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Research Article

An Empirical Study of Craft Design in Vietnam

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Abstract

Design plays a very important role in Vietnam's craft sector. Attractive craft design can help add value to the country's craft products. In a highly competitive craft market, craft design is considered a key competitive edge for craft companies to secure a position in the international market. Vietnam's craft design sector remains underdeveloped. The sector is characterised by a lack of market networks and innovations, low levels of design capacity, environmental problems and improper design processes. This paper contains a quantitative study of 305 companies and in-depth interviews with different stakeholders such as business owners, business support organisations, designers and buyers in the country's craft industries. Data from 305 questionnaires revealed the significant positive relationship between market demand and craft design. This study also found that if the environment becomes increasingly polluted, companies will be compelled to care more about greener, more environmentally friendly craft design.

Keywords: craft design, competitive edge, innovation, market demand, environmentally friendly design

Introduction

Design plays an important role in product development and businesses. Through design development, businesses tend to be more innovative, more efficient and increasingly profitable (Designing Demand, 2007). The design of products plays a vital role in organisational development and in creating organisational advantages. In this competitive world, design can help companies to align competitive objectives, share risks and costs, and share the benefits resulting from collaboration (Narayanan and Raman, 2004). Improving product design is not only a way to improve products, but it

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also costs effective and profitable. Product design is fundamental in business to meet constantly changing consumer requirements. According to Kulwant (2002), in recent years, many manufacturers achieved sustainable success because they had quicker product development than their competitors. In these circumstances, design plays a key role in meeting customer needs. In terms of the environment, due to the effects of climate change all industries need to consider the environment as one of the key issues for sustainable development. Environmental considerations flow from market demands, as well as from government regulation and international standards, for example, ISO 14000, FSC & CoC requirements for imported wooden products, etc. (Santos-Reyes and Wright, 2001) which are driving forces for environmentally friendly design. Many businesses are focusing on environmentally friendly designs that require few raw materials and energy, produce les waste such as harmful chemicals, and make use of recycled materials when possible.

According to traditional business, design was an independent innovative work, however, in the current business environment; design cannot be separated from the market, techniques, environment or business efficiency. Good design needs to meet customer expectations, fit suitable business practices, be environmentally friendly yet remain economically efficient.

Craft design covers all of these factors, especially in terms of customer and market orientations. Not all Vietnamese craft companies are aware of the role of craft design as one of the sharpest weapons in a competitive market.

The craft design sector in Vietnam remains underdeveloped. The sector is characterised by a lack of innovation, with firms often preferring to either copy their competition or merely produce designs to order. It also suffers from a low level of design capacity, through in-house designers, design services and consultancies and design graduates, all of which are failing to meet the demands of a competitive modern craft market. It is clearly the case that very few companies have proper design management processes. Vietnam's craft production is based on the intensive exploitation of raw materials and lacks of innovative designs, and this leads to low added-value and cheap prices for the finished goods. The implementation of craft design could have a strategic impact on local economic development and local brand promotion.

More than 70% of Vietnamese population live in rural area. The craft sector plays a very important role in rural development, not only in creating employment and increasing rural incomes; it plays an integral part in income generation for workers and economic restructuring in localities. The craft sector is highly attractive to, and takes advantage of unskilled and idle labour, as well as making use of retired people as a way of improving family finances. The craft sector has created many products which have high economic value and export turnover continues to increase annually. Many craft production facilities have already proved their quality and promoted their brands at home and abroad. In conclusion, craft industries in particular and the rural sector in general are not only increasingly important for rural areas, but also contribute to the sustainable development of the whole country.

Literature Survey

Design can create competitive advantages for companies, especially craft companies, but not all companies are capable of turning this into a reality. Investment in craft design can reduce production costs, increase customer satisfaction and enhance a company's brand.

There is a huge range of research and reports on the craft sector and on craft villages, but very few Vietnamese documents focus on design. While there are large numbers of documents focused on design, few mention the craft sector via international sources.

Design Industry

A generic model of new product design and development was studied by Peter et al. (1999). This study was conducted through a review of the available literature and preliminary data provided by large firms. Semi-structured interviews with individuals involved in new product design and development processes were also included among the methods employed to gather the data. In-depth interviews were conducted with personnel involved in new product design and development. A case study was conducted for each company to provide the empirical basis for the model.

Peter et al. (1999) stated that a company should adopt a strategy on new product design and development with a long term vision to coordinate all activities within the design and development process: an overview of process requirements; future perspectives in respect of company goals; ethical issues; resourcing; time and financial constraints; uncertainties and attitudes to risk; senior management support; definition of project boundaries; and benchmarking. The company should put great efforts and resources into new product design and development for a more effective process (Peter et al., 1999).

Chiva-Gómez et al. (2004) presented that product design is an essential element of the new product development and innovation process, but this efficiency relies on management. However, there are no generally accepted consensuses as to exactly what activities this management involves, nor any proof of the most suitable context for it to develop or their relationship with performance. In this paper, the authors studied product design management in depth, and discovered in which contexts it could make a difference to performance. In order to do so, the authors carried out case studies at four companies from the Spanish ceramic tile sector that showed evidence of efficient product design management.

Liu and Tsai (2009) discovered that many Taiwanese companies considered design as important element that could differentiate them from their rivals. In terms of the relationship between new product design and new product development performance, the study proved through statistical analysis that companies in Taiwan valued product design and tended to have better new product development performances when the value of the process was more highly appreciated.

Leavy (2010) identified that design and innovation have recently become a pressing concern for CEOs. According to Roger Martin, a leading proponent of design thinking, *"we are on the cusp of a design revolution in business. Today's business people don't (just) need to understand designers better. They need to become designers."* (Martin, R., 2006).

Market Demands for Craft Design

Based on a research on "Designing Demand: The Importance of Design", design and innovation is competitive strategy in a highly competitive and demanding market. However, even a decade ago many UK companies did not consider design as a key market factor. About 70% of UK companies failed to exploit the opportunities presented by improved design (Designing Demand, 2007).

Following a national design demand programme, SMEs realised the importance of design in innovation and creativity to drive competitiveness. The government played a key role in design development in the UK because the programme targeted more than 6,500 firms and helped decision makers consider design as an element in their decision making processes.

According to the Value of Design Fact Finder (www. designfactfinder.co.uk) issued by the UK Design Council, "every £100 a business spends on design increases turnover by £225".

Inglis and Clift (2008) used an exploratory and descriptive organisational case study of a multi-functional product decision-making environment. It revealed how product development is derived from identifying and targeting consumers and market demand. Product development needs close co-operation with marketing. The research shared a broader view on the inter-related conception of the product and its value. It is vital to develop products based on a market-orientation.

Within a market-orientated context, understanding and creating value for customers requires the coordination of all elements and activities within an organisation, a point that distinguishes market orientation as more than just the single responsibility of the marketing department or function of a firm. (Ruekert and Walker, 1987; Webster,1988).

Tung (2012) discovered that drawing from the collaborative experience, this study advocates a collaborative craft-design process to act as the basis to develop an approach for local craft development and sustainability. The conclusions drawn suggest that the concept of craft product design combines what is desirable in a craft with what is possible through design. This study revealed that designers can play a formative role in helping promote local craft knowledge among other industries. This can cultivate local craft industries and encourage and inspire artisans to concentrate on continual innovations. This paper highlights the valuable links between craft and design as a mutual learning mechanism, where both sides exchange knowledge and bolster their capacities.

Environmental Issues

Kalisvaart and Van der Horst (1995) discovered that the ecological aspects of products play a deciding role in product development, helping reduce waste and resolving material shortages, promoting energy savings, toxicity regulation and in addressing climate change issues. The research focused on key elements related to eco-design and provided eco-designs that could be immediately applied. Normal business constraints and their relationship to the environment can be difficult to reconcile, therefore, profitable environmentally friendly products which are easy to create are vital for normal businesses. The Life Cycle Analysis eco-design programme tool takes products from their concept to production, marketing, usage and disposal stages. Eco-design can be implemented in firms of any size which have a commitment to eco-design. It also needs an itinerary journey with specific milestones and feedback mechanisms on the development lessons learned.

Santos-Reyes and Wright, (2001) described a process to address the problem of applying environmental concerns into early product design processes that are consistent with international standards such as ISO 14001 environmental management system. This approach could improve the environmental performance of a product and support an organisation's environmental management system. Due to the effects of climate change, all industries need to consider the environment as an element in terms of sustainable development. Environmental considerations also spring from market demand, government regulation and international standards, including ISO 14000, FSC & CoC requirements for wooden products, etc. They discovered demand for environmentally-friendly products was enhanced by customers, and that environmental issues should be integrated into the early stages of the design process, in a concept described as the Design For Environment (DFE) strategy. The purpose of this strategy is to improve the eco-performance of a company.

Design for Sustainability (D4S) is a methodology to focus on three concerns: People, Planet and Profits. It aims to create products which are human centred, does no harm to the planet and is profitable. D4S is a new method that seeks a way to achieve both

economic growth and environmental protection. It is argued that D4S can add value through cheaper prices and better quality. There are seven cases to illustrate the benefits of D4S through reductions in inputs and chemical usage, better re-designs, etc. Despite this, it is stated that companies are still very reluctant to adopt designs for sustainability. (Garrette et al., 2009)

There are many documents that state the positive relationship between economic growth and environmental degradation. Angelo et al. (2008) argued that non-environmentally friendly products may cause economic growth, but have negative impacts on the welfare of individuals. Chen (2004) commented that customers could not purchase a green product that they cannot afford.

Nevertheless, relating to the direct relationship between design and environment, Bras (1997) stated that environmental degradation comes from excessive consumption of natural resources and the "Design for the Environment" (DFE) makes good business sense and has many other positive effects, but it does not mean that financial reward can always be expected from being environmentally responsible. Many companies are struggling with how to move towards environmentally friendly solutions in a profitable manner. Deniz (2002) stated that design can have an impact upon the environment in many different ways; through the extraction of raw materials, the design of the manufacturing process, how the product is used and distributed and what happens when the product reaches the end of its useful life. Designers are in a powerful position and are able to help create a better world by considering environmental issues and creating environmentally friendly processes and products.

Research Methodology

The survey population was consolidated based on a list of craft companies in Vietnam provided by Vietnam Handicraft Exporters Association categorised by region: the country's northern, central and southern areas which represent 36%, 14% and 50% of the total respectively. The target response ratio was determined based on the distribution of the companies based on their geographic allocation (36% in the north, 14% in central areas and 50% in the south). The sample list was compiled by a randomised selection of the companies in each region to meet the expected response ratio. In cases in which a response could not be reasonably be obtained from a SME in the sample list, a substitute was included being the next firm on the list.

The table below is representing the total population of craft companies and sample size:

Table 1: Geographic allocation of the surveyed companies

Geography allocation	Total craft companies		Surveyed	
	Quantity	%	Quantity	%
Companies in the north	396	36%	110	36%
Companies in central region	88	8%	25	8%
Companies in the south	616	56%	170	56%
Total:	1,100 SMEs	100%	305 SMEs	100%

The scope of interviews were based on variables of the research framework, covering craft design, market demand, copyright, environmental issues, designer capacity and the design process. Therefore, the respondents needed to understand and

have the authority to provide the necessary data; therefore, the respondents should be company directors or vice-directors.

The variables for study included demographic variables, respondent profile, name, address, product range, year of establishment, etc., turnover (for designed products and copied products), number of total employees and number of designers. The study had independent variables (market demand and environmental factors) and a dependent variable (craft design).The quantitative study was applied to 305 valid companies. The Cronbach's Alpha (α) was used to test the reliability of the research variables such as market demand, environmental issues and craft design. The results of the Cronbach's Alpha (α) are all over 0.9 for all variables as below:

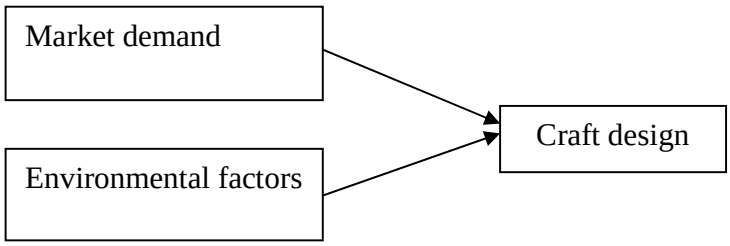
Table 2: Reliability Statistics

Variable No.	Variable Name	No. of item	Cronbach's Alpha
Variable 1	Market demands	4 items	0.943
Variable 2	Environmental issues	4 items	0.999

Research Framework

Design is a vital factor to help companies to gain a competitive advantage over their competitors (Narayanan and Raman, 2004). Product design is fundamental in business to meet the constantly changing consumer requirements. The globally competitive environment and sophistication that characterises the workplace have set the stage for an alternative design-oriented perspective for new product design development (Hatchuel et al., 2002). This is even truer in the craft sector, where design is considered as the backbone for companies to be competitive in the global market.

Based on the literature review, the author argues that environmental issues and market demand are important influencing factors on craft design in Vietnam. Therefore, the research framework and hypotheses has been developed as below:



The hypotheses:

H1: There is a relationship between market demand and craft design.

H2: If the environment becomes increasingly polluted, then companies will care more about environmentally friendly design.

Analysis Results

Respondent Profiles

All respondents were directors or vice-directors in the companies surveyed. Among the 305 companies, 110 companies were located in the north (36%), 25 in the central region (8%) and 170 in the south (56%), meeting the target response ratio.

Labour Usage in the Surveyed Companies

With the support of SPSS software, it is easy to see the descriptive analysis on means, variance and deviation of the labour usage in the surveyed companies.

Table 3: Labour usage in the surveyed companies

Labour usage in the surveyed companies		
	Mean	Std. Deviation
Part time	56.29	99.646
Full time	43.62	40.168
Domestic Designer	3.42	2.025
Foreign Designer	.37	.898

Full time workers: On average, each company employed 44 fulltime workers, with the standard deviation at 40.17, and the range at 348. The company with the largest number of full time workers had 350, and the smallest employed two full time staff. Part time workers: On average, each company used 56 part time workers. The greatest number of part time workers per company was 1,000, while some employed no part-time staff.

Local designers: All surveyed companies had at least one local designer and the greatest number of local designers was 11. On average, each company used four local designers. This statistic showed that companies have started employing designers working in-house.

Foreign designers: Almost all foreign designers have a good idea of consumer taste and have a better working methodology than local designers. However, their salary demands were also much higher than local designers, therefore, not all the companies could afford to employ foreign designers. Only 7.5% of surveyed companies used foreign designers. Based on diagram below, about 3% of companies used a foreign designer, 6% used two foreign designers and 7.5% used three foreign designers, while the majority (84%) employed no foreign designers.

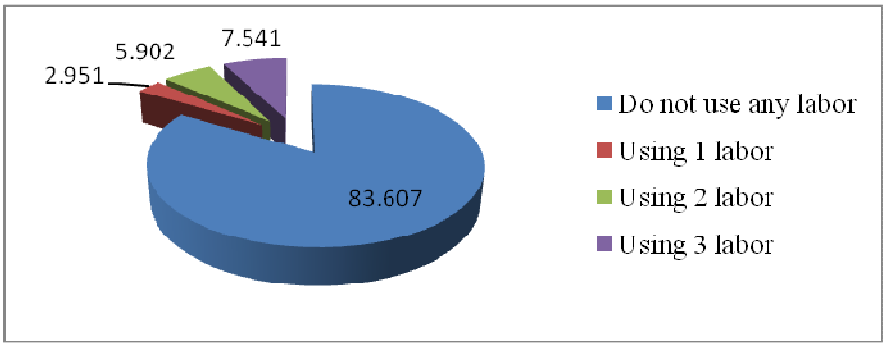


Figure 1: Diagram on employment of foreign designers

Average turnover over three years (2010-2012) totalled about US$607,204, with a standard deviation of US$609,922. The companies with largest and smallest turnovers respectively, earned US$6,905,000 and US$75,000.

Turnover Structure

The percentage of turnover based on self-designed products was only 35.7%, while turnover from products for which the design was supplied by the client represented 64.3%. These figures show that the capacity of in-house designers still does not meet market demand. The export market accounted for 97% of the total sales, with only 3% of the surveyed companies selling to the local market.

Findings on Market Demand

The export returns on Vietnamese crafts are very high. However, there are many restrictions to exporting Vietnamese crafts, and the first of these factors that needs to be improved is design. Vietnamese crafts are currently only regarded as *'art'* and lack of the commercial factors that would improve product viability. Moreover, the producers of crafts generally suffer from major limitations in product design and packaging; do not focus on brand improvement or product value, and lack of research in market tastes, etc. The results obtained from surveys on the demands of the design market are remarkable. In-house original designs accounted for only 13.5% of orders, with most clients supplying their own designs.

Table 4: Market demand for original in-house designs

	Frequency	Percent (%)
Strongly disagree	25	8.2
Disagree	153	50.2
Neutral	86	28.2
Agree	39	12.8
Strongly agree	2	.7

Findings on the Environmental Issues

Up to 7.5% of enterprises strongly agreed that they cared about sustainable design, 64.3% agreed and only 11.9% of enterprises did not agree that they cared about sustainable design. This result demonstrates that most enterprises are environmentally aware and/or actively attempt to make sustainable products.

Table 5 Enterprises focused on sustainable design

	Frequency	Percent %
Strongly disagree	23	7.5
Disagree	196	64.3
Neutral	50	16.4
Agree	34	11.1
Strongly agree	2	.7

Multiple Linear Regressions

To prove the linear regression by running multiple linear regressions by putting both independent variables (markets demands and environmental issues) together against dependent variable (craft design) according to the formula: DV = mIV1 + mIV2

Table 6: Multi Linear Regression between market demands, environmental issues and craft design

Model Summary

Mo-del	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change	R Square Change	F Change	df1	df2
1	.954(a)	.910	.909	.23237	.910	1525.407	2	302	.000

A Predictors: (Constant), AVGB4, AVGB1

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	.189	.047		4.055	.000
	AVGB1	.174	.074	.175	2.350	.019
	AVGB2	.759	.073	.782	10.474	.000

A Dependent Variable: AVGC

Through this multiple linear regression, the formulation is:

AVG C = 0.189 + 0.174AVG B1 + 0.759 AVG B2

The formula is significant at the sig. <0.05. It can be concluded that there is significant positive relationships between IV1, IV2 and DV, or it can be said that there is significant positive relationship between market demand, environmental factors and craft design.

Summary of Hypotheses Findings

H1. There is significant positive relationship between market demand and craft design.

H2. If the environment becomes increasingly polluted, then companies will care more about environmentally friendly design.

Hypotheses Arguments

Is market demand the main influence on craft design or vice versa? In many hi-tech fields, design can create market demand as a blue ocean strategy. In the case of Vietnam, craft design should be based on market demand which is more practical.
Environmental factors have great influence on craft design both in terms of material scarcities and customer requirements. The scarcer the availability of materials and the more polluted, the environment becomes the more interest in sustainable craft design there will be.

Conclusion

Design is a hugely important stage in a product's development. It is the time for creative processes to shape and outline the desired characteristics, such as shape, size, colour and any additional product features. Design is not an isolated activity and is closely linked with market demand, designer capability, environmental issues and a firm's design process.

In the past decade, the Vietnamese design industry has faced fundamental changes and today the field of design is expanding rapidly. Working conditions and incomes have also greatly improved. Nevertheless, this is still not enough to compete with other countries. Vietnamese designed craft products are not highly appreciated on the international market. Not all Vietnamese companies recognise the importance or make the most of the benefits provided by good design. There are still too many gaps between design and market demand, design capacity, design processes and understanding of the benefits derived from craft design. The results of the analysis are reviewed below:

Market Demand

Companies making products based on their own in-house designs have higher average turnovers than those that make products based on the designs provided by their clients. However businesses still depend on designs provided by customers. Sales of self-designed products only account for 13.5% of total client orders.

Environmental Issues

Businesses also pay great attention to sustainable design development (7.5% strongly concerned, 64.3% concerned) but the surveyed enterprises have no established relationship between the design process and environmental issues (33.77% disagreed and 17.7% totally disagree). Another concern is the sourcing of raw materials and the pressure created by environmental regulations.

Implications for Practice

This research has practical implications related to business and based on the results of the above qualitative and quantitative analysis.

Design for craft industries in Vietnam is still strongly dependent on designs provided by clients. Turnover of products provided by clients is almost double that of products designed by businesses themselves. Due to being dependant on outside designs, Vietnamese businesses have to rely on cheap labour or raw material sources to be competitive, but these are not sustainable as competitive factors. Therefore, Vietnamese businesses need research and investment in

design. Businesses who have orders for in-house designed products accounted for just 13.5% of the total. These designs do not meet the market requirements and customer tastes and show the limited design capacity of domestic businesses. Therefore, domestic businesses need to not only improve their professional design capacity but also better connect with their markets. Arranging the design process is necessary to optimise efficiency, but most of the businesses in this study seem to pay little attention to this arrangement. Most of them think that specific guidelines or research prior to design are not necessary. For this reason, there is a need for participation in government programs, and the support of international or specialist organisations to enhance awareness and business capacity on managing the design process. If businesses do not have well-designed processes in place, then regardless of whether they have good design staff they cannot maximize the benefits of design for their business.

For environmental issues in design: The study indicates that businesses are not aware of the benefits and requirements to integrate environmental issues into their design practises. There have been some sustainable design programs in Vietnam, but their impact on businesses has been weak. Thus, some models which are both economically and socially efficient need to be established and widely shared in order for businesses to consider absorbing environmental issues into original product design.

Implications for Theory

Design is of interest to researchers as it is a key factor for an enterprise to achieve a competitive advantage. This research offers a new look at craft design in Vietnam. The results show a clear relationship between craft designs and the influential factors related to market demand, designer capability, environmental issues and the design process which can be referred to by researchers studying in similar fields.

Limitation of Study

Craft design is a dependent variable and the term craft design has broader meaning. Despite these independent variables being the best available, they did not cover all aspects of craft design.

The research considered craft as an industry, but the sector contains seven sub-categories (bamboo and rattan, ceramics, wood products, lacquer, textiles and embroidery, paper and metal ware). The research did not provide an in-depth analysis of the design factors used in each sub-category.

Recommendation for Future Studies

Based on the limitations described, it is recommended that further research into craft design should be carried out to provide a deeper understanding, including research on different design software and the characteristics of the design development process for each of the craft sub-categories as they differ in term of design, production and marketing. Further research involving different craft design stakeholders would be recommended, which could provide greater insight and more varied views compared to the data sourced by a survey reliant on only business owners.

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