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What Governs the End-Consumer's Choice of Floorcovering? A Study of Substitute Competition

Ragnar Klas Henrik Jonsson

The author is Post-Graduate Student, School of Industrial Engineering, Växjö University, SE-351 95 Växjö, Sweden, email: ragnar.jonsson@ips.vxu.se.

ABSTRACT

There is limited knowledge of factors affecting the end-consumer's choice of building material for specific purposes, i.e., the mechanisms of *substitute competition*, necessary to understand the competitive situation of wood.

An exploratory study of the Dutch floorcovering market revealed that context, *usage context*, as well as the general life situation and individual experience, are of crucial importance in *substitute competition*. This contextual character severely limits the usefulness and adequacy of interviews with fixed reply alternatives, as well as classical statistical methods of analysis. In this paper a qualitative approach as to data collection is combined with multivariate analysis. The results indicate that by using this methodology it is possible to determine what the decisive predictors of material preferences are, and to comprehend the underlying motives/perspectives. The results further show that, unlike the other floorcovering materials studied, the reasons determining the choice of wood are apparently exclusively of a nonfunctional nature.

Keywords: end-consumer, choice, substitute competition, floorcovering, context, multivariate analysis

Introduction

Context and Reasons for the Information Produced

The end-consumer, or the household, plays an essential role in the supply chain, as the ultimate user and payer. The market for reconstruction and conversion is expected to grow considerably in Europe. In this type of building activity, the household's assessments are generally more crucial than in the construction of new houses (Anon. 1998). This further highlights the importance of the end-consumer.

A number of empirical studies focus on the attitude of architects and building contractors toward wood and substitute materials (e.g., Eastin et al. 1999; Anon. 1998; Anon. 1992). The general attitude of end-consumers toward wood as a building material has also been investigated (e.g., Anon. 1998), as well as the visual impressions and attitudes toward wood (Broman 1996). Little is known about the latter group's choice of material for specific building purposes/applications, i.e., the mechanisms of *substitute competition* (see Ahlmark 1977, p. 1). Proper market segmentation and targeting requires an

understanding of why households differ as to application material preferences. This calls for a suitable methodology as to data collection and analysis, which in turn requires a proper theoretical framework.

This study is situated within the wide research area of consumer choice. Theoretical concepts and models aimed at explaining consumer choice pertain to the research fields of attitude theory, buying behavior research, and interpretative consumer research. None of these research directions deals explicitly with *substitute competition*. However, elements of these avenues of research should be relevant for the subject in question. This paper proposes a theoretical framework synthesized of constructs and concepts from these research directions, provides a methodology for gathering and analyzing data, evaluates the method of analysis, and discusses the marketing applications of the study.

Purpose and Implementation

Purpose

- To identify factors of importance for the choice of building application material
- To explain why households differ in the choice of building application material

Implementation

After exploring and analyzing concepts and constructs pertaining to the research area of consumer choice, a theoretical frame of reference, synthesized from some of these constructs, is put forward. The theoretical framework decides the approach for operationalization, data collection, and analysis.

The influence, and involvement, of the end-consumer seems to increase as one moves from the construction toward the design sector, i.e., visible parts of the building (Anon. 1998). Floorcovering is a material application with a pronounced design profile, distinct material alternatives, and the fact that the household typically makes the choice of material, make floorcovering a good illustrative example of *substitute competition*. Thus floorcovering is the application studied in the present research.

Theoretical Frame of the Study

Theoretical Background

The Attitude-Behavior Relation

The strength of the attitude-behavior relation is at the center of attitude research. In the noted attitude model, “Theory of reasoned action”, Ajzen and Fishbein (1980) claim that the attitude toward an object is a less reliable predictor of specific behavior than the attitude toward the behavior in question. To understand and predict consumer behavior, it is necessary to consider attitudes toward the act of buying and using a product rather than attitudes toward the product itself.

Within-Category Choice

Most of the research concerned with consumer buying behavior deals with the problem-solving activities of consumers. Holbrook and Hirschman (1982) term this cognitively directed research tradition the “information processing perspective”. Research within the “information processing perspective” has generally focused on explaining the choice between alternatives sharing the same

features, i.e., which are described or represented by the same attributes; brands in the same product category: within-category choice (e.g., Howard 1989; Myers and Shocker 1981).

It is generally assumed that consumers evaluate alternatives holistically; comparisons are based on overall evaluations across attributes (Myers and Shocker 1981). Following this line of research, *multi-attribute attitude models* (i.e., attitudes as the sum of products of beliefs about the degree to which alternatives possess certain attributes and evaluations of these beliefs) mirror the consumers' decision process. In this vein, Howard (1989) suggests that the degrees of importance attached to different evaluative attributes by consumers are the main source of individual differences in buying behavior.

Across-Category Choice

As previously noted, research on consumer choice from the "information processing perspective" has generally focused on explaining the choice between brands within the same product category, i.e., brand competition. However, some research covers what Kotler (1984) refers to as "generic competition", i.e., the choice among alternatives from different product categories, across-category alternatives (e.g., Johnson 1989, 1988, 1984; Park and Smith 1989).

A number of studies have demonstrated that across-category choices differ from brand-level choices (e.g., Park and Smith 1989; Johnson 1988). There are two different types of across-category choice alternatives: *product categories* and *noncomparables*. *Product category* alternatives are defined as a minimum of two alternatives from each of two or more product categories (Howard 1977), whereas *noncomparable* alternatives refer to one alternative from each of two or more product categories (Johnson 1984). Howard (1977) suggests that the choice among *product category* alternatives is a hierarchical, top-down process, where consumers begin choosing among more abstract product categories and proceed to a more concrete choice among particular brands, with a corresponding decrease in the level of abstraction of the choice criteria. Empirical studies by Johnson (1989, 1988) and Park and Smith (1989) confirm Howard's (1977) proposition. In contrast, Johnson (1984) proposes that in choosing among *noncomparable* alternatives, consumers use the concrete attributes of the alternatives to construct more abstract representations on which the alternatives may subsequently be compared, i.e., a bottom-up choice process. Johnson (1989) confirms this difference in choice processing between *product category* alternatives and *noncomparable* alternatives.

Context

Another area of consumer buying behavior research is devoted to the context, i.e., the "situation in which a consumer might be involved or expect to be and which is presumed to impose constraints upon his or her decision" (Graonic and Shocker 1993). Important situational factors for the buying behavior include physical as well as social environment, time, buying and user roles, and state of mind (Belk 1975). Warlop and Ratneshwar (1993) show that the situation in which a product will be used, the *usage context*, is a powerful influence on a consumer's goals, i.e., the benefits desired, and consequently on the decision made. To this effect Graonic and Shocker (1993) demonstrate that *noncomparables* could be more similarly evaluated within a given context than the same product within two different contexts. The explanation of this paradoxical result, offered by Graonic and Shocker, is that a change of context results in a change of judgment of benefits, and *noncomparables*, though differing as to attributes, may offer the same benefits (generally more abstract than attributes)

in the given context, thereby allowing comparisons on a more abstract level. This has been suggested by Johnson (1984) (see the section Across-Category Choice).

Contextual influences entail *conjunctural causation* (i.e., different combinations of conditions produce the same outcome). Ragin (1987) points out that *conjunctural causation* severely limits the usefulness and adequacy of traditional, additive, statistical analysis. It is assumed in multiple regression that a variable's effect is the same regardless of the values of the other independent variables. This contradicts notions of *conjunctural causation* (ibid.).

Perspectives and Meaning

Interpretative (postmodernist) consumer research maintains that consumers can be understood only in a context of meaning and "lifeworld." Phenomenological consumer research focuses on the individual consumer's experience and understanding (Thompson et al. 1989). Hermeneutic research studies another dimension of meaning: cultural meaning rather than individual (Schwandt 2000; Arnold and Fischer 1994).

As phenomenological consumer research focuses on individual meaning, it is apparently more relevant in the present context than hermeneutic consumer research. Phenomenological consumer research studies the meaning products hold for the individual consumer. According to phenomenological consumer research, individual differences in buying behavior result from individual differences as to meanings and conceptions, resulting from different perspectives on the products. The perspective depends on individual experience and sociocultural context. Mick and Buhl (1992) presented results indicating that consumers assimilate the content of advertising differently depending on how they, given their individual experience of life and the sociocultural context, interpret a certain message.

A requirement of phenomenology is that interview questions should generate descriptions of lived experiences.

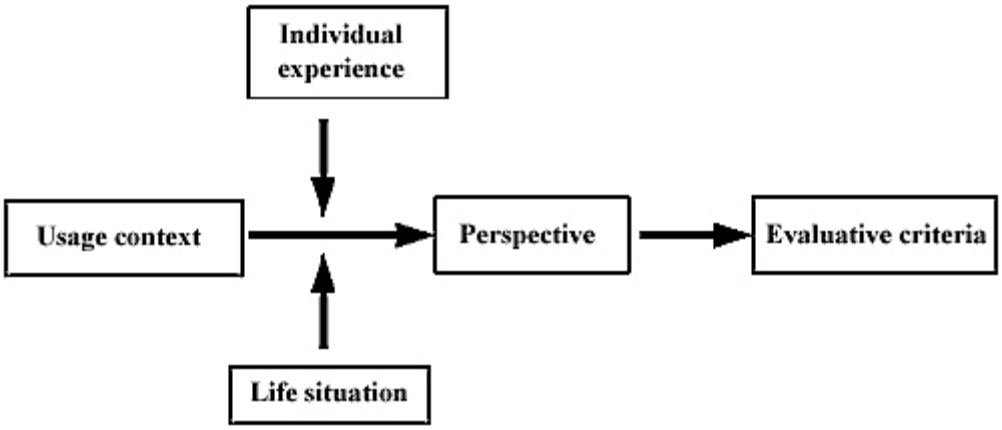
Theoretical Frame of Reference and Operationalization

Alternatives in *substitute competition* differ in all likelihood from alternatives in brand competition (i.e., within-category choice), in the respect that they do not share features/attributes to the same extent. Consequently, attributes of alternatives in *substitute competition* cannot be compared directly, but rather in terms of their benefits. This was suggested by Graonic and Shocker (1993) for *noncomparables*. The present research hypothesizes that floorcovering materials are compared, chosen, or rejected on the basis of their benefits rather than the more concrete attributes.

The proposition of the "theory of reasoned action" (Ajzen and Fishbein 1980), connected with the influence of the context, is adopted here: that to understand and predict consumer behavior it is necessary to consider attitudes toward the act of buying and using a product rather than attitudes toward the product itself. The context is thus assumed to play a vital role. There are different aspects of context, which should affect the household's choice of application material; *usage context* as well as individual experience and sociocultural context (i.e., the general life situation) thus affect material preferences through the perspectives applied. Perspectives are manifested as evaluative

criteria/benefits sought. The *usage context* is assumed to set the limits for the choice of material. The life situation and individual experience are assumed to act as modifiers/intermediaries in reaching the final selection (**Figure 1**). Thus, data are needed as to the manifestations of perspectives, i.e., evaluative criteria/benefits sought, and the origins of perspectives: *usage context*, the general life situation, and individual experience.

Figure 1. Theoretical frame of reference of the study.



Selection of *observational units* (see Ragin 1987, p. 8) should comply with the proposition of Ajzen and Fishbein's "theory of reasoned action"—that measures referring to the individual's intentions are more reliable determinants of behavior than attitudes—and with the requirement of phenomenology—that questions should generate descriptions of lived experience. Hence, *observational units* should be selected mainly for theoretical reasons (Glaser and Strauss 1967). For the purpose at hand, it is prudent to select households actively engaged in reflooring their homes. A suitable procedure is to interview customers at outlets for floorcovering.

Evaluative criteria/benefits are best obtained through open-ended interview questions concerning reasons for choosing the material(s) in question. The motive for using an idiographic approach in this instance is that little is known about the phenomenon *a priori* (Eisenhardt 1989; Yin 1984), i.e., the exact nature of benefits is unknown. Data regarding the general life situation can be extracted from answers to questions with fixed reply alternatives as to some household characteristics, thought to be of importance *a priori*: self-reported household income, and whether there were any children in the household. The individual experience thought to be of importance *a priori* is whether or not reflooring was undertaken by someone living in the household. In this case, questions with fixed reply alternatives are appropriate. Aspects of *usage context* hypothesized to be of importance are: the type of room re-floored (open-ended interview questions appropriate), and whether the dwelling in question is owned or rented (questions with fixed reply alternatives suitable).

Materials and Methods

Data

Customers were interviewed at seven outlets for different types of floorcovering, in eight different cities/locations in the Netherlands. The sample size is 70 observations. The interviews, lasting from 5 (shortest) to 12 minutes (longest), were tape-recorded. Interview transcripts (57 pages in all) were subsequently translated into English.

Evaluative criteria/benefits sought were obtained through open-ended interview questions concerning reasons for choosing the material(s) in question (planned refloorings and/or refloorings undertaken the last five years):

> "What made you choose this particular type of floorcovering material(s)?"
>
> "What makes you choose this type of floorcovering material(s)?".

Data regarding the general life situation were extracted from answers to questions with fixed reply alternatives as to some household characteristics, thought to be of importance *a priori*: self-reported household income (five income band alternatives), and whether there were any children in the household (Yes or No alternatives). The individual experience thought to be of importance *a priori* was whether or not reflooring was undertaken by someone living in the household (question with fixed reply alternatives: Yes or No alternatives). Data regarding *usage context* were obtained from open-ended questions as to type of room(s) considered, and from a question with fixed reply alternatives: whether the dwelling in question was owned or rented (Yes or No alternatives). The interviews included a probing question to clarify what type of wood flooring was intended, used whenever a respondent answered "wood" when asked what material they used or were planning to use. The alternatives were softwood parquet, hardwood parquet, solid softwood floorboards, solid hardwood floorboards, and laminated flooring (hardwood or softwood printed wood overlay). Laminated flooring is of course not real wood flooring, but is often mistaken for it.

Data Analysis

Statistical processing of data from open-ended interview questions necessitates interpretative analysis to derive variables. The interviews resulted in three types of variables: criteria applied/benefits sought (18 variables), type of room considered for reflooring (11 variables), and household characteristics (4 variables). The variables of the first two types were retrieved directly from respondents (so-called in vivo categories, i.e., respondents expressed them). Related words and expressions then formed instances of the category/variable in question (e.g., "durable" is an instance of *hardwearing*, as is "try something new" an instance of "*a change*"). Coding of variables involves a certain degree of arbitrariness. The criterion adopted in this study was parsimony: for a word/expression to form a variable, it clearly had to convey an aspect not covered already (e.g., "easy installation," "would like to try to lay it ourselves," "lends itself for DIY," "I like to lay it myself," were all considered instances of the variable *DIY*, rather than constituting separate variables). Variables of the last type were predetermined: *House owner*, *DIYer* (whether or not the floorcovering was laid by someone living in the household), *Income*, and *Children*. All the variables are binary (1 for presence, 0 for absence of the variables in question). Household income, where five income band alternatives were given, was dichotomized such that the self-reported household income was coded as high if the yearly household income exceeded 43,000 euro/year.

To extract decisive predictors of material preferences, in this instance, calls for a method of analysis capable of handling binary variables as well as examining causally complex data resulting from contextual influences and thereby *conjunctural causation*. Multivariate projection methods are well suited for consumer research oriented investigations (Eriksson et al. 1999), and have been used in several marketing studies (e.g., Broman 1996; Fornell 1992; Barclay 1991; Qualls 1987). Multivariate projection methods have potential for examining causally complex data, as they cope with many variables and few observations as well as highly collinear variables (Wold et al. 1987). Furthermore, multivariate projection methods are able to handle binary variables.

PLS-DA (*Partial Least Square Discriminant Analysis*) is a multivariate projection method that explicitly takes into account the class membership of observations in the problem formulation (Eriksson et al. 1999). This is an attractive feature in the present context, when the classes are initially known and the objective is to explain the choice of materials.

When deciding the appropriate number of components in a PLS-DA model, it is desirable to find a model with an optimal balance between fit, R^2 (= explained variation), and prediction ability, Q^2 (= predicted variation) (Eriksson et al. 1999). R^2 is inflationary and approaches unity as model complexity (number of terms, number of components, etc.) increases, whereas Q^2 is not, and at a certain degree of complexity Q^2 will not improve any more. The tested dimension is considered significant if Q^2 for the whole data set (Rule 1), or for at least one Y-variable (Q^2_V) is larger than a significance limit (Rule 2). In evaluating the overall performance of a PLS model, it is to be noted that without a high R^2 it is impossible to get a high Q^2. Generally, an accumulated (overall PLS dimensions) predicted variation share, Q^2_{cum}, larger than 0.5 is to be regarded as good (ibid.). In interpreting the influence on Y (the matrix of responses) of every term/variable (x_k) in a PLS-DA model, the interpretation tool VIP (*variable influence on projection*) is useful (Eriksson et al. 1999). As an example, Broman (1996) uses VIP values to derive characteristics of importance for wood surface preferences. The attractive feature of VIP is the parsimony, as one VIP vector summarizes all components and Y-variables. Hence, in this instance, VIP values give an overall indication as to which variables are of importance for floorcovering material preferences. Eriksson et al. (1999) has found that for discriminating between important and unimportant predictors, a cut-off around 0.7 to 0.8 works well in most cases. In the present study, the cut-off value was 0.75. To evaluate which variables are decisive for particular outcomes (chosen materials in this instance), studying PLS-DA regression coefficients is useful. These regression coefficients are directly related to weights describing the correlation between X and Y (Eriksson et al. 1999).

In the analysis of material preferences, no distinction is made between planned and undertaken refloorings. This is justified by the concern to attain as many instances of the phenomenon as possible.

Limitations

Due to the limited number of observations, caution is warranted in generalizing the result as to detailed preferences. Further, coding of variables from open-ended responses always involves a certain degree of arbitrariness (researcher bias). Despite these limitations, inferences on a more conceptual level, regarding the mechanisms of *substitute competition*; i.e., factors of importance for the choice of application material and why households differ on this choice, should be valid.

Results

The fact that there is no discernible difference in consumer assessment between the different types of wood flooring justifies treating these responses as one class. Further, respondents were not able to specify the kind of printed wood overlay in instances of laminated flooring (henceforth laminate) preference (in all instances where laminate was the preferred floorcovering, it was of the printed wood overlay type), hence laminate constitutes one class only. Thus, initially a PLS-DA with six classes was conducted: textile flooring (henceforth carpet), laminate, ceramic tiles (henceforth tiles), vinyl, linoleum, and wood. A model with four significant components, according to the more stringent Rule 1 (see the section Data Analysis) used in this study to avoid modeling noise, resulted. However, classes four and five, vinyl and linoleum preference respectively, are poorly accounted for: an $R^2_{VY(cum)}$ of 0.32 and 0.03, a $Q^2_{V(cum)}$ of 0.27 and 0.03, respectively. Excluding these observations, i.e., conducting a PLS

-DA with the four remaining classes, resulted in a model with three significant components, $R^2_Y = 0.76$ and $Q^2_{cum} = 0.70$. Hence, the model can be considered strong (see the section Data Analysis).

VIP values are displayed in **Table 1**. According to the PLS-DA, aesthetic considerations (explained below) apparently play an important role for material preferences, as do more objective evaluative criteria related to the nature (e.g., *natural*, *softness*) and function (e.g., *hygienic*, DIY) of the different floorcovering materials. The *usage context*, whether or not the floorcovering is for an owned or rented dwelling (*House owner*) and the type of room considered (*bathroom*, *bedroom*, *living room*, and *kitchen*) are apparently, as anticipated, of crucial importance for floorcovering material preferences. Further, individual experience (DIYer) seems to be of importance. The environmental issue, i.e., the *variable* environment, apparently is of no significance for the choice of material. The evaluative criteria include attributes as well as benefits. On the whole, the evaluative criteria are closely connected with physical features/attributes of the materials and consequently quite concrete.

Table 1. Importance of variables across all materials.

Variable		VIP	Variable		VIP
Name	**Type**		**Name**	**Type**	
aesthetic2	criterion	2.09	DIYer	individual experience	0.80
warmth	criterion	1.61	acoustics	criterion	0.78
aesthetic	criterion	1.59	“wood feeling”	criterion	0.77
hygienic	criterion	1.54	dining room	usage context	0.68
natural	criterion	1.46	health	criterion	0.66
aesthetic3	criterion	1.42	waterproof	criterion	0.55
softness	criterion	1.36	lumber room	usage context	0.52
good price	criterion	1.35	high income	life situation	0.51
bathroom	usage context	1.18	foothold	criterion	0.43
bedroom	usage context	1.16	hall	usage context	0.40
DIY	criterion	1.11	environment	criterion	0.38
living room	usage context	1.09	stairs & landing	usage context	0.35
underfloor heating	criterion	0.90	loft	usage context	0.33
aesthetic1	criterion	0.88	study	usage context	0.33
hardwearing	criterion	0.82	baby room	usage context	0.32
kitchen	usage context	0.81	children	life situation	0.30
house owner	usage context	0.81			

Note: VIP (*Variable Influence on Projection*) values express the influence on Y (matrix of responses) of every predictor in the model. For discriminating between important and unimportant predictors, a cut-off around 0.7—0.8 is recommended (0.75 is adopted in this study).

Studying PLS-DA regression coefficients is useful for evaluating which variables are decisive for the choice of a specific material. **Figure 2** displays the PLS regression coefficients for the four responses (classes), using the predictors in **Table 1** with a VIP value ≥ 0.75. For ease of interpretation, only positive values are displayed. The information lost by this procedure is limited, as the only function of negative values is to indicate that the predictor in question is unimportant for the choice of the material (s) in question. The coefficient profile of **Figure 2** suggests that:

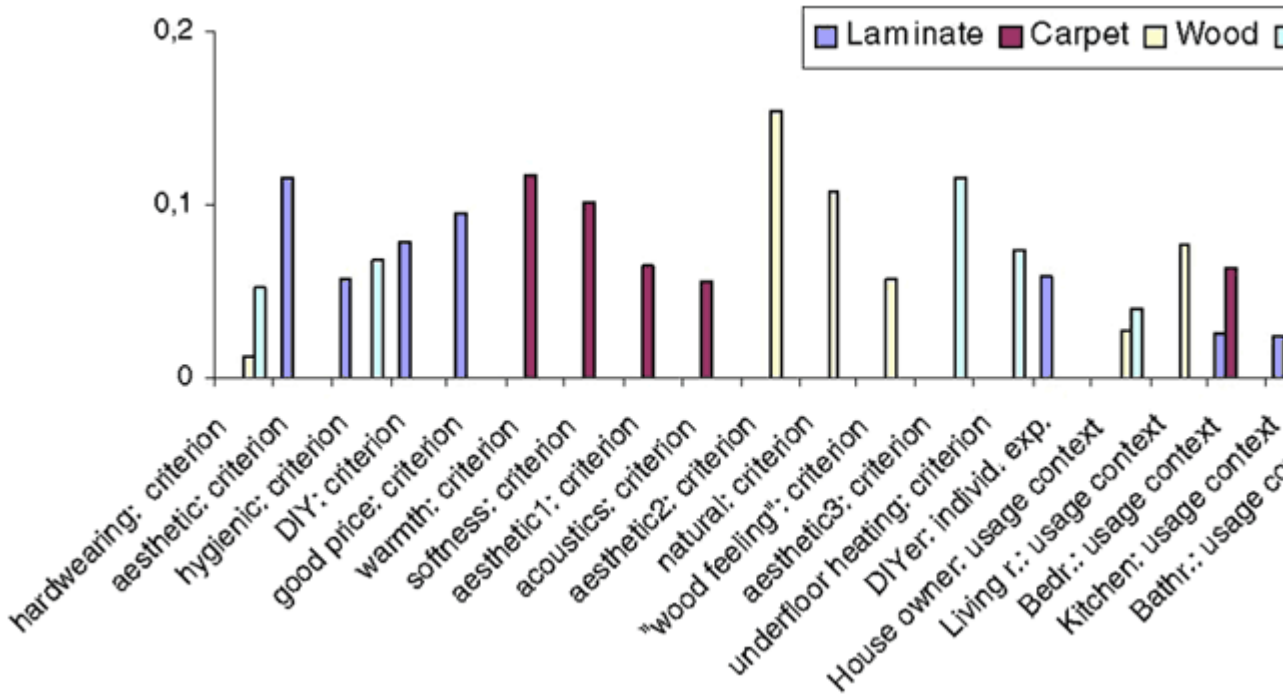
- Laminate is the preferred floorcovering for bedrooms and kitchens for its hygienic qualities, because it is cheap (*good price*) and is aesthetically appealing (*aesthetic*, i.e., instances where the aesthetic properties of laminate is cited as a reason for choosing this material, in this instance; the wood appearance: "*easy, clean, and still the beauty of wood*"). Laminate is the choice of the DIYer due to perceived ease of installation (*DIY*).

- Carpeting is mainly used in bedrooms, when (tactile) warmth and softness are appreciated, because of sound-absorbing qualities (*acoustics*), and for aesthetic reasons (*aesthetic1*, i.e., instances where the aesthetic properties of carpet are cited as a reason for choosing this material).

- Wood is apparently chiefly used in living rooms, by house owners, for aesthetic reasons (*aesthetic2*, i.e., instances where the aesthetic properties of wood are cited as a reason for choosing this material), the "*wood feeling*," and because it is a natural material (*natural*).

- Tiles are used in bathrooms and kitchens because this floorcovering material is regarded as hygienic, hardwearing, aesthetically appealing (*aesthetic3*, i.e., instances where the aesthetic properties of tiles are cited as a reason for choosing this material), and convenient for underfloor heating. Users of tiles are in general house owners.

Figure 2. Importance of variables grouped by type of material.



As is apparent from **Figure 2**, the different materials share evaluative criteria to a very limited extent. The same applies for variables related to the *usage context*. However, laminate and tiles are both appreciated for their hygienic qualities (*hygienic*), and apparently compete when the kitchen is refloored. Carpet and laminate, though not sharing a single evaluative criterion, are both used in bedrooms. Hence, households obviously differ in how they perceive the concept of floorcovering in a given *usage context*.

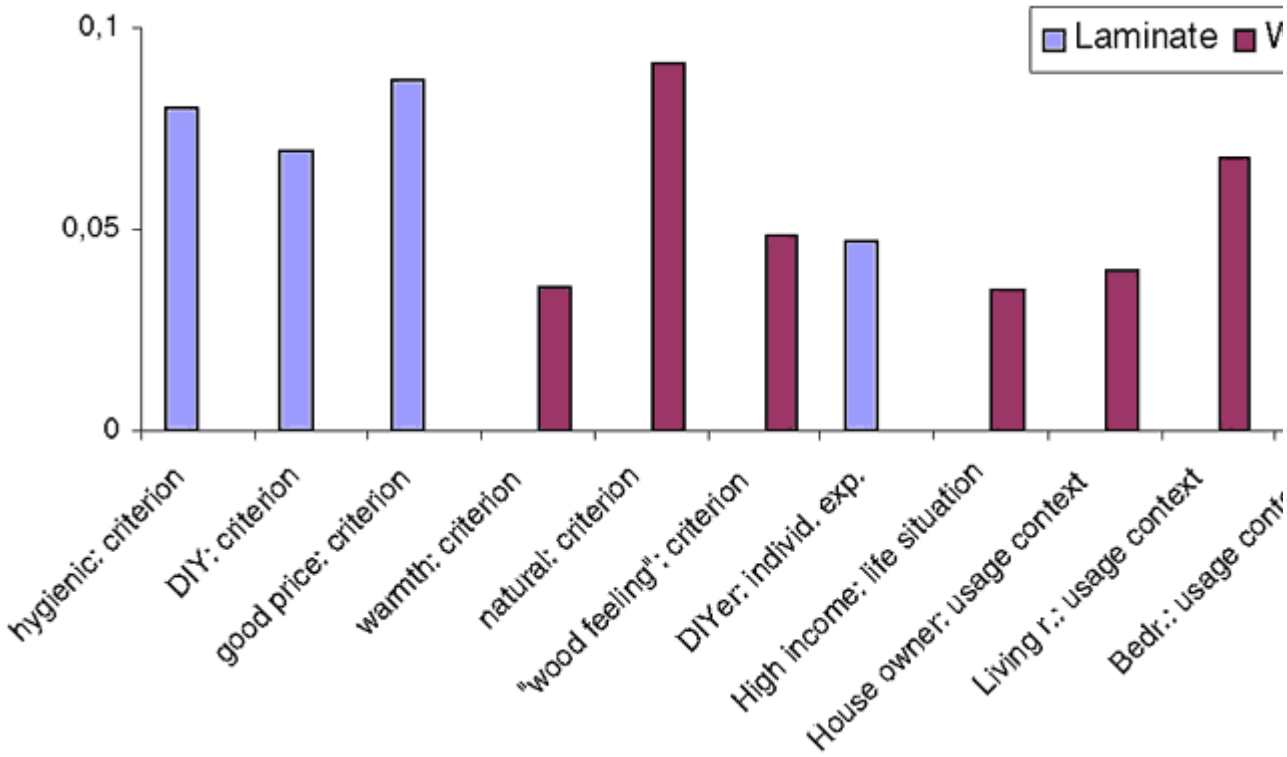
This difference in preferences can be understood in the light of: the general life situation; e.g., some households stress comfort (warmth and softness) and favor carpet in bedrooms. Households with children and/or asthma problems and/or pets focus on hygiene and health and favor laminate: "*Because of kids, easy maintenance and no dust*"; "*Leaves no dust: kids with asthma*"; "*Because of large dog*". DIYers emphasize ease of installation and prefer laminate on this account: "*Easy to place in the room*"; "*Easy to lay*".

Finally, unlike the other floorcovering materials studied, the reasons determining the choice of wood apparently are exclusively nonfunctional.

Laminate and wood are frequently close substitutes. Consequently, a comparison of these two materials is interesting. A PLS-DA restricted to these two classes resulted in a model with one significant component, $R^2_{Y(cum)} = 0.68$ and $Q^2_{(cum)} = 0.62$, thus a rather strong model.

Figure 3 displays the PLS regression coefficients for laminate and wood, using predictors with a VIP value ≥ 0.75. The variables *aesthetic* and *aesthetic2* were excluded from the analysis, as they both refer to "wood appearance." For ease of interpretation, only positive values are displayed.

Figure 3. Importance of variables: laminate and wood.



In addition to the information in **Figure 2**, **Figure 3** indicates that wood is perceived as warmer than laminate, and that users of wood, generally, have a higher household income than laminate users. Hence, when the PLS-DA is restricted to laminate and wood, this household characteristic becomes an important predictor. This circumstance, together with the fact that *good price* is cited as a reason for choosing laminate and that users of wood are house owners to a greater extent, suggest that laminate is considered a cheap "budget" alternative to wood. This is corroborated by remarks from laminate users such as the following: "*Very beautiful, but expensive, more applicable for house owners*" (on wood); "*Easy, cheap and doesn't have to be durable* [as wood] *in the bedroom*" (on laminate); "*Laminate is fake wood, but easier to lay and cheaper*"; "*Easy, and still natural appearance, but cheaper*" (on laminate).

Summary and Conclusions

Summary

In order to understand the competitive situation of wood, it is essential to consider the end-consumer of building materials. The knowledge of factors affecting the end-consumer's choice of building material for specific purposes, i.e., the mechanisms of *substitute competition*, is limited. The present study attempts to contribute to the understanding of *substitute competition*. Distinct material alternatives, and the fact that the household typically makes the choice of floorcovering material, make the choice of floorcovering material a good illustrative example of *substitute competition*. Thus floorcovering was the application studied in the present research.

The study was conducted in a contextual framework: usage context (see the section Context), as well as individual experience and sociocultural context, through the perspectives applied (see the section Perspectives and Meaning), were thus assumed to be determinant. The collection of data was

thus designed to obtain contextual influences. A methodology of combining (mainly) qualitative data collection with multivariate analysis was used.

The suggested methodology of combining (mainly) qualitative data collection with multivariate analysis (PLS-DA) appears to be capable of determining decisive predictors of material preferences, as well as obtaining the underlying motives.

The results of the study confirm the *a priori* assumption that context plays an important role in *substitute competition*. Hence, the *usage context*—type of room, whether the dwelling is owned or not—obviously plays a major role for the end-consumer's evaluation and ultimate choice of floorcovering material. Further, end-consumers identify the concept of floorcovering differently in the same *usage context* due to different life situations and individual experiences, e.g., whether or not the household is of the DIY type, household income, the presence of asthma, pets, etc. As opposed to what is presumed for *noncomparables* (see the sections Across-Category Choice and Context), the results of the present study seem to indicate that attributes closely connected with the intrinsic nature, the physical features, of the alternatives play an important role in *substitute competition*.

Unlike the other floorcovering materials studied, the determinant reasons for choosing wood apparently are exclusively nonfunctional (**Table 2**).

Table 2. Important evaluative criteria.

Laminate	Carpet	Wood	Tiles
aesthetic	warmth	aesthetic2	aesthetic3
good price	softness	natural	underfloor heating
DIY	aesthetic1	"wood feeling"	hygienic
hygienic	acoustics		hardwearing
Note: Table 2 is based on regression coefficients. Variables are arranged in declining order of significance.			

Conclusions

Methodological

The study suggests that substitute competition should be studied in a contextual framework. Hence, the data gathering procedure must handle the collection of data related to *usage context* as well as the general life situation and individual experience. This calls for the use of open-ended questions. By using PLS-DA it is possible to extract the most important predictors of material preferences from answers to open-ended questions, thus allowing parsimony, as there is no need for a follow-up study with pre-structured response alternatives (e.g., Likert scales) to quantify variables. The results confirm that PLS-DA is well adapted for analyzing *conjunctural causation* resulting from the contextual influence; the PLS-DA models used were strong ($Q^2 > 0.5$). Consequently, the suggested methodology of combining (mainly) qualitative data collection with multivariate analysis appears to be suitable for determining decisive predictors of material preferences as well as identifying the underlying motives.

Empirical and Managerial Implications

The *usage context*—type of room, whether the dwelling is owned or not—obviously plays a major role for the end-consumer's evaluation and ultimate choice of floorcovering material, through the perspectives applied. Further, end-consumers obtain the concept of floorcovering differently depending on the general life situation and individual experience. The perspectives are manifested as evaluative criteria. Differences as to evaluative criteria applied can thus explain individual differences in the type of material preferred. To consider the types of criteria (subjective or objective, functional or nonfunctional, etc.) cited in relation to the different application materials, as well as the underlying causes, is consequently of crucial importance in *substitute competition*.

Usage context and data connected with the life situation provide instruments for market segmentation and targeting. For example: according to the present results, users of wood are house owners to a greater extent and generally have a higher household income than laminate users. Thus, activities promoting wood flooring, like direct mail advertising, apparently should be directed toward high-income homeowners for maximum effect.

The interviews indicate that laminate and wood are often close substitutes, e.g., aesthetic considerations voiced, that is, the variables *aesthetic* and *aesthetic2* refer to the "wood appearance" in both instances. What separates laminate and wood are *usage context* and household income, and the circumstance that functional grounds are cited for choosing the former floorcovering material (e.g., hygiene, ease of installation). Above all, respondents stressed the favorable price of laminate as compared to wood. One of the apparently decisive reasons for choosing wood, *natural*, is part of the intrinsic nature, character, of the material. Broman (1996), in studying people's visual impressions and attitudes toward Scots pine wood surfaces, likewise noted the importance of this attribute. This quality of wood could provide an edge on laminate, and should be stressed when promoting wood flooring.

Discussion and Suggestions for Further Research

The results of the study indicate that a contextual framework is appropriate when analyzing *substitute competition*. By combining qualitative data collection and multivariate analysis, it is possible to understand and explain the choice of application materials to determine decisive predictors of material preferences, and apprehend the underlying motives.

The findings of this paper should be validated by studies in other cultural settings. This will also make possible cultural comparisons as to determinants of application material preferences. Further, factors of apparent salience in the interviews, not operationalized in the present study—the presence of pets and asthma problems in the household—could then be analyzed statistically.

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