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An Application of Textual Analysis in the U.S. Residential Siding Industry

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ABSTRACT

This study explores an alternative, less intrusive approach to conventional market research survey methods: software-based textual analysis of promotional attributes. Market research on the relative importance of building material attributes can provide valuable insight for developing promotional materials and/or product positioning. The alternative approach explored in this research, applied to the U.S. residential siding industry, minimizes survey shortcomings such as low response rates, survey costs, and respondent and sample bias.

Magazine advertisements by U.S. residential siding manufacturers were analyzed to identify the product and service attributes used in the promotion of siding products. Textual analysis software assisted the classification and tagging of attributes within five classes of siding material (solid wood, wood composite, vinyl, fiber cement, and brick/masonry). Following identification and compilation of attribute mentions, analysis of advertisements within material classifications was performed. Findings of this exploratory research indicate that siding manufacturers use magazine advertising to convey to builders unique product and service attributes such as product ability to be incorporated into a multitude of home designs, curb appeal, and backing by a reputable company and warranty. Theoretical implications of the methodology described in this study are particularly relevant to researchers experiencing low survey response rates and/or to industrial marketers seeking to effectively position products within the marketplace.

Keywords: textual analysis, siding, promotion, advertising, positioning

Introduction

The traditional approach to collecting primary data about building material promotion and performance has been to interview or survey manufacturers, builders, architects, and consumers. Direct questioning techniques may utilize mail surveys, phone and/or personal interviews, email, or web-based surveys. Regardless of vehicle, extensive time and costs (Malhotra 2006) are associated with

questionnaire development, testing, delivery, response incentives, and non-response follow up. Further, survey saturation in the United States (Groves et al. 1992) has led to increasing non-cooperation by survey recipients. Low response rates and the resulting concern for sample bias are issues that may affect mail survey reliability and validity.

As a result of the troubling decline in response rates in the past quarter century, several prominent researchers suggest that consideration be given to alternatives to conventional survey methods (Sudman and Blair 1999, Baruch 1999, Bickart and Schmittlein 1999). The research reported on in this article explores textual analysis of print advertisements as an alternative to response-rate dependent primary data collection via surveys.

Evaluation of Advertising

Knowledge about a product's attributes and the relative position of competing products is a primary facet of consumer product selection. Product selection is based on a product's tangible and intangible associations in the consumer's mind. Advertising is one means of creating and reinforcing these associations (Wettler and Rapp 1991). Awareness of market trends and advertising patterns supports manufacturers' decisions about whether to improve existing products or to research innovative technologies to satisfy shifting customer preferences.

Conventional analysis of product attributes and consumer perceptions has utilized surveys and interviews. Evaluation of promotional materials, such as advertisements, is another approach for understanding and identifying key product attributes, delineating market niches, and identifying strengths and weaknesses by brands, manufacturers, or material classifications. Key advantages of reviewing manufacturers' advertisements include:

- Manufacturers' magazine advertisements are easy to obtain. They can be retrieved and analyzed in less time and with lower costs than primary data collection via surveys and interviews.
- Promotional material analysis is less intrusive than interviewing or surveying product brand managers, either in person, via phone, or electronically.
- Response rate determinant costs such as pre-notification, incentives, personalization of cover letters, and return postage are eliminated (Martin 1989).
- Findings are not affected by respondent bias as with survey results where respondents are likely to overestimate the degree of positive product and service attributes they promote for their products. Respondents may condition their answers to be socially desirable to investigators (Podsakoff et al. 2003).
- Advertisements can be easily contrasted and compared to determine congruency of promotional message by manufacturer, brand, demographic, or product type categories.

Background

Advertising

Business-to-business (B2B) advertising spending in trade/industry journals exceeds \$1 billion annually in more than 2,700 business publications (Hutt and Speh 2004). B2B advertising performs the following communication functions for a firm:

1. informing,
2. persuading,
3. reminding,
4. adding value, and
5. assisting other company efforts (Shimp 1997).

In a *Journal of Marketing* review of over 250 journal articles and books about how advertising affects consumers, Vakratsas and Ambler (1999) concluded that, "Some advertising seeks to convey factual information through cognitive appeals, some seeks liking and affect, and some merely reinforces habit." Some view advertising as a means to help consumers make informed decisions by providing them with information, while others see advertising as a persuasive and suggestive means to sell something (Stern et al. 1981). Advertising has long been used by the forest products industry with prime examples ranging from Weyerhaeuser's 4-Square Lumber marketing in the late 1920s to current advertising by Trex (Tokarczyk and Hansen 2006).

Advertising copy, a major component of B2B ads, refers to the written portion of the advertising including the headline, subheads, logo or signature, and the body copy (Bellizzi and Hite 1986). Advertisement copy must effectively convey the message the firm wants to portray concerning its product (Bellizzi and Hite 1986). Market response models relate advertising success directly to purchasing behavior measures such as market share and brand recognition (Rao and Burnkrant 1991, Rao 1970). In addition to traditional surveys of manufacturers and consumers, textual analysis of advertisement copy provides another means of assessing a firm's promotional message.

Qualitative Research and Textual Analysis vs. Traditional Survey Methods

Textual analysis is a qualitative method that enables the researcher to study large amounts of textual information, such as advertisement copy, and systematically classify its properties (e.g., by identifying frequencies of most frequently used keywords). Attributes are stated *a priori* and sections of text are coded or "tagged" as representing particular attributes. The coded attributes can subsequently be used in complementary quantitative analysis (Sinkovics et al. 2005). Textual analysis research tools can be valuable in evaluating promotional items such as printed advertising to ensure that they reflect the message the company wants to communicate to its customers (McNeil 2005, Block and Block 2005). As Neuendorf (2002) states, these methods can be used to better "understand the content and form of advertising in order to produce more effective ads." These methods can be briefly

defined as “the systematic, objective, quantitative analysis of message characteristics” and typically follow nine steps (Neuendorf 2002):

1. Theory and Rationale – what will be examined and why;
2. Conceptualization Decisions – what variables will be studied;
3. Operationalization Measures – what unit of data collection will be used;
4. Coding Schemes – either human or computer coding scheme must be established;
5. Sampling – sampling method must be determined;
6. Training and Initial Reliability – coders must be trained, and it must be assessed on whether they can agree on coding the variables;
7. Coding – coding schemes are applied either by human or computer coding;
8. Final Reliability – with human coding final reliability must be calculated;
9. Tabulation and Reporting – results are analyzed and reported.

The term content analysis, often used interchangeably with textual analysis, refers to a more extensive methodology in the social sciences regarding the subject of communication content. Content analysis includes, but is not restricted to text alone and may be applied to areas such as coding of graphics or videotaped actions (Holsti 1969, Stigler et al. 1999, Stemler 2001). Both content and textual analysis may extend beyond simple keyword counts. For example, keywords can be analyzed in their specific context to be disambiguated; synonyms and homonyms can be identified according to linguistic properties of a language. The methodology described here refers to analysis of text only, in the form of advertising copy, and will herein be referred to as textual analysis. It is important to note that since textual analysis is a qualitative method, coding of attributes is subject to interpretation by the researchers (Mariampolski 2001).

Textual analysis of promotional attributes in manufacturers’ advertisements was explored as an alternative to traditional surveys of manufacturers. Though a survey could have been used to obtain similar information regarding the importance of product attributes from the manufacturer’s perspective, the use of textual analysis demonstrates an alternative tool for marketers in situations where advertising data is readily available. The advantages and disadvantages of the conventional approach as well as the proposed alternative are listed in **Table 1** (Dillman 2000, Riffe et al. 2005, Schonlau et al. 2002, Weber 1990). Future research could consider combining these two data collection methodologies to validate and/or complement each process.

Table 1. Pros and cons of textual analysis and traditional survey methods.

Textual Analysis of Advertisements	
Advantages	Disadvantages
No respondent bias	Possible researcher bias

Data easily obtained	Identification of appropriate data sources <i>a priori</i>
Cost effective	Time consuming depending on amount of data
Greater control over gathered data	Limited in terms of data that can be collected
Easy to do longitudinal studies	More difficult analysis
Traditional Survey Methods	
Advantages	Disadvantages
Wide geographic reach	Low response rates
Quantitative data easily analyzed and compared	Possible respondent bias
Researcher bias avoided	Slow response times
Cost effective	Sampling problems
Ability to gather data from large populations	Incomplete questionnaires

Previous Research

Earlier studies of printed advertising have utilized textual and content analysis methods to understand and predict meaning and effectiveness of advertisements. Naccarato and Neuendorf (1998) employed content analysis to study recall, readership, and evaluation of B2B advertisements in trade magazines. They examined printed form (e.g., headline size, use of color, illustration placement) and content (e.g., subject matter, use of humor). Stern (1996) used textual analysis to deconstruct the meaning of an advertisement by reviewing advertisement copy in conjunction with identification of variables such as rhythm, character, and plot. Turley and Kelley (1997) evaluated several elements (message appeal, headlines, price information, quality claims, and Internet address inclusion) to compare advertising for B2B services to advertising for consumer services. They concluded, for example, that headlines in printed advertisements are closely connected to advertising message appeal.

In another application of textual analysis in advertising research, Stern et al. (1981) examined the amount of information included in print advertisements and concluded that advertisements for more durable or expensive products tended to be more informative. Seitz and Razzouk (2005) examined 214 printed advertisements in Romanian magazines and concluded that Romanian print advertising is in its infancy compared to western advertising and that the use of comparative advertising is a rarity in Romania. Although not a common method in the forest products industry, Wagner and Hansen (2002) used textual analysis as a way to measure the level of “greenness” of advertisements within the forest products industry.

Objectives

The primary objective of this research was to demonstrate the use of textual analysis to identify the product and service attributes promoted in advertisements within the U.S. residential siding industry which then may be used as a framework for future analysis of building materials' print advertisements. A second objective was to explore siding manufacturers' product positioning strategies in builder focused advertising.

Methods

Sample: The U.S. Residential Siding Industry

Our methodology was applied in the context of the U.S. residential siding industry. The U.S. residential siding and exterior trim market was estimated at over \$12 billion in 2006 (James Hardie 2006, Principia Partners 2006, Catalina Research 2006, NAHB 2006a). The siding material market is comprised of a diverse array of materials, ranging from solid wood and wood composites to non-wood materials such as vinyl, masonry, fiber cement, and steel (**Table 2**). The siding industry was selected for the following reasons:

1. it allows direct comparison of advertising content among a variety of material types;
2. a variety of product material types are used in the same application (siding); and
3. we were able to target a focused readership of material specifiers and purchasers (builders) in a limited number of builder-focused publications.

Though we chose siding for this exploratory study, the methods described could be used to evaluate the promotional messages of numerous building products such as flooring, cabinets, decking/railing, fencing, doors, and windows.

Vinyl is currently the most popular siding material with approximately 42 to 49 percent residential siding market share (depending on the data source), followed by fiber cement (13% to 16.6%), wood composites (12% to 14.4%), brick (9.3% to 10%), stucco (7% to 9.8%), solid wood (2.9% to 5%), and other (4% to 4.6%) (NAHB 2006b, Freedonia Group 2004, Principia 2006, James Hardie 2006, L-P 2006). No advertisements for aluminum, stucco, or steel sidings were found in the builder-focused magazines included in this study, thus their absence from this study (**Table 2**).

Table 2. Siding material classifications used in this study.

Material category	Products
Wood composite	Hardboard, plywood, and oriented strandboard
Solid wood	Cedar, redwood, pine, Douglas-fir
Vinyl	Lap siding and sheet products, molded polypropylene products
Brick/masonry	Face brick and natural stone
Fiber cement	Lap siding and sheet products

Software Textual Analysis

A prevalent and growing component of qualitative data analysis is the use of various commercially available computer assisted qualitative data analysis software (CAQDAS) packages for data marking, storage, and retrieval. Machine readable text segments found in documents such as promotional advertisements, interview transcripts, notes, and voice recordings are tagged categorically by the researcher. The software facilitates the attachment of codes to text strings and allows the researcher to retrieve and analyze text by code categories. The basic logic of coding and retrieving text segments is no

different than traditional manual approaches such as physically marking text segments with codes or different colors of ink, but the computer offers obvious advantages such as speed and complexity of searches, combinations of codes, and the ability to efficiently handle large amounts of data. Many CAQDAS packages provide additional levels of sophistication such as attaching notes to specific points in the text, linking multimedia to data, visual display matrices of nodes, or the ability to perform quantitative data analysis on tagged data. "The computer-based handling of textual data is a useful extension of the capacities of word processing and textual data storage. The indexing or coding of text in that context is a useful heuristic approach to the data themselves" (Coffey et al. 1996). Melina (1998) provides a thorough review of computer-assisted text analysis methods along with examples of previous research. This study employed QSR International's NVivo 2.0 software to store and tag textual data from the siding magazine advertisements collected for this study (www.qsrinternational.com). Specifically, NVivo was used to store the advertising copy and color code the text with the codes assigned by the researchers.

Quantitative Analysis

Following completion of data entry and coding, a database was produced containing a record of each promotional item including the attribute codes assigned in NVivo as well as other relevant information about the advertisements such as manufacturer, brand, material type, advertisement size, advertisement rate, magazine volume, issue, etc. The data was converted into SPSS statistical database format for further analysis using quantitative descriptive statistics.

Data Collection

Magazine Identification

Our initial step was to determine the primary consumers of the products in our targeted industry. An earlier study identified builders as the primary decision makers for siding choices (Damery and Fisette 2001). The builder group includes siding contractors, repair and remodeling contractors, and professional homebuilders. Do-it-yourself (DIY) consumers do not play a significant role in siding decision-making (Stalling and Sinclair 1989a).

The majority of siding industry advertising occurs in builder-focused magazines. Our goal was to examine magazines having the appropriate focus on residential homebuilding and remodeling contractors. We generated a list of builder-focused magazines using data from BPA Worldwide, a third-party circulation verification agency. Manufacturer advertisements were collected from the top seven builder magazines as rated by BPA Worldwide in terms of circulation for the first quarter of 2005 as shown in **Table 3**. Each of these magazines is published monthly with the exception of *Fine Homebuilding* which is bi-monthly resulting in a database of 20 magazines.

To explore the viability of this methodology as an alternative to survey research, an appropriate and succinct time period was selected. The first quarter in 2005 was chosen as it provided a manageable amount of advertising data; moreover, advertising in builder-focused magazines peaks in the first quarter of each year in anticipation of the National Association of Home Builder's International Builder's Show (NAHB-IBS). The 2005 NAHB-IBS, the building industry's largest trade show, was held January 14–17, 2005, featured nearly 1,600 exhibitors showcasing their products and services, and attracted over 100,000 attendees.

An important component of trade show strategy is the use of pre-show promotions such as advertising (Friedmann 2002). Advertising is used by manufacturers to promote their show exhibits and to enhance attraction attendance (Gopalakrishna and Lilien 1995). Trade show ads are numerous in builder-focused magazines with some, such as *Builder*, devoting its entire January issue to the NAHB-IBS.



Table 3. Top seven builder-focused magazines ranked by circulation.

Rank	Magazine	2005 Circulation ^a	Publisher
1	<i>Fine Homebuilding</i>	145,365 ^b	Taunton Press
2	<i>Builder</i>	141,399	Hanley Wood Magazines
3	<i>Professional Builder</i>	127,000	Reed Business Information
4	<i>Qualified Remodeler</i>	82,489	Cygnus Business Media
5	<i>Remodeling</i>	80,523	Hanley Wood Magazines
6	<i>Journal of Light Construction</i>	74,738	Hanley Wood Magazines
7	<i>Professional Remodeler</i>	63,400	Reed Business Information

^a Circulation figures were obtained from BPA Worldwide, 2005.
^b *Fine Homebuilding* is both a consumer and builder magazine with a total circulation of 316,011; however, only the builder circulation of 145,365 (46% of subscribers) is listed. The other six magazines are solely builder focused.

Advertisement Identification

No siding advertisements were found in the 2005 first quarter issues of *Qualified Remodeler* magazine. In the first quarter issues of the other six magazines, text copy from 19 siding manufacturers' advertisements for 26 different brands was scanned and entered verbatim into the NVivo qualitative coding program. A total of 90 advertisements were analyzed.

Duplicate Ads – Advertisements for some brands were repeated in different magazines and/or different issues. Each advertisement was reviewed as a separate promotional data item for each type of siding material found in the ad. For example, Certainteed advertised four brands of siding in the same ad, so one data record was created for the vinyl sidings (Cedar Impressions, Monogram, TrueComfort), and one data record was created for Weatherboards fiber cement siding. In another case, the same siding advertisement for Crane's vinyl Craneboard siding was found in issue 1 and issue 3 of *Professional Builder* magazine; therefore, two separate data records were created, one for each ad. Although the advertisement copy was identical, it represented two separate cases and was thus treated as such. One aspect of this research was to demonstrate the frequency of promotional attributes and,

since different builders may have been reached by different advertisements, our frequency count reflected duplicate advertisements.

Promotional Attributes Identification

To generate a list of product attributes in the context of the siding industry, we compared magazine advertisements and media kits to attribute lists from earlier siding studies (Damery and Fisette 2001, Stalling and Sinclair 1989b). **Table 4** represents the resulting list of 30 attributes applicable to the residential siding industry. (NOTE: The *a priori* attributes of corrosion resistance, dimensional stability, environmental friendliness, non-toxicity, and temperature resistance were not mentioned in any of the magazine advertisements studied and thus were not included in the results).

Table 4. Residential siding – list of 30 product attributes.

Aesthetics	Energy efficiency	Strength
Availability	Environmentally friendly	Quality
Certification/code approval	Dimensional stability	Reputation
Corrosion resistance	Durability	Sun resistance
Cost effective/economical	Full product line	Performs in extremes
Customer service	Impact resistance	Techno savvy
Deadens sound	Insect/mold resistance	Temp resistance
Design flexibility	Moisture resistance	Warranty offered
Ease of installation	Non-toxicity	Weather resistance
Ease of maintenance	Product integrity	Wind resistance

Attribute Identification in Advertisements

All of the text found on each advertisement was scanned using Abbey FineReader software to produce a word processing file format that could be imported into NVivo qualitative analysis software. Researchers used NVivo to review text of each advertisement. Where text strings were identified as representing one of the 30 siding attributes, strings were tagged with an attribute code. For this study, the application of textual analysis methods to promotional advertisements was considered exploratory research. Accordingly, attribute codes were assigned by committee⁽¹⁾ and no formal test of agreement such as Krippendorff's *alpha* was calculated to assess intercoder agreement. Examples of text strings and assigned codes appear in **Table 5**. **Figure 1** gives an example of an advertisement with coding included.

(1) The committee consisted of four researchers: a graduate student, staff associate, faculty member, and post doctoral student.

Table 5. Sample text strings and attribute assignments.

Text string	Attribute
"a truly unique look that really improves the curb appeal of their home"	aesthetics

"It's guaranteed maintenance-free—for the life of the home"	ease of maintenance
"Economical pricing"	cost effective
"Over 30 years of building products and manufacturing innovation"	sound reputation, technological savvy
"Your home takes shape with our complete array of profiles"	design flexibility
"Trim and accessories available"	full product line
"Handles extreme hot and cold cycles"	temperature resistant
"Can withstand 180 mph winds"	wind resistant
"Conveniently located distributors"	availability

Figure 1. Sample advertisement including coding assigned (printed with permission from Louisiana-Pacific Corp.).

<i>the distinctive look of Normal Rockwell vinyl siding always makes a lasting impression - aesthetics</i>	
<i>only LP Norman Rockwell siding gives you deep rich colors that resist fading through Chromalock Technology – aesthetics, sun resistance, technological savvy</i>	
<i>Premium .044 inch thick vinyl – product integrity</i>	
<i>with authentic cedar wood grain built into every panel - aesthetics</i>	
<i>lifetime limited warranty with 25 years against fading – warranty, sun resistance</i>	
<i>Now you can offer them a truly unique look that really improves the curb appeal of their home. - aesthetics</i>	
<i>Rated #1 by a leading consumer magazine - reputation</i>	
<i>Fade resistance 25 year protection – warranty, sun resistance</i>	

Results

This exploratory research examined the use of textual analysis of advertising copy as an alternative method to more traditional survey research methods. Although this study provides insight into siding product positioning with U.S. builders, the primary research objectives also focused on the methodology employed.

Table 6 provides a summary of the exploratory data collected for this study. These results represent the promotional print advertising messages of the siding industry targeting U.S. builders in the first quarter of 2005. Of the 90 siding advertisements identified, vinyl accounted for nearly half ($n = 44/90$) followed by solid wood ($n = 22/90$), fiber cement ($n = 12/90$), brick/masonry ($n = 10/90$), and wood composite ($n = 2/90$).

Analysis of Top Feature and Benefit Categories - Overall

Following compilation of the attributes mentions per advertisement, frequencies of mention were tallied. Each mention of an attribute in any given advertisement was tallied, thus providing the

potential for multiple counts of an attribute appearing in a single advertisement. Overall, siding manufacturers convey the general message to builders that their products can be incorporated into a multitude of home designs, are backed by a reputable company and product warranty, and have curb appeal. The most frequently promoted messages for all types of siding were design flexibility, company product/reputation, and aesthetics (**Table 6**). Design flexibility, the most promoted siding material attribute, appeared in 74.4 percent (67 of 90) of all of the advertisements and had a total of 218 mentions.

Table 6. Number of advertisements mentioning attributes and total attribute mentions by siding material.

Attribute	Overall # of ads (n = 90)		Wood composite ads (n = 2)		Solid woods ads (n = 22)		Vinyl ads (n = 44)		Brick/masonry (n = 10)		Fiber cement ads (n = 12)	
	No. of ads mentioning attribute at least once	Total no. of mentions	No. of ads mentioning attribute at least once	Total no. of mentions	No. of ads mentioning attribute at least once	Total no. of mentions	No. of ads mentioning attribute at least once	Total no. of mentions	No. of ads mentioning attribute at least once	Total no. of mentions	No. of ads mentioning attribute at least once	Total no. of mentions
Design flexibility	67	218	2	2	15	18	31	105	10	42	9	51
Company/prod. reputation	58	157			10	11	34	108	2	2	12	36
Aesthetics	53	115	2	8	13	14	24	56	10	27	4	10
Quality	52	64			6	8	35	42	1	2	12	12
Full product line offered	46	62			5	5	28	42	2	4	11	11
Warranty offered	42	57	2	2	7	8	23	37	6	6	4	4
Cost effectiveness	41	46	2	2	8	11	19	20	1	2	11	11
Easy to maintain	30	30			5	5	14	14	7	7	4	4
Easy to install	20	32	2	6	4	9	7	10	7	7		
Technologically savvy	19	33			4	4	15	29				
Product integrity	15	24			1	1	12	18	1	2	3	3
Customer service	15	17			5	5	9	11	1	1		
Sun resistant	11	23			1	1	10	22				
Durability	10	13	2	4	4	5	3	3	1	1		
Strength	9	19					8	17			2	2
Moisture resistant	9	9			1	1	5	5			3	3
Energy efficient	7	10					7	10				
Impact resistant	6	10					6	10				
Code approval / certification	6	6					6	6				
Weather resistant	5	5			1	1	3	3	1	1		

Performs in extreme cond.	4	6								4	6
Availability	4	5			2	2			2	3	
Wind resistant	3	6					3	6			
Deadens sounds	3	3					3	3			
Insect resistant	1	1					1	1			

Analysis of Top Feature and Benefit Categories by Material

Analysis of promotional attributes by siding type provides insight into manufacturers' product communication and positioning strategies. As shown in **Table 6**, manufacturers promote particular features within each material classification. Company/product reputation and design flexibility were the most frequently mentioned attributes for vinyl siding with 108 and 105 total mentions, respectively, while quality was mentioned in the most advertisements ($n = 35/44$). Similarly, design flexibility ($n = 51$) and company/product reputation ($n = 36$) were mentioned most frequently in fiber cement siding advertisements. In contrast, wood composite and brick/masonry siding advertisements did not frequently promote company/product reputation.

Solid wood manufacturers most heavily promoted the features of design flexibility, aesthetics, company/product reputation, and cost effectiveness. For brick/masonry siding, design flexibility and aesthetics were the most heavily promoted attributes appearing in all 10 advertisements with 42 and 27 total mentions, respectively. Each of the six attributes promoted by wood composite siding manufactures appeared in both of the identified advertisements with aesthetics ($n = 8$ total mentions) and easy to install ($n = 6$ total mentions) being the two most mentioned attributes. **Table 7** summarizes the most mentioned attributes per siding material by the number of cases mentioning the attribute at least once.

Table 7. Most mentioned attributes per type of siding material in magazine advertisements rank-ordered by greatest number of advertisements mentioning the attribute at least once.

Wood Composites	Solid Wood	Vinyl	Brick/Masonry	Fiber Cement
Aesthetics	Design flexibility	Quality	Design flexibility	Reputation
Easy to install	Aesthetics	Reputation	Aesthetics	Quality
Durability	Reputation	Design flexibility	Easy to install	Cost effectiveness
Cost effectiveness	Cost effectiveness	Full product line	Easy to maintain	Full product line
Design flexibility	Warranty	Aesthetics	Warranty	Design flexibility
Warranty		Warranty		

Summary

Overall, from January through March 2005, siding manufacturers conveyed the general message to builders that their products could be incorporated into a multitude of home designs, were backed by a reputable company and product warranty, and had curb appeal. Specifically, both vinyl ($n = 44$) and fiber cement siding advertisements ($n = 12$) appeared to be positioning their siding products on design

flexibility and company/product reputation. This is in contrast to wood composite advertisements (n = 2) that did not mention company/product reputation, but stressed aesthetics and installation ease. Brick/masonry advertisements (n = 10) also emphasized design flexibility and aesthetics while minimizing company/product reputation messages. Solid wood advertisements (n = 22) highlighted design flexibility, aesthetics, company/product reputation, and cost effectiveness.

It appeared that wood composites, solid wood, and brick/masonry manufacturers were positioning their siding products, at least in part, against vinyl and fiber cement on aesthetics. Vinyl and fiber cement may have been differentiating on company/product reputation, perhaps in part to capitalize on past product liability issues associated with composite siding. For brick/masonry siding, reputation is likely viewed as relatively unimportant as this attribute may most likely be associated with the installer.

Discussion

As product life cycles compress and new innovative materials diffuse into increasingly competitive building materials markets, firms are re-examining their strategic deployment of communications as a means of product positioning. What features do manufacturers promote most and least often for their products? Are there key differences in attribute promotion among different types of materials or among different manufacturers? Do manufacturers promote similar elements in product brochures and trade magazine advertisements? This study provides insight into the promotional messages of siding manufacturers targeting builders through the textual analysis of first quarter print advertisements appearing in key builder magazines.

In addition, an alternative data collection methodology to survey research was proposed that provides a less intrusive approach for examining product communications and positioning strategies.

Limitations and Suggestions

Given the exploratory nature of this research, it is expected that these methods will be refined as future research is conducted. Specific limitations and suggestions identified by the researchers include, but are not restricted to:

1. Smaller manufacturers may not have the resources to advertise in widely circulated magazines. Those manufacturers were not included in this study.
2. Data was gathered from only 20 magazines over a 3-month period. It may be useful to expand this time frame to examine quarterly changes in advertising frequency and copy and to increase the number of cases for comparisons. Longitudinal research might uncover interesting changes over time.
3. Attribute codes were assigned by committee. A formal test of agreement, such as Krippendorff's *alpha*, may be used with an expanded study encompassing more cases and longer time frames to assess intercoder agreement.
4. Only textual analysis was employed to examine manufacturers' siding material attribute communication and positioning strategies. A concurrent survey of manufacturers' siding

product attribute importance and difference vis-à-vis competitive siding products and/or materials may be useful.

5. Content analysis, as opposed to analysis based exclusively on text would enhance this methodology. Key elements of advertisements such as headline, illustration, logos, and slogans (Millum 1975) were not considered. For example, graphics may be used to portray curb appeal (aesthetics) or variety of styles (design flexibility). Placement of text, font style, and font size may indicate higher promotional importance.
6. Coding of text includes the possibility of numerous interpretations and, therefore, is subject to coding bias (Mariampolski 2001). Precautions were taken to reduce researcher bias and improve reliability and validity by having multiple researchers examine the textual coding to assign attribute codes by committee rather than using formal statistical tests in this exploratory research.
7. Increasing use and importance of Internet advertising suggests that analysis of advertising may consider incorporating content or textual analysis of manufacturer web sites and online advertisements.
8. According to Zipf's law (Zipf 1949) the words and phrases mentioned most often are those reflecting important concerns in every communication. Although the logic of frequency of promotion representing attribute importance is persuasive, other explanations (e.g., that manufacturers promote to educate) may apply.
9. Analysis of advertisements may not necessarily correlate directly to performance ratings by consumers (builders). Traditional data collection methods may still be warranted to obtain accurate and useful performance rating information.

Future Research

Future research may consider using this exploratory methodology to collect data over a longer period of time to provide for longitudinal analysis. This could be accomplished by first applying textual analysis to advertisements over the course of a full year to identify monthly and/or quarterly variations. Then, yearly comparisons might uncover multi-year trends in promotional messages. In addition, to assess the effectiveness of the promotional messages to builders, future research could examine builders' exposure to various journals and advertisements and the influence of these messages on company material perceptions. And finally, manufacturer surveys may be concurrently deployed to query their product positioning intentions and compare these with the advertising messages they deploy.

This methodology may prove useful as applied to a wide array of building materials and products. Siding was selected as an exploratory case. Additional textual analysis research is currently underway to refine this methodology in other building material applications.

Conclusions

Evaluation of promotional materials and analysis of attribute promotion in magazine advertisements can help delineate market niches and identify strengths and weaknesses of competing

products. The methodology described in this paper applies software-aided textual analysis of advertising text in residential siding magazine advertisements in builder-focused magazines during the first quarter of 2005.

Examination of a firm's and/or industry's communications through the exploratory use of textual analysis as opposed to traditional surveys provides an alternative methodology for future research while attempting to overcome some of the costs and obstacles associated with direct questioning techniques: response incentives, follow-up of non-response, respondent bias, and non-cooperation of survey recipients. Study implications may be helpful to manufacturers seeking to effectively position products within the marketplace and to researchers who wish to understand the nature of promotion and product positioning within a particular industry.

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