong', *Design Issues*, vol. 6, no. 1, 1989, pp. 79-92.
44 Bonsiepe, op. cit., 1990.
45 For example, Goldstar Electronics of Korea (LG Electronics) founded its Design Centre in the second half of the 1970s. Kim, op. cit., p. 151.
46 See, for the use of design consultants from industrialized market economies by large NIC firms, Özlem Er, 'The use of external design expertise by newly industrialised countries with particular reference to the operations of British automotive design consultancies', Ph. D. thesis, Institute of Advanced Studies, Manchester Metropolitan University, December 1995.
48 Ibid.
49 For a detailed discussion of this argument in a specific context, see H. Alpay Er, 'The state of design: towards an assessment of the development of industrial design in Turkey', *METU Journal of the Faculty Architecture*, vol. 1, no. 1-2, 1995, pp. 31-51.