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The Mediating Effect of Design Innovation between Brand Distinctiveness and Brand Performance: Evidence from Furniture Manufacturing Firms in Malaysia

Puteri Fadzline, Norzanah Mat Nor, Syed Jamal Abdul Nasir Syed Mohamad*

*Faculty of Business Management, Universiti Teknologi MARA (UiTM),
40450 Shah Alam, Selangor Darul Ehsan, Malaysia*

Abstract

The paper examines the relationships among brand distinctiveness, design innovation and brand performance of furniture manufacturers and the mediating effect of design innovation between brand distinctiveness and brand performance. Questionnaires were distributed to more than 500 manufacturers and 204 questionnaires were analyzed. A 49-item questionnaire which consists of brand distinctiveness, design innovation and brand performance were carried out to investigate the relations among these variables. Statistical evidence was found to confirm only functional innovation as one of the dimensions of design innovation that fully mediates the relationship between brand distinctiveness and brand performance. The paper researches the role of innovation-in a twofold perspective: innovation in product design innovation on brand performance, and as a mediator between brand distinctiveness and brand performance.

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Keywords: Brand distinctiveness; functional innovation; meaning innovation; aesthetic innovation; typological innovation; brand performance; Malaysian furniture industry

* Corresponding author. Tel.: +012-613-8147; fax: +0-000-000-0000 .
E-mail address: 120rahmat@gmail.com

1. Introduction

Brand distinctiveness, design innovation and brand performance are of particular importance to furniture manufacturing firms. These manufacturers in turbulent environments are struggling to maintain their brands with fierce competitors particularly from China and Vietnam. The central goal of this study is to understand the mediating effects of design innovation in the relationship between brand distinctiveness and brand performance. The significance of understanding brand performance is exemplified by the fact that brand performance is the key to a greater firm performance (Li & Calantone, 1998; Slater & Narver, 1995; Weerawardena, 2003). Numerous design innovation scholars asserted that design innovation has a crucial influence on branding (Dell'Era & Verganti, 2009; Matthews & Wrigley, 2011; Norman & Verganti, 2012; Vianna, Vianna, Adler, Lucena, & Russo, 2012). Correspondingly, rich literature has devoted to the relationship between brand distinctiveness and innovation (Karjalainen & Snelders, 2010; Montana et al., 2007; Mozota, 2004, 2010b; Ravasi & Lojcono, 2005). However, the relationship between brand distinctiveness and innovation seems to have been overlooked. Abbing (2010) pointed out that brands add value to innovation where the direction of an innovation is highly influenced by the brand. Thus, a synergy of innovation and branding increases the barrier against competitors with the implementation of proactive firm management and efficient investment. It can also add integrity and authenticity to an innovation, knowingly that this innovation in this company is worth branded, and can overall make the innovation visible (Aaker, 2007; Abbing, 2010).

The predictions of the present study were as follows:

Hypothesis 1: The higher the brand distinctiveness implementation, the greater the performance of a firm's brand

Hypothesis 2: Brand distinctiveness is a determinant of design innovation

H_{2a}: Brand distinctiveness is positively related to aesthetic innovation

H_{2b}: Brand distinctiveness is positively related to functional innovation

H_{2c}: Brand distinctiveness is positively related to meaning innovation

H_{2d}: Brand distinctiveness is positively related to typological innovation

Hypothesis 3: Design innovation is a determinant of brand performance

H_{3a}: Aesthetic innovation is positively related to brand performance

H_{3b}: Functional innovation is positively related to brand performance

H_{3c}: Meaning innovation is positively related to brand performance

H_{3d}: Typological innovation is positively related to brand performance

Hypothesis 4: Design innovation is a mediator between brand distinctiveness and brand performance

H_{4a}: Aesthetic innovation mediates the effect of brand distinctiveness on brand performance

H_{4b}: Functional innovation mediates the effect of brand distinctiveness on brand performance

H_{4c}: Meaning innovation mediates the effect of brand distinctiveness on brand performance

H_{4d}: Typological innovation mediates the effect of brand distinctiveness on brand performance

2. Method

The sampling frame for the study is composed of furniture manufacturing firms operating in Malaysia. Brand distinctiveness and brand performance questionnaire were developed by Wong & Merrilees (2008). The 27-item design innovation questions were adapted from Rampino (2011) which were grouped into 4 different dimensions: aesthetic, functional, meaning and typological innovation. 910 furniture firms were drawn from Corp (2012) according to their sales revenue in 2011. Overall, of the distribution of 500 samples, 204 usable questionnaires were received after elimination of missing data and outliers. The choice of marketing managers and CEOs have been justified as they are likely to be heavily involved in the strategic decisions of their marketing, particularly relating to their branding activities. The initial causal variable was brand distinctiveness (BD); the outcome variable was brand

performance (BP); and the proposed mediating dimensions were aesthetic innovation, functional innovation, meaning innovation and typological innovation. In this research, bootstrapping in SEM is preferred to *Sobel Test* and *SPSS* for mediation effects (Preacher & Hayes, 2008). This technique provides examination of the indirect effects of each predictor variable on the outcome variable in any model (Bollen & Lennox, 1991). The measurement model using fit indices were recommended by authors Anderson & Gerbing (1988), Hair et al. (2006), Arbuckle (2003), Bryne (2001), Kline (1998), Bagozzi (1988) and Hu & Bentler, P. (1995).

3. Results

3.1. Direct effects of brand distinctiveness and design innovation towards brand performance

Most furniture manufacturing firms have an increasing interest in developing a high brand performance. The empirical results exhibits that firms possessing design innovation dramatically enhance brand performance. These findings suggest a direct effect of brand distinctiveness on brand performance as well as design innovation with its dimensions in Table 1.

Table 1. Structural parameters of the research model

H	Hypothesized path		B	C.R.	P	Hypothesis
H1	Brand Performance (BP) ← Brand distinctiveness (BD)		.133	2.54	***	Supported
H2a	Aesthetic Innovation (AI) ← Brand Distinctiveness(BD)		-.740	-7.81	***	Not supported
H2b	Functional Innovation (FI) ← Brand Distinctiveness(BD)		-.777	-9.24	***	Not supported
H2c	Meaning Innovation (MI) ← Brand Distinctiveness(BD)		.821	9.24	***	Supported
H2d	Typological Innovation (TI) ← Brand Distinctiveness(BD)		.826	9.06	***	Supported
H3a	Brand Performance (BP) ← Aesthetics Innovation (AI)		-.014	-1.96	.845	Not supported
H3b	Brand Performance (BP) ← Functional Innovation (FI)		.555	6.37	***	Supported
H3c	Brand Performance (BP) ← Meaning Innovation (MI)		-.072	-.93	.353	Not supported
H3d	Brand Performance (BP) ← Typological Innovation(TI)		-.129	-2.15	.032	Not supported

Note: b refers to standardized beta coefficient; CR refers to critical ratio; p refers to significance level. ***p < 0.05. Impact of control variables are not noted in the current table.

Individual hypotheses are examined next. Examination of path estimates reveals that all the direct hypotheses are significant except for hypotheses aesthetic innovation, meaning innovation and typological innovation influences on brand performance. Brand distinctiveness exerts a direct negative significant impact on aesthetic innovation and functional innovation ($\beta = -.740$, C.R=.095) and ($\beta = -.777$, C.R=.084) respectively, thus rejecting H_{2a} and H_{2b}. Meaning innovation and typological innovation, as expected are influenced by brand distinctiveness ($\beta = .821$, C.R=.89) and ($\beta = .826$, C.R =.091) respectively, thereby supporting H_{2c} and H_{2d}. Relationships of aesthetic innovation, meaning innovation, and typological innovation with brand performance are in negative impact which signifies rejected hypotheses of H_{3a}, H_{3c}, and H_{3d}. Only functional innovation exerts direct significant influence on brand performance ($\beta = .555$, C.R=.087), thereby supporting H_{3b}. Test of fitness of the model used on the whole sample produces a χ^2 value of 1235.224 with the freedom of 970. Therefore, the CMIN/DF was reported to be 1.273. Referring to the chi square, the model does not seem to be compatible. However, the chi square value offers a certain degree of sensitivity to the sample size. As another option, there are several indices which serve to be a potential indicator that can determine the goodness of fit. TLI, NFI and GFI are close to 1, which suggest that the model and the data are also harmonious with one another (Byrne, 2001). GFI show a reasonable value which is 0.803. The RMSEA value was 0.037 and the 90% confidence interval varies from 0.031 to 0.043. The narrow confidence interval of 0.012 suggests that the RMSEA value is precise and 0.05 implies that it has good fitness.

3.2. The mediating effect of design innovation between brand distinctiveness and brand performance

The bootstrapping method was applied which results to fit indices of the model that adequately fits the data (CFI

2.930, TLI 1.014, RMSEA 0.000, NFI 0.995, and GFI 0.995). As illustrated in Table 1, the direct path between brand distinctiveness and brand performance were found to be significant. In Figure 1, however, this path approached zero ($\beta = .02$). The drop in the coefficient of the direct path from brand distinctiveness to brand performance, once the defence mechanisms mediator were controlled as shown in Figure 1.

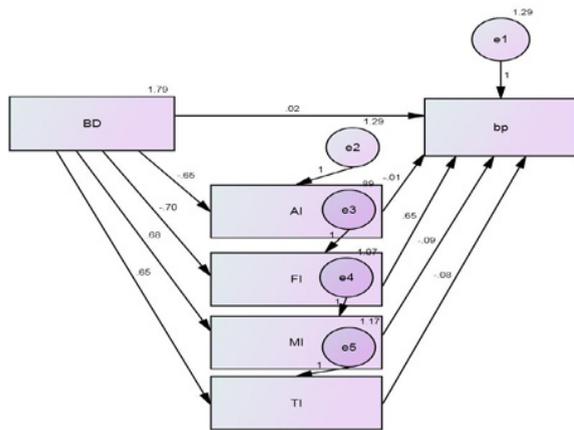


Fig 1. Mediating role of design innovation in the association between brand distinctiveness and brand performance

This research present the standardized estimates indirect effects of variables included in the model in Table 2.

Table 2. The standardized estimates indirect effects of variables

Effect	Estimate		Bootstrap				BC confidence		
	C.R	P	SE	SE-SE	Bias	SE-Bias	Lower	Upper	P
BD→AI	-10.801	***	.056	.001	.000	.002	.000	.000	...
BD→FI	-13.988	***	.048	.001	.002	.002	.000	.000	...
BD→MI	12.298	***	.046	.001	-.001	.001	.000	.000	...
BD→TI	11.295	***	.045	.001	.000	.001	.000	.000	...
BD→BP	.204	.838	.131	.003	.001	.004	-.702	-.308	.002
AI→BP	-.199	.843	.076	.002	.000	.002	.000	.000	...
FI→BP	7.552	***	.085	.002	-.001	.003	.000	.000	...
MI→BP	-1.176	.240	.084	.002	-.001	.003	.000	.000	...
TI→BP	-1.113	.266	.069	.002	.000	.002	.000	.000	...

Note: Based on 1,000 bootstrap samples, BC confidence = Biased-Corrected Confidence Intervals (95%)

Overall, the analysis of this study indicated that only functional innovation mediates the association between brand distinctiveness on brand performance through full mediation, in comparison to the rest of its dimensions of design innovation. Hence, the mediation effect finding only supports hypothesis H_{4b} whereby functional innovation fully mediates the effects of brand distinctiveness on brand performance. The indirect effect of brand distinctiveness on brand performance is -.506 (95% CI: -.702~ -.308).

4. Discussion of results

According to previous research, this study is among the rare studies, besides Wong and Merrilees (2008) that focuses on brand distinctiveness, innovation and brand performance simultaneously. This study supports the existence of a positive relationship between brand distinctiveness and brand performance. Furniture manufacturing firms with brands that have high distinctiveness are more likely to have higher levels of brand performance. This

results is complementary to the argument of Wong & Merrilees (2008). Most researchers also agree that customers have higher willingness to pay more for a brand that owns a set of unique values comparable to other brands (Jacoby & Chestnut, 1978; Reichheld, 1996). Therefore first hypothesis of the study has been verified.

The second hypothesis in the study was on the relationship between brand distinctiveness and design innovation. The finding shows that brand distinctiveness has positive effect on design innovation. However, the positive effect was found only on dimensions of meaning and typological innovation. This is supported by Ratnasingam (2004) that design and marketing stages in business which include brand distinctiveness is crucial to achieve the highest value-addition as opposed to the manufacturing stage. People are searching for an emotional experience in every product they purchase, which makes emotions and meanings a privilege (Mozota, 2010a). Design plays a much larger role in getting the brand message across that contains both emotive and embedded (Abbing, 2010; Vedin et al., 2006).

This study supports the positive relationship between design innovation and brand performance. However, this effect appears purely through functional innovation. Correspondingly, diversifying the use of timber products is one of Malaysia's strength in the wood product industry through the improvement of technology and the quality of wood (Commodities, 2009). Some firms innovate through the flexibility of the process (Ng & K., 2011b). This add to the work of Ratnasingam (2000), who highlighted this issue on the importance of machining process particularly on gluing, the finishing processes, the profiled components and many more. This verified the third hypothesis of the study.

The fourth hypothesis of the current study was the mediating effect of dimensions of design innovation (aesthetic, functional, meaning and typological) between brand distinctiveness and brand performance. The link of brand distinctiveness-design innovation-brand performance is confirmed under functional innovation, as opposed to aesthetic, meaning and typological innovation. This finding is harmonious with Council (2012); Reduction (2009)'s work who indicated that the innovation and technology adoption in Malaysia is of equal status or higher than the middle-income countries, but much a lower level than the high-income countries. Kam & Heng (2010) mentioned that innovation in Malaysia are focusing more on functional innovation and described it as incremental organization and process improvements, new design and regional brands in the furniture sectors as opposed to high tech sectors. Technological innovation is also instilled in the National Timber Policy (NATIP) as a driver for a more successful furniture industry (Commodities, 2009).

In essence, this study indicates that product design innovation does promote brand performance. Furthermore, this further implies that brand distinctiveness by them is simply not enough to achieve superior brand performance. More specifically, functional innovation is a means which firms can address the dynamism present within their brand distinctiveness and still strive in the context of the furniture industry in Malaysia. This type of innovation gives more influence as a mediator in comparison to the rest of the types of design innovation. This is due to the strong network by research and development (R&D) players throughout Malaysia with a strong support by the government. Wood Industry Skills Development Centre (WISDEC), Institute Kemahiran MARA (IKM), Akademi Binaan Malaysia (ABM) are among active training centres that enhance new skills and technical expertise among trainees to become professionals and further develop more functional innovations in the industry (Commodities, 2009). These actors are classified as non-firm organizations and apart of the key actors in generating and adopting new technologies which is included in the main concepts of Sectoral Innovation Systems (Edquist, 1997; Malerba, 2004). In relation to that, most innovation of the furniture industry roots from suppliers and materials as the furniture sector are categorized as supplier dominated sectors which were revealed by Pavitt (2005), similarly to construction, printing and publishing sector and mainly encompasses in machinery, equipment, and capital assets (Vega-Juradov, Gutiérrez-Gracia, & Fernández-De-Lucio, 2009). While expenditures of in-house R&D expenditures are rather limited in the furniture industry, functional innovation is largely dispersed through its process.

On the contrary, this result contradict other findings by other scholars who argued that meaning innovation is also a prerequisite in mediating the effects between brand distinctiveness and brand performance (Norman, D. A., & Verganti, R. 2012). Anssary (2006) emphasized the higher needs of designers' skill in transforming the hard attributes of technologies into soft attributes of emotion needs which is a challenge to designers today. This indicates that elements of meaning innovation need to be synchronized with functional innovation as a mediator which will further strengthen a firm's brand performance. This notion is supported by Mytelka & Farinelli (2000) who stated that firms should not overemphasize on technological innovation and instead look on a wider perspective in product

innovation. Therefore, manufacturing technology with automation in mind must be well synchronized with new design innovation as the furniture industry no longer can depend on manual labour for productivity and quality (Omar, 2013). More precisely, Adams, Day, & Dougherty (1998); Cooper, Edgett, & Kleinschmidt (2004); Cooper (1994) revealed that the quality and competency of the new product performance does not entirely depend on the technology level of its product development. Italian companies that have strong brands with unique designs are good examples of applying the ‘design push’ or a combination of functional and meaning innovation as stated by Lindman, Scozzi, & Otero-Neira (2008); Verganti (2009a); Zurlo, Cagliano, Simonelli, & Verganti (2002). This synchronizes with Ashby & Johnson (2002)’s study that indicates that functional innovation is merely enough to fulfill the overall requirements of the product, but must be coupled with emotional elements.

5. Conclusions

The Malaysian furniture industry is at a crossroad and despite the excellent performance of the economy; there is a very real risk that the industry must change to stay competitive for the years to come. Meaning and functional innovation are closely related with each other and very much dependent on the presence of brand, design and innovation. Hence, firms should invest more in meaning-functional innovation in order to enhance customer’s perception of their brand. Striking the right emotional and functional chord to the customers is essential through these innovations and coupled with brand distinctiveness.

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