The Role of Socio-technical Instruments in Craft and Design Practice in Indonesia

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Craft and design practice has emerged as a tool to improve the economic and social conditions in various countries. Many approaches have been formulated, particularly participatory design (PD) method to bring a democratic design process. However, the narrow focus of PD on micro activities tends to neglect wider contextual factors, such as formal and informal types of institutions. Based on the study of the development of craft products organized by the design center in Indonesia, this paper attempts to identify the diverse interests of the actors, including the objectives of the design center, the target market set by the designers, and the needs of the craftswomen in the craft villages. Subsequently, we illustrated the role of socio-technical instruments as sets of technical apparatus and organizational tools to reconcile the diversity, which can adopt the informal characteristics of small enterprises in regional areas.

Participatory design, informal, institution, craft villages, social design

1. Introduction

In recent times, craft and design practice has emerged as a prominent activity among the design practitioners, governmental institutions, as well as small craft enterprises in rural areas in Indonesia. They address the problems in the craft community, such as varied ranges of governmental programs, and self-initiated projects to transform and redesign traditional craft products, with the aim of improving the social and economic conditions in rural areas by connecting them with new markets. In fact, a similar situation can be found in various regions in Southeast Asia, such as Thailand, and Vietnam, especially regarding how craft and design practice is utilized to facilitate the social and economic
development in the craft villages in responding to the opportunity of the rise of mass-tourism as well as the commercialization of craft products for export market as a part of poverty reduction scheme (Chudasri, Walker & Evans, 2012; Cohen, 1988).

Such issues of economic and social development involving design are not surprising in the field of design studies, considering the ideas of Papanek in the 1970s that are called for a socially responsible agenda in the design practice. Since then, various scholars have started questioning the market-led paradigm in design activities and finding possibilities of design practice to transform certain social problems, such as the design for the base of pyramid, as well as for the development of the third countries (see e.g., Clarke, 2018; Margolin & Margolin, 2002; and Wang, Bryan-Kinns, & Ji, 2016). In this regard, designers are expected to shift their role, not merely focusing on the object-making process, but also finding design solutions by engaging non-designers in the design process. Participatory design emerges as a prominent methodology in addressing social problems, engaging collective action by emphasizing the iterative way of designing and challenging designers to be facilitators (Melles, Vere & Misic 2011; Sanders & Stappers, 2008).

However, existing research on the issues of participatory design to achieve social needs has often been on the micropolitical scale, and it has not properly addressed the dynamic tension between micro, meso, and macro political institutions (Huybrechts et al., 2017). Moreover, in the context of developing countries, the design practice has often become a primary tool for economic and social development, which actors from multiple types of institutions are actively involved (Er, 1997; Amir, 2004). Consequently, the design activities might involve different types of institutions, such as the formal institutions, including the governmental department or design academics, and also the informal institutions, such as craft villages and small enterprises. Therefore, understanding the diverse geographical, historical, and socio-cultural factors underlying the design activity is crucial. The mere focus on microscale activity might lead to the decoupling of design from the wider and structural institutional influence. It might also fail to address the different circumstances in each institution that are prevalently found in developing countries. Given the different educational and cultural backgrounds, how can designers and craftsmen, and other actors, such as governmental institutions, negotiate their different ways of thinking during the design process? What kinds of strategies have they employed to transform traditional craft products?

This paper is based on ethnographic research on Designer Dispatch Service Program (DDS Program) supervised by a design center called Indonesian Design Development Center (IDDC). The program primarily engages professional designers and regional craftsmen to redesign and reexplore traditional craft products in Indonesia by aiming for penetrating the export market. By redesigning traditional craft products, the designers, craftsmen, and the design center have attempted to align with the new market demands to bring equal economic opportunities to the poor craft community in various regions.

Throughout this research, I attempt to explore the diverse interests and motivation of three main actors, including the professional designers, craftsmen, and the design center, by identifying thoroughly their different institutional backgrounds and motivations. I argue that the design practice in bringing a societal transformation in various regions in developing countries might need to consider the collision and reconciliation process of diverse interests of actors underpinned by the characteristics of formal and informal institutional backgrounds. This research also illustrates the role of sociotechnical instruments as sets of technical apparatus, organizational tools, and an assemblage of human and non-human elements that afford various activities of design activities, which can adopt and tolerate the characteristics of informal and small enterprise, such as the flexibility of working process, the value of friendships and family, and tradition in the village (Turner 2003). The identification of diverse interests and the roles of sociotechnical instrument provide us some clues to understand the dynamic tension...
between the microscale activity of participatory design and the influencing contextual factors, such as
the formal and informal characters of the institution.

2. Participatory design and the necessity of socio-technical instrument

Design practice has been a strategic tool to reduce a prolonging economic catastrophe, such as
employing design to increase export value of industrial products (Er, 1997; Amir, 2004). For instance, the
commercialization attempt of traditional crafts in various developing countries by embracing the roles of
designers to collaborate with regional craftsmen to compete in the export market (see e.g., Cohen,
1998; Chutia & Sarma, 2016).

Considering this condition, designers have had various tools to work with abstract entities, such as
services and communities, rather than just with things. They should have the capability to shape the
dynamic social conversation and to initiate real actions to build a community consensus based on the
active dialogical approach with the local participants (Chen et al., 2015; Wang, Bryan-Kinns, & Ji, 2016).
In this regard, the agency of designers should be decentralized; their capability is no longer design for,
and they need to shift the design fundamentally as a part of the process (Cowley et al., 2018; Willis,
2006). This is in line with Armstrong et al. (2014) that accentuate participatory design approaches
during the design process with the community. Thus, multiple actors and resources can converge,
facilitated by varied ways of encounters and dialogues, enabling ideas and solutions to emerge not only
from the designers, but also from non-designers.

However, the participatory approach of design has faced criticism, as they tend to focus narrowly on the
practicality of the design process and to neglect complex sociocultural circumstances that might affect
the activities. Huycbrechts et al. (2017) argued that there is a need to restore the engagement of
participatory design practice to institutions, stressing the dynamic interaction between the micro-
political scale and meso- and macro-political institutions, involving historical, geographical, institutional,
and economic factors. Indeed, rather than merely acting as a passive backdrop, institutions have a
crucial role as active sites to direct the design process. Failing to consider the macro-sociological
circumstances, the design intervention might be at a risk to prolong the adverse situation in each
region. The type of institution itself might vary, including formal institutions, such as schools,
governments, courts, and so forth, and also informal institutions, including kinship, personal networks,
clientelism, and traditional culture (Huycbrechts et al., 2017, 151). Therefore, analyzing the design
practice with its engagement to certain characteristic of institutional level requires attention to the
formal as well as the informal rules that underlie the institutional establishment.

Number of studies or design projects in the context of design for socioeconomic development in
developing countries are mostly engaged in the formal and informal institutions. Therefore, considering
the dynamic influence of two institution, is crucially important. (see, Tung, 2012; Triharini, et al., 2013).
Various design projects frequently work under the influence of formal governmental bodies, and at the
same time, they also encounter different characteristics of craft villages, with their informal conditions,
distinct traditions, cultures, and social structures. Thus, the practicality of the participatory design

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1 For instance, the humanitarian design program that offers a fixed technology has been heavily criticized as the
design intervention frequently fails to consider the structural dynamics of local people, which prolongs the
grassroots ideological work of neoliberalism by promoting its market values and autoregulation (see, Johnson
2011; Schwittay 2014).
should be re-examined by actively elaborating the diverse socio-cultural circumstances and the informal condition of the craft villages in developing countries. In fact, the development and innovation process of the small enterprises in developing countries, including craft workshops, is highly informal and flexible. “The building blocks of success” for the enterprise is supported by the value of friendships, family relations, and voluntary activities in the neighbours (Turner, 2003; Malasan, 2017). This condition is in line with the study by Kaya & Yagiz (2011) who explain that the characteristics of the craft clusters in various developing countries are highly dependent on the social relationship, which might shape different design activities that frequently are being neglected in the modern’ design practice.

To explore further the craft and design development activities and their influence in formal and informal institutions, I will explore how the diverse institutional conditions and diverse interests of actors in this research may collide, and how this can be reconciled through the role of sociotechnical instruments. Therefore, first, I will identify the diverse frames of actors behind the craft and design project, including the professional industrial designers, craftsmen, and governments. I adopted the idea of ‘frames’ studied by the scholars who have studied the emergence of technological artefact by focusing on its social construction (Bijker et al., 1987; Bijker, 1995). Identifying the diverse frames is indispensable considering the different institutional as well as socio-cultural background of each actor. Second, I will critically examine the role of sociotechnical instrument in reconciling the diverse frames, which enables the actors behind the design process to maintain the heterogeneity of characteristics and interests while keep achieving the general objective. This share similar understanding with the ‘boundary object’ (Star & Griesemer, 1989) and ‘sociotechnical devices’ (Fukushima, 2017) as an assemblage of both human and nonhuman elements affording various activities depending on them. Whereas, both have been studied in the formal academic institutions, such as zoology museum and a medical center, in my case study, the sociotechnical instrument is adoptable in various sites, both in the formal and informal institution. It includes sets of technical apparatus, organizational tools, formal institutional routines, as well as the adoption of everyday activities in the craft villages.

3. Designer Dispatch Service Program (DDS)

DDS program basically encouraged industrial designers and local craftsmen to redevelop craft products in various regions in Indonesia. As the IDDC is officially a part of the Directorate General for National Export Development of Ministry of Trade, the design center has primarily controlled the planning, budget allocation, and execution. The aim of the program is concise and clear: to develop new craft products for export markets.2 The craft products seem apt as a cultural and economic resource for the design center to succeed in its vision: building local, going global (see figure 1). The design intervention is therefore a vital program to increase the value of craft products to compete in the global market, while at the same time distributing equal economic opportunities to the regions across the archipelago.

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Having started in 2012 with the initial project among the rattan craft community in Cirebon City, this program has been held annually. The DDS program gained a reputation as a successful program, and it successfully secured a national budget. Every year, the DDS has had an exquisite and gigantic pavilion at Trade Expo Indonesia—the largest international trading expo held by the Ministry of Trade—to exhibit the result of the collaborative work between the designers and craftsmen. In 2016, President Joko Widodo was impressed with the works in the pavilion and he requested the design center to expand its activities widely to develop craft products in other regions in Indonesia. In fact, the essential agenda of this program to develop rural areas suits the President’s primary agenda of nowacita (nine key programs), one of which is to develop Indonesia’s outlying areas. Considering the promising potentiality of this program, not only it is something to be proud of for the staff at the design center, but it also provides a significant portfolio for the designers. The craftsmen have also gained new knowledge on developing products, and they have gained experience in connecting with new markets.

Every year, the DDS program runs for 8 months, commencing in March. It ends usually in October concomitantly with the Trade Expo Indonesia, an international trading expo organized by the Ministry of Trade. In this program, designers go to several regions in Indonesia appointed by the supervisors of the DDS program. However, during the 8 months of the program, the designers only have four face-to-face meetings with the craftsmen. Each meeting has usually 3 or 4 days to discuss the design and production progress. Within this limited time, then, there are questions to answer. How do the design center, designers, and craftsmen accomplish the targets of the projects? Given their different educational backgrounds, interests, customs, and cultures, how can they negotiate their way around the differences during the working process?

4 Interview with the staff of IDDC in November 2017
6 Interview with staff of the design center on February 2017
4. Explaining the Diverse Interests and Motivation

I will highlight three diverse interests and motivations found during the development process, which acted as the main obstacles to succeed the design progress. They were the targets of the design center, the market needs the designer targeted, and the demands of the craftsmen. Subsequently, I investigated the design process by specifically paying attention to the process carried out by a designer with a group of craftswomen and seeing how they have adjusted and reconciled their different ways of thinking.

4.1. The target from IDDC and the market needs

Before the selected designers went into the field, a meeting was held to discuss the objectives of the DDS program, its schedule, and other technical requirements organized by three supervisors. They are an academic who was a design researcher from a design school, an industrial design professional who has a long experience working in the electronics industry, and a staff member from IDDC. They have roles as mentors for all participants, organizing the evaluation meetings, and make sure the program succeeds in a timely manner. The supervisors basically allowed the designers to target any kind of market. However, the important point is that the project should be done in 8 months, and there should be a proper exhibit in the trading expo, where potential buyers gather, and the high-rank officers will evaluate the program.

To understand the characteristic of the targeted market, the designers could utilize trend-forecasting platforms provided by the design center, such as Stylus and Euromonitor to research the market behaviours, the on-going trend of design, including the colours, patterns, materials, and the most purchased products in particular countries in the world. The platforms provide detailed information about shipping requirements, including size and weight, and restrictions on chemical usage in the materials. All this information assists the designers to construct the initial idea and to imagine future products that are far more suitable for the targeted markets. Radit, a designer I consulted, has aimed for two places: France and Europe in general. Although France itself is in Europe, he found distinct traits, and he decided that he should treat the two regions differently by carefully creating a specific form of design for each targeted market. He planned to create household products, specifically products used in the living room and in the kitchen, though at this stage he had not started the sketching process.

The supervisors organized ‘evaluation meetings’ (monev) every time the designers finished meeting with the craftsmen. During these meetings, the designers, including Radit, had an opportunity to report the progress every time he returned from the meeting with the craftswomen. Radit explained, “The meetings were important moments for me to share my findings in the field, and I could also consult with other members about the difficulties I encountered during the design process. The session was useful to get insights and to evaluate the design progress.”

Each of the designers encountered various constraints, such as limited tools, different languages and habits in the region, religious rituals, material availability, and so forth. The different working patterns between designers and craftsmen were also challenging factors. This is because almost all of the designers received training in a mass-produced industrial style, while the craftswomen had different paces of work. Radit, in particular, also had to think radically about a new design for the targeted market, considering the limited condition in the craft village.

7 All names of informants in this paper are pseudonyms.
8 Interview with Radit in February 2017
Despite such limitations, the design center required all participants to make progress within relatively a short time, as it had to report the results of the program to the Directorate. The consequences of not achieving the target would be fatal: there would be cuts in the budget, and the design center might closed. However, to achieve the target, designers had to be able to find quick ways to develop suitable products for the targeted market. We have explored the different targets and interests of the design center and the designers. What, then, is the motivation of the craftswomen?

4.2 The motivation of the craftswomen

The designer collaboratively worked with a group of craftswomen called Rizki Kelipuk, most of whom were weavers of *eceng gondok* (water hyacinth). Mrs. Sumiarti, the leader of the group, explained that the families of the group members mostly worked as a part-time farm labourer. One of the group members explained, “Working on a farm and at the same time as a house wife is arduous. I am getting older, and perhaps in the next couple of years, I will not be able to work there.” The members attempted to work together in a group, and they expected to have more earnings from crafting.

In fact, Rizki Kelipuk has tried to exhibit its works in small-scale exhibitions, such as small bags and pouches (see figure 2). However, Mrs. Sumiarti explained that the group faces a difficulty in finding new potential customers, because they neither have expertise in marketing, nor the ability to develop new products suitable for the new markets.

Radit believed that by targeting a group of craftswomen, the impact would be broader than merely working with a single craftswoman. However, Radit and Rizki Kelipuk’s group should develop a new design that is suitable with the daily behaviour of the group. By looking at the diversity of needs and the condition of the main actors, then, how can designers and craftsmen collaboratively achieve the set target? In the following section, I show in detail how Radit and Rizki Kelipuk’s group worked on their new products, by focusing on the role of sociotechnical instruments to underpin the design process.

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9 Interview with Radit in February 2017
5. The Instrument in the Designing Process

In the first meeting, Radit and Rizki Kelipuk’s group exchanged general information, such as the planning, the capacity of the production, and the portfolio of the craftswomen and the designer. After this meeting, Radit could understand the detailed information about the capacity of the workshop, and the available resources in the village. They decided to design products that could be created by considering the daily activities of the craftswomen.

In the next meeting with the group, Radit brought a printed file of the design called a ‘mood board’ (see Figure 5), which became a guiding reference for them to discuss in detail the ambience of the environment where they will place the future products. The mood board is an important tool to achieve a similar understanding between the designer and the craftswomen about the new form of the product and its placement. By referring to the mood board, they can share their own ideas and start developing the design.

On the mood board, Radit showed the interiors of a living room and a bedroom to Mrs. Sumiarti and other members of Rizki Kelipuk’s group. Based on the information from the Stylus and the CBI, Radit explained the behaviours of the targeted users, as well as their daily activities. On the other hand, Mrs. Sumiarti provided many insights about the characters of the materials and the techniques that might be suitable to the design process. Radit and the group could also actively discuss and follow up the progress through a messenger application. Mrs. Sumiarti explained to me that, “Although we rarely meet in person, we can still communicate with each other through online applications. Some of the drawings here were sent through Whatsapp by Radit”\(^{10}\).

\(^{10}\) Interview with Mrs. Sumiarti in February 2017
The third meeting mostly discussed and evaluated the prototyping process. This very open and informal discussion between the designer and the craftswomen is very special. (Figure 4). Radit, the members of Rizki Kelipuk’s group and some of the local people mostly discussed trivial topics and also the prototypes while having lunch.

When Radit looked at the new design of the stools made of water hyacinth and wood, he was not satisfied with the result because the leg of the stools seemed unmatched with his design. During the evaluation, a neighbour in the village told Radit and Mrs. Sumiarti that she had a relative who was a logger that could help them to provide the best quality of wood suitable for the stool. They accepted the offer, and Radit trusted Mrs. Sumiarti to organize the production of the wood, without interfering further about the provision of the wood itself. The interesting point here is that the people in the village could freely offer ideas, although they were not part of this project.

Another problem that Radit faced was the limited working tools in the village. For instance, the women had few proper tools to support the production in their workshop. In a stool that Radit designed, the shape of the cushion that used water hyacinth was circular. However, as the workshop did not have any mold, and the craftswomen could not afford to order one, they tinkered a truck tire as a mold for the cushion. As a consequence, the circular shape was not accurate and the volume of the cushion itself was rather smaller than the design. This kind of limitation has indeed forced the flexibility of the design process.

*Figure 4. The discussion between the designer and a craftswoman. Doc.: Author*
In every meeting, they needed to write down their progress in the form of ‘design progress reports’ created by the design center (see figure 6). This form became a tool for both the designers and craftsmen to oversee their progress and commitment, as well as ‘a proof’ to follow up each other’s tasks.

To sum up, the case of Radit and Rizki Kelipuk reflects important aspects of understanding the role of instruments in their work, such as meeting organizations, trend forecasting media, the mood board, the communication technology, and the design progress report that helps them to achieve targets collaboratively. Along with that, the informal environment also influences the flexibility in the design process, such as freely involving neighbours in the talks, as well as tinkering the limited tools.
6. Discussion: The Reconciliation of Diverse Interests and the Roles of Sociotechnical Instruments

Design practice has been prevalently adopted to improve the social condition by collaboratively engaging the communities throughout the design process. Although participatory design has been well formulated, there is a need to reengage to the institutional influence where the design activities might be strongly informed (Huybrechts et al., 2017). The case study in this research reflects the different characteristics of institutions, such as the formal governmental institutions and the informal institutions in the craft village strongly affect the design process. Therefore, what kind of strategy is formulated to reconcile diverse interests of the actors? How can the influence of formal and informal environment affect the design progress?

In this paper, I firstly propose to identify the diverse motivations and needs of the participants in this project that may impede the design progress and subsequently look at the sociotechnical instruments that facilitate the impeding factors. There are three diverse interests and motivations that act as obstacles to constrain the collaborative works of designers and craftsmen. First, the target of creating a new export product within a limited time set by the design center. Consequently, the centers forced the designers and craftsmen to meet their set targets. The short timescale of the project and the high market target exacerbated all these challenging factors. Second, the target market set by the designers. Radit aimed the market prior to encountering the craftswomen. The needs of the targeted market, in turn, confined the designers and craftsmen in determining the new form of design as the new design might not be suitable with the working condition of the craft workshop. Third, to achieve the demands of social enhancement in the craft communities and to adapt the design activities with the socio-cultural circumstances in the craft villages. The enduring sociocultural elements in the craft village, such as the daily life of the craftswomen as housewives who also work as part-time farm labourers reflected in the case of Rizki Kelipuk’s group, may have impeded the construction of new designs.

Throughout their collaborative work, the sociotechnical instruments that consist of two important factors helped to overcome the obstacles. First, the standardized organization tool provided by the mentors from the design center, such as, the four-meeting schedule between the designers and craftsmen, the evaluation and monitoring process after the meeting in the village, and the design progress report. For instance, the progress report became an instrument to identify what had failed and succeeded during the prototyping process, and at the same time, it provided a platform for the designers and craftswomen to follow up with each other about their own tasks. Another example is the role of the mood board sharing session initiated by Radit that has mediated his and the craftswomen’s ideas. The mood board facilitated them to imagine their future products, and to exchange information about the resources and skills available in the village. This condition echoes a suggestion by Thorpe & Gamman (2011) about the necessity for designers to be responsive to local conditions when engaging in participatory design. Before going to the design process, the ideation process was an important step for Radit and Rizki Kelipuk’s group to discuss about the future products. This session has a vital role in collaboratively setting the common expectation to guide and frame the future design. In this regard, the negotiation step was not merely confined to the hands-on prototyping process (Wilkie, 2014), but the mood board sharing to set the expected design was also an important step before the prototyping. This moment is also crucial to respond and map the potentiality of what already exists before stepping into the prototyping process.

Second, despite its constraining sets of instruments to monitor their daily work, the informal and flexible environment of the craft workshop remained intact, allowing the designers and craftsmen to interact easily and to work collaboratively. Many new ideas and solutions emerged in a variety of situations, such as during lunchtime. For instance, as Radit and Mrs. Sumiarti discussed the problem of the
prototype when they had lunch together, the idea popped up from a neighbour who joined the lunch session. This flexible and informal condition is in line with the analysis by Turner (2013) about the ‘building block of success’ of informal enterprise, that accentuates the value of friendship as a social capital. To sum up, the organizing tools have helped to rationalize the informal working process of the craft workshops, but somehow have also allowed flexibility for the designers and craftsmen to explore a variety of new design and working process. The informality of the craft workshops still has a crucial role and it becomes an advantage to find a solution during the design process.

7. Conclusion

The case study in this research reflects the needs of the designers, craftsmen, and governments who aimed to develop traditional craft products. Consequently, there is a confluence of different ranges of ideas during the transformation of the artefacts. Sometimes the design process would be impeded by different views of actors and its underlying socio-cultural background.

The sociotechnical instrument as sets of technical apparatus and organizational tools has a crucial capacity to reconcile many interests of actors and the capacity to adapt with the formal and informal environment. It consists of the project timeline, periodical evaluation meetings, and the design progress report set by the design center. The design progress report allows each actor, including the design center, designers, and craftsmen, to evaluate each other’s tasks, and it increases a sense of responsibility as each actor records and assesses their tasks. The informal situation in the craft workshop has also an important role in determining the design outcome, such as the usage of the new technology to facilitate the daily communication as well as to tinker the limited tools in the workshop. During the process, not only do the designers and craftsmen involve in the process, but also other participants, such as the neighbour of the craftswomen. This reflects the main characteristic of the small craft enterprise. Not fixing the design from the outset and being flexible with the ideation allowed varied ideas from anyone to merge anytime. In conclusion, the design process in the context of community development might actively involve actors from varied types of institution and needs to consider the socio-cultural context. This condition necessitates both designers and other participants to flexibly adapt each characteristic into their design practice.

8. References


About the Authors:

**Prananda L. Malasan.** Born in Indonesia and raised in several places, Prananda has experienced the rich diversity of languages, behaviors, rituals, and people’s everyday activities, which have influenced him to learn more about what culture means to society and adopt this experience to his research and design activities. Bearing this principal to the mind, he believes that with the capacity of design in solving problem and constructing what future can be, every designer should always consider socio-cultural context where design activities take place. In other words, design methodology should always be fluid and flexible depend on each contextual factor. Currently, with a concentration on the social studies of craft and design and the everyday politics of small enterprises, Prananda has conducted vast numbers of ethnographic research in various craft villages in Indonesia. He is currently a lecturer and researcher at Industrial Design Department, Institut Teknologi Bandung, Indonesia.

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