Application of the “Brand-Choice Sequences” Theory to measure Brand Loyalty to Toothpaste Brands in Nigeria
AKABOGU, OKEY CHRISTOPHER

Abstract
This research focused on the lacuna that may be extant in the non-application of brand loyalty theories to study consumers’ loyalty to brands of regular toothpaste in parts of Nigeria. The study operationalized a behavioral construct of brand loyalty theory, the ‘brand-choice sequences’ theory, to measure consumers’ loyalty to six brands of regular toothpaste, namely: Colgate, Aqua Fresh, Oral-B, Closeup, Sensodyne, and Pepsodent in Awka, Anambra State, Nigeria. Using the survey method, a convenience sample of 300 regular toothpaste consumers in selected socioeconomic and demographic segments was used for the study. Data from the survey were computer-analyzed using t-tests and ANOVA models. The results from the study indicated that, generally, there is no significant undivided brand loyalty among the regular toothpaste consumers. There are significant variations in brand loyalties across the brands of toothpaste studied, but the brand loyalties are between unstable to, at best, divided. Across the socioeconomic and demographic segments, the study did not find any significant variations in brand loyalties to the toothpaste brands. The study recommends that in future studies, for pedagogy in brand loyalty in marketing, behavioral and other theories of brand loyalty may be jointly used to further verify the confluence, if any, among the various theories and concepts on brand loyalty. Perhaps, marketers will need to harness the opportunities presented by the lack of variations in brand loyalties across socioeconomic and demographic segments by presenting toothpaste brands targeted at specific consumer segments for the purpose of creating market niches for their toothpaste brands.

Key words: brand, choice, sequences, behavioral, loyalty, toothpaste, Nigeria.

INTRODUCTION
Often, when consumers make purchases and repeat purchases of a service or good, the phenomena may be described, intuitively, as depicting brand loyalty to that good or service. Nonetheless, marketing theorists, researchers, and practitioners have obviously over time persistently explored ways to structure and define brand loyalty in non-intuitive ways, thereby engendering several theoretical frameworks for measuring brand loyalty, especially in the consumer goods categories. One of such theoretical frameworks for measuring brand loyalty to consumer goods is the “brand-choice sequences” theory postulated by Brown (1952), as cited in Engel, Blackwell, and Kollat (1978). The “brand-choice sequences” theory as postulated by Brown posits that if, for instance, A, B, C, D, E, F are different brands (Colgate, Aqua Fresh, Oral-B, Closeup, Sensodyne, and Pepsodent) in the regular toothpaste category, then for at least five consecutive purchases of regular toothpaste by a consumer or household, the consumer or household is classified as exhibiting one of the following loyalty types, thus yielding a four-fold typology of brand loyalty, represented by:

“AAAAA” Undivided Loyalty
ABABAB Divided Loyalty
AAABB Divided Loyalty
ABCDEF No Loyalty”. (Brown, 1952)

In Nigeria, there are at least ten brands of regular and herbal toothpaste, some imported and some made by local manufacturers. Brand loyalty perhaps exists in the Nigerian regular toothpaste market, and probably exists in various degrees in different areas of Nigeria. Consequently, the research problem in

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this study is focused on the void that may be extant in the non-use of brand loyalty theories to study consumers’ loyalty to regular toothpaste brands in different parts of Nigeria.

Literature abounds, especially in the western countries, on consumer behavior which indicates that research in brand loyalty includes much earlier studies by Brown (1952), Cunningham (1967), Tarpay (1973), and Engel et al. Subsequent and later researchers on brand loyalty include Danaher, Wilson, and Davis (2003), Villas-Boas (2004), Terech, Bucklin, and Morrison (2009). As I have discussed previously, the studies by these authors cited measured brand loyalty to specified categories of consumer products, such as toothpaste, beer, coffee, etc. The studies were based on data from consumer goods markets outside Nigeria, a country with a multiplicity of cultures, some of which are closely related. The literature on brand loyalty to consumer products in Nigeria and Africa is apparently lean. Some of the brand loyalty studies done in Nigeria include the work of Omotayo (2010) whose study focused on examining relationships between brand loyalty and variables such as promotions and customer satisfaction, but not in the toothpaste market. This work by Omotayo is not clear on whether brand loyalty theories were applied in measuring the construct of brand loyalty used in the study. Okeke (2009) posited that promotions of the beer brand, Star Beer, by the marketers of the Star brand in Nigeria has grown consumer loyalty and goodwill. In this view, Okeke did not specify what the concept of brand loyalty was defined to be, and did not suggest that any brand loyalty theory was applied in reaching the conclusion that promotion of the Star brand of beer in Nigeria enhances consumers’ loyalty and goodwill. Marketing research organizations such as Canadean (2011), Euromonitor International (2012) have studied, analyzed, and reported on the increase in beer sales in Nigeria, and the proliferation of breweries in Nigeria. The reports point to ‘strong consumer loyalty’, especially among consumers of the premium beer brands as a major variable that can help to explain the differentiations in sales among the competing brands of beer in Nigeria. Again, the research reports by Canadean and Euromonitor did not specify if any theory was used to obtain what they characterized as ‘strong consumer loyalty’ in their reports.

In the literature, there seems to be a dearth of evidence of brand loyalty studies in the toothpaste category in Nigeria. Especially noticeable in the literature is the absence of the application of brand loyalty theories to study loyalty to toothpaste brands in Nigeria. What is clear from literature, however, is the existence of at least ten brands of herbal and regular toothpaste in Nigeria, suggesting that competition may be somewhat heavy among the brands, most of which are widely distributed and available on market shelves in Nigeria. Some studies on toothpaste brands in Nigeria include the works of Nigeriandoctor.org (2007), Aja (2011), and Socialmedia (2013). These studies discussed the health effects and growing markets of various brands of toothpastes but did not measure brand loyalty to the brands of toothpaste in Nigeria.

Brand loyalty may exist in the Nigerian toothpaste market generally, considering the multiplicity of brands of toothpaste in Nigeria, and market research reports by Euromonitor (2013). However, it is not clear from the literature the extent to which consumers’ loyalty to different toothpaste brands exists in different parts of Nigeria. The desire to study consumers’ loyalty to toothpaste brands in different parts of Nigeria, using a theory on brand loyalty, informed this research on consumers’ loyalty to toothpaste brands, using Awka, capital and a commercial city of Anambra State, Nigeria, as a study slice. Anambra state in Nigeria is one of the thirty six states of Nigeria, and has a population of about 4.1 million people, which is about 3% of Nigeria’s 140.5 million people (Nigerian Population Commission, 2006), thus having a sizeable market worthy of the attention of researchers and marketers.

Consumer characteristics, such as socioeconomic and demographic variables (income, education, and age) may or may not produce differentiations in consumers’ loyalty to brands of consumer products, such as toothpaste, beer, coffee, tea, toilet roll, etc. (Engel et al.). Vani, Ganesh, and Panchanatham (2010) in a study on toothpaste focused on “understanding the external factors like demographic, social, cultural, price, quality, product attributes etc for buying toothpaste”. Their work did not relate the demographic factors to consumers’ loyalty to toothpaste, which this study does. Researchers on brand loyalty such as Frank, Massy, and Lodha, as cited in Engel et al., used panel data from the Advertising Research Foundation, USA, and focused on beer, coffee, and tea purchasing behavior of the consumers. They found a mild correlation between brand loyalty and socio-economic, demographic, and personality variables. Toothpaste is a household consumer product that is often used by many consumers on a daily
basis, and this study considered the variation in brand loyalty across segments of some selected demographic and socioeconomic variables, such as income, education, and age in a part of Nigeria. As I have discussed previously, extant in the literature on brand loyalty are theories (or concepts) and empirical studies that depict brand loyalty as having both behavioral and attitudinal components which could be used to define and classify types of brand loyalty, thus yielding typologies of brand loyalty. There is a plethora of studies in the literature on the development, tests, and application of the theories on brand loyalty, using data external to the Nigerian consumer goods market. However, this research is an application of a behavioral construct on brand loyalty, referred to as the “brand-choice sequences” theory, using data from toothpaste consumers in Awka, Anambra State, Nigeria. Consequently, the theoretical framework for this study is the “brand-choice sequences” theory, as explained above.

Consumer brand loyalty in the area of consumer behavior in marketing is the subject scope of this study. Brand loyalty is one of the variables considered in the study, and has a range of ‘no loyalty’ to ‘undivided loyalty’, as per the theory of behavioral brand loyalty, ‘brand-choice sequences’ theory, operationalized in this study. The continuum of ‘no loyalty’ to ‘undivided loyalty’ presumably makes brand loyalty both an interval and ordinal variable. Education, income, and age, are categorical variables in the study. The geographical scope of the study is Awka, Anambra State, Nigeria. Awka is the capital and a major commercial city of Anambra State, Nigeria. Anambra state, one of the thirty six states of Nigeria, has a population of about 4.1 million people, which is about 3% of Nigeria’s 140.5 million people (Nigerian Population Commission, 2006). Anambra State of Nigeria consists of a constellation of closely related cultural groups, in terms of language, customs and traditions, with nuances that may or may not be distinguishable. Nigeria is one of Africa’s most populous countries, thus suggesting a sizeable market that should attract attention of consumer goods producers, marketers, and researchers. The study unit scope is only the adult toothpaste users who buy regular toothpaste by themselves and use any of the following brands of regular toothpaste: Colgate, Aqua Fresh, Oral-B, Closeup, Sensodyne, and Pepsodent, which are the brands of toothpaste of interest in the study. The study units, at the time of the study, resided in the geographical area described above. In this study, several limitations and exigencies, both anticipated and unanticipated, were encountered in various forms and degrees. It is not possible to comprehensively describe the limitations. The concept of consumer based marketing research is perhaps still in its infancy in many parts of the world, including the part of Nigeria in this study. In view of this, cooperation of the respondents was not as readily available as expected. The literacy levels of some respondents also came into question at some points, in terms of their requiring additional explanation to fully comprehend the questions posed in the data collection instrument. However, these limitations were adequately managed so as not to compromise the findings from this study.

LITERATURE REVIEW


The literature on brand loyalty in Nigeria and Africa is apparently lean. Some of the brand loyalty studies done in Nigeria, but not in the toothpaste market of Anambra State, include the work of Omotayo (2010) whose study focused on examining relationships between brand loyalty and variables such as promotions and customer satisfaction. This work by Omotayo did not specify that any brand loyalty theories were applied in measuring the construct of brand loyalty used in the study. Okeke (2009) posited that promotions of the beer brand, Star Beer, by the marketers of the Star brand in Nigeria has grown consumer loyalty and goodwill. In this view, Okeke did not specify what the concept of brand loyalty was defined to be, and did not suggest that any brand loyalty theory was applied in reaching the conclusion that promotion of the Star brand of beer in Nigeria enhances consumers’ loyalty and goodwill.
Marketing research organizations such as Canadean (2011) and Euromonitor International (2012) have studied, analyzed, and reported on the increase in beer sales in Nigeria, and the proliferation of breweries in Nigeria. The reports point to ‘strong consumer loyalty’, especially among consumers of the premium beer brands as a major variable that can help to explain the differentiations in sales among the competing brands of beer in Nigeria. Again, the research reports by Canadean and Euromonitor did not specify how the construct of brand loyalty was measured to yield what they characterized as ‘strong consumer loyalty’ in their reports. In their reports, there was no indication that the concepts and theories on brand loyalty were utilized in their market research studies on beer sales and consumers’ loyalty to brands of beer in Nigeria.

Studies on toothpaste outside Nigeria include the works of Vani1, Babu, and Panchanatham (2010). In their studies, the researchers focused on “understanding the external factors like demographic, social, cultural, price, quality, product attributes etc for buying toothpaste”. Their work did not relate the demographic factors to consumers’ loyalty to toothpaste, which this study does. Some studies on toothpaste brands in Nigeria include the works of Nigerialover.org (2007), Aja (2011), and Socialmedia (2013). The studies assessed and discussed the health effects of some of the toothpaste brands. These studies indicated the presence of consumer loyalty in the regular toothpaste market in Nigeria, but did not specify how the concept of consumer loyalty to toothpaste brands was measured. The studies in Nigeria on toothpaste also did not indicate if any theories were applied to determine consumer loyalty to toothpaste brands.

Extant literature on brand loyalty seems to characterize brand loyalty as a composite phenomenon, and perhaps rightly so, consisting of many forms of brand loyalty. The many forms of brand loyalty have given rise to brand loyalties, thus giving brand loyalty a manifold nature consisting of a multiplicity of definitions, concepts, theories, and typologies. The review of related literature below examines some of the definitions, concepts, theories, and typologies of brand loyalty, and also looks at the research designs used in studies on brand loyalty.

As mentioned above, one of the earliest empirical and theoretical works on brand loyalty is a study by Brown (1952), as cited in Engel, Blackwell and Kollat (1978). Brown’s work gave an early definition to brand loyalty. Brown’s definition of and theory on brand loyalty are still valid in contemporary research on brand loyalty. In the empirical study, which culminated in the concept of the “brand-choice sequences” definition of brand loyalty, Brown used a Chicago Tribune panel data base of 100 households and analyzed the frequencies of purchases of consumer items such as coffee, orange juice, soap and margarine and came up with a theoretical definition of brand loyalty, based on empirical data analysis. From that study, Brown enunciated the theory of “brand-choice sequences”, a behavioral theory on brand loyalty, which postulates that different categories or taxonomies of brand loyalty exist based on the sequences or order of brands that consumers buy. In line with Brown’s analysis and conceptualization, if, for instance, A, B, C, D, E, F are different brands (Colgate, Aqua Fresh, Oral-B, Closeup, Sensodyne, and Pepsodent) in the regular toothpaste category, then for at least five consecutive purchases of toothpaste by a consumer or household, the consumer or household is classified as exhibiting one of the following loyalty types, thus yielding a four-fold typology of brand loyalty, represented by:

| "AAAAAA" | Undivided Loyalty |
| "ABABAB" | Divided Loyalty |
| "AAABBB" | Unstable Loyalty |
| "ABCDEF" | No Loyalty |

As I have previously discussed, this definition of brand loyalty by Brown failed to recognize the antecedents of brand loyalty, which would include the consumers’ attitudinal disposition towards the brand. The study and theoretical framing of the definition of brand loyalty by Brown was later augmented by Day (1969) and Jacoby (1971) who argued that the attitudinal antecedents of behavioral brand loyalty must be recognized in defining brand loyalty. Day and Jacoby’s arguments were based on the premise that a consumer is truly brand loyal if the consumer’s attitude towards the brand is also favorable. A possible thesis, based on the position of Day and Jacoby, is that a consumer must be attitudinally brand loyal in order to be behaviorally brand loyal. By this, Day and Jacoby pointed to some underlying and latent correlation between behavioral and attitudinal brand loyalty measures.
position of Day and Jacoby engendered the “preference-purchase” definition of brand loyalty. The “preference-purchase” theoretical definition of brand loyalty can be characterized as a hybrid theory in the sense that the definition is based on both a behavioral and an attitudinal component. It is a two-component theory which argues that a consumer is indeed brand loyal if a consumer’s attitude towards a brand is positive and favorable, and if the consumer shows repeat purchase behavior for the brand. Writing on the relationship between behavioral and attitudinal components of brand loyalty, Jacoby (1971), as cited in Engel et al. (1978), stated as follows concerning the definition of brand loyalty: Brand loyal behavior is defined as the overt act of selective repeat purchasing based on evaluative psychological decision processes, while brand-loyal attitudes are the underlying predispositions to behave in such a selective fashion...To exhibit brand loyalty implies repeat purchasing behavior based on cognitive, affective, evaluative and predispositional factors... (Jacoby, 1971)

Building on that definition of brand loyalty by Jacoby, Engel et al. (1978) surmised that “brand loyalty is the preferential attitudinal and behavioral response toward one or more brands in a product category expressed over a period of time by a consumer (or buyer)” Engel et al. (1978). However, Engel did not seem to include a family or household in this definition, and it is arguable if a family or household of individuals can be perceived as a consumer or buyer. Jacoby and Kyner (1973) extended the definition of brand when they opined that:

Brand loyalty is (1) the biased (i.e., random) (2) behavioral response (i.e., purchase) (3) expressed over time (4) by some decision making unit (5) with respect to one or more alternative brands out of a set of such brands, and is (6) a function of psychological (i.e., decision making, evaluative) processes. Jacoby and Kyner (1973)

The work by Jacoby et al., as synthesizing and articulate as it looked, left time as an open-ended variable, since this theoretical definition of brand loyalty by Jacoby et al. did not specify if time refers to repeat purchases or time between purchases. However, Jacoby did recognize that brand loyalty is product specific, and can include the smallest decision making unit such as an individual consumer. This study draws from Jacoby et al.’s work by focusing on a specific product category, regular toothpaste, and individual consumers of regular toothpaste in Awka, Anambra State, Nigeria. Numerous other works in the literature on brand loyalty build and pivot on the attitudinal and behavioral concepts enunciated by the earlier studies. Such later researchers on brand loyalty include Newman and Werbel (1973), Sheth (1968), Shugan (2005), Mazumdar and Papatla (1995), inter alia. Suffice it to say here that variations of the behavioral and attitudinal constructs found respectively in the “brand-choice sequences” and “preference-purchase” definitions, concepts and theories on brand loyalty are found in many early and later studies on brand loyalty. This study, using data from regular toothpaste consumers in Awka, Anambra State, Nigeria, extends the testing and application of the theoretical definitions, concepts and theory of the behavioral construct of brand loyalty, the ‘brand-choice sequences’ theory as enunciated by Brown in Engel et al. (1978).

Over the years, various categorizations of brand loyalties emerged from different cross classifications of behavioral and attitudinal dimensions associated with brand loyalty, thus yielding typologies of brand loyalty. At the core of the typologies and embedded in the typologies of brand loyalty found in the literature, are elements and extracts, in one form or another, of the behavioral and attitudinal constructs, concepts, and theories of brand loyalty, such as reviewed above. Each typology of brand loyalty in the literature suggests that a continuum of brand loyalty does exist within each typology, thus yielding a scale or measurable gradation of brand loyalty. The scales of measurement may be arguable, but such scales should exist, within a given typology, as discussed next.

An early classification of consumer brand loyalty into degrees of loyalty is found in the work of Brown who did not only give an early definition of brand loyalty, but also developed an early typology of brand loyalty by categorizing brand loyalty into a continuum of “no loyalty” to “undivided loyalty”, thus:

“AAAAAA Undivided Loyalty
ABABAB Divided Loyalty
AAABBB Unstable Loyalty
ABCDEF No Loyalty”. (Brown, 1952)
This taxonomy of brand loyalty into four levels by Brown did not incorporate the antecedents of brand loyalty, which would include some attitudinal persuasions that underlie consumers’ behavioral loyalty. A latent but obvious gradation or scale of brand loyalty from very negative to very positive, or very unfavorable to very favorable loyalty can be said to exist, and does exist, in the continuum of “no loyalty” to “undivided loyalty”, as depicted in the Brown theoretical model shown above, even though the theoretical representation emanated from an empirical study by Brown. The argument by Day et al. that to be truly brand loyal, consumers have favorable or positive attitude towards the brand, substantiates the existence of a scaled behavioral and attitudinal continuum of brand loyalty in the Brown model of “no loyalty” (very negative attitude) to “undivided loyalty” (very positive attitude). Subsequent studies synthesized the behavioral and attitudinal constructs and extensions of the constructs to generate typologies of brand loyalties. The taxonomies of brand loyalties that emerged from the various syntheses converge in some instances and are divergent in other instances, as reviewed next. Another continuum of brand loyalty embodied in another typology is the work by Aaker (1991) which suggests a “loyalty pyramid” typology. The base of the pyramid consists of mostly “switchers” who buy when the price is right and are apathetic towards the brand. Since this is the base of the pyramid, obviously the base width suggests a broad market of switchers, perhaps the majority in consumer markets. The next level, “habitual” in the pyramid represents consumers who will have no reason to switch brands, except perhaps that they are habitual switchers. The third level up the pyramid depicts a “satisfied” consumer group who will evaluate the cost of switching in terms of time and money before switching, unless incentives from competitors induce them to switch. The fourth level up the pyramid is the group of consumers who “like” the brand and seem to have developed emotions towards the brand, perhaps as a result of repeated purchase of the brand over time. The fifth and narrowest segment of the pyramid represents consumers who are “committed” to the brand and can be said to truly loyal to the brand and will testify of the brand to other consumers. Aaker’s pyramid however seems not to have been built with a lot of behavioral constituents in terms of frequencies and amount of purchases which each level in the pyramid depicts. The pyramid can at best be characterized as an attitudinal pyramid of brand loyalty. Howbeit, the gradation of loyalty tendencies reflected in the Aaker pyramid suggests an underlying continuum of brand loyalty that can be scaled and measured. Based on a continuum of low to high attitude, and low to high patronage, Dick and Basu (1994) configured a matrix or classification of brand loyalty that produced a typology of “no loyalty”, “spurious loyalty”, latent loyalty” and “loyalty” levels, thus again suggesting a continuum of brand loyalty with a range of no loyalty to loyalty. Terech, Bucklin, and Morrison (2009) presented an approach to “classify a brand’s buyers into groups with varying degrees of loyalty along a continuum from hard-core loyal to hard-core switcher”. Terech et al.’s presentation showed a four-fold typology of brand loyalty, and supports a visualization of a continuum imbedded in brand loyalty measurements. Other works in the literature discussed other typologies of brand loyalty including Wernerfelt (1991) who discussed inertial, time lag, and cost based brand loyalties. Seth (1970) considered a typology of brand loyalty based on multiple dimensions and multiple brands. Jacoby et al. (1973) considered the construct of a typology based on brand loyalty versus repeat purchasing behavior. This study operationalized the brand loyalty typology enunciated in the literature by Brown (1952), as cited in Engel et al. (1978), and discussed in the literature above. This brand loyalty typology espoused by Brown also provides the theoretical framework on which this study rests.

**OBJECTIVES**

In line with the problem definition, this study using empirical quantitative data from regular toothpaste consumers in Awka, Anambra State, Nigeria, has the following objectives which are to:

1. know whether the regular toothpaste consumers are brand loyal to the brands under study and to what extent, based on the ‘brand-choice sequences’ theory
2. examine any variability that may exist in brand loyalties across the regular toothpaste brands under study, based on the ‘brand-choice sequences’ theory
3. compare across levels of socioeconomic and demographic groups (age, income, and education), consumers’ brand loyalties, based on the ‘brand choice sequences’ theory
RESEARCH QUESTIONS
In order to accomplish the objectives of the study, the following research questions (RQs) were addressed:

RQ1. Are consumers of regular toothpaste brands in Awka undividedly brand loyal to the brands under study, based on the ‘brand-choice sequences’ theory?

RQ2. Is there any significant variation in brand loyalties across the regular toothpaste brands in Awka, based on the ‘brand-choice sequences’ theory?

RQ3. Across levels of socioeconomic and demographic groups (age, income, and education), are there any significant differences in the brand loyalties of regular toothpaste consumers in Awka, based on the ‘brand-choice sequences’ theory?

METHODOLOGY
As I have previously discussed, quantitative and qualitative research methodologies exist in the literature on research methodology (Malhotra, 2007). Quantitative methodology was used in this study. Unlike qualitative methodology, quantitative methodology uses quantifiable and structured data, as were collected for this study, and statistically analyzed the data to make inferences and recommendations. This section on research methodology considers also the research design for this study, geographical area of the study, population, sampling method and sample size, measuring instrument for data collection, reliability and validity of the instrument for data collection, data collection, analytical techniques, and assumptions.

The survey method was used as the research design for the study. The survey method involved a descriptive, single cross-sectional design in which non-probability sampling methods (convenience and judgmental sampling methods) were used to obtain a one-time (single cross-sectional) sample from a specified population of regular toothpaste consumers in Awka, Anambra State, Nigeria. This quantitative study permitted the quantification of brand loyalty, as defined by the operationalized theory. The quantitative methodological approach also permitted the use of analysis of variance factorial designs to study and analyze the data collected from the study. The quantitative methodology was used on the assumption that behavioral brand loyalty can be measured on a continuum, and thus be treated as an interval variable that possesses means and variances which permitted statistical analysis and inference about the brand loyalty means generated from the consumers’ responses.

Specifically, the geographical area in which the study was done is Awka, Anambra State, Nigeria. The population for the study consisted of only adult regular toothpaste consumers in Awka who made their own purchases of regular toothpaste for their personal consumption, and at the time of the study resided in Awka, Anambra State, Nigeria. Anambra state, one of the thirty six states of Nigeria, has a population of about 4.1 million people, which is about 3% of Nigeria’s 140.5 million people (Nigerian Population Commission, 2006). At the time of the study, there was no data base of adult regular toothpaste consumers who made their own purchases of toothpaste brands, and resided in Awka, Anambra State, Nigeria. Consequently, there was no sampling frame, i.e., a listing of all adult regular toothpaste consumers in Awka, Anambra State, Nigeria. Where no sampling frame exists, probability sampling techniques cannot be used, and Malhotra (2007) suggests the use of non-probability sampling techniques, such as convenience or/and judgmental sampling methods, to reach subjects in such a situation. Malhotra (2007) further suggests a minimum sample size of 200 in non-probability sampling techniques aimed at problem solving. Consequently, a non-probability sample of size 300 was obtained from the defined population of regular toothpaste consumers in Awka. Using the convenience sampling method, the sample was obtained using the equivalent of a ‘mall intercept’ in which the qualified respondents were conveniently and judgmentally located in and around shops, markets, neighborhoods, and university communities in the commercial city of Awka, capital of Anambra State, Nigeria. Using a questionnaire in a polite face to face setting, information about the consumers’ behavioral brand loyalties was obtained from the regular toothpaste consumers who were willing to participate in the study (see appendices).

The construct of brand loyalty has theoretically been characterized as a variable that can be scaled on a continuum, as discussed in the literature review. Leaning on the continuum property of brand loyalty, as
espoused in the literature, a structured questionnaire containing interval and nominal variables was used for data collection in the study. Interval variables on the questionnaire were used to measure consumers’ behavioral loyalty and attitudinal propensity for the brands of toothpaste. Behavioral loyalty was scaled on a continuum represented by an interval variable with a range of no loyalty to undivided loyalty. Nominal variables on the questionnaire were used to facilitate the description of classes that may exist. There are typologies of reliability tests in the literature including test-retest, alternative forms, internal consistency, and split-half which yields the Cronbach’s alpha reliability tests (Malhotra, 2007). The Cronbach’s alpha reliability test approach seems to have an edge in the literature over the others, given its user friendliness which is easily facilitated through the use of SPSS computer software, and the interpretability of the resulting Cronbach’s alpha. Cronbach’s alpha is a correlation coefficient which ranges from 0 to 1. Values of Cronbach’s alpha less than or equal to .6 are indicative of unsatisfactory internal consistency reliability (Malhotra, 2007). The Cronbach’s alpha internal consistency reliability test was used to test the internal consistency reliability of the interval scales. A relatively high Cronbach’s alpha of .77 was obtained, pointing to a high internal reliability of the scales. A convenience sample of 28 regular toothpaste consumers in Awaka was used to pretest the questionnaire, and Cronbach’s alpha was computed from the pretest data, using the SPSS computer software. As in reliability tests, a multiplicity of validity tests exist in the literature. Among these are content, criterion, construct (including convergent, discriminant, and nomological) validity tests (Malhotra, 2007). The validity of the test instrument was ascertained to be reasonably adequate by ten marketing lecturers in Awka, Anambra State, Nigeria.

One objective of this study is to know whether regular toothpaste consumers in Awka, Anambra State, Nigeria, are brand loyal to the regular toothpaste brands under study and to what extent, based on the ‘brand-choice’ sequences theory. To accomplish this objective, one sample t-tests were used to compare the consumers’ mean behavioral loyalty to the measurement scale value of 4.00 which represents ‘undivided loyalty’. The second objective of the study is to compare the brand loyalties for the toothpaste brands under study, based on the ‘brand-choice sequences’ theory. To accomplish this objective, computerized analysis of variance (ANOVA), with post-hoc multiple means comparisons and overlap analysis, were used to compare the brand loyalties attracted by the regular toothpaste brands in the study. Based on the ‘brand-choice sequences’ theory, the third objective of the study is to compare across levels of socioeconomic and demographic groups (age, income, and education), consumers’ behavioral brand loyalties, based on the ‘brand choice sequences’ theory. To accomplish this objective, computerized analysis of variance (ANOVA), with post hoc multiple means comparisons, and overlap analysis was done.

As I have also previously discussed, the notion that statistical inferences can be made on the basis of non-probability sample information, such as information obtained through convenience and judgmental sampling methods, is a ‘painful’ assumption that must be noted. The results from a non-probability sample may not be generalized to the population, simply because the convenience and judgmental sampling methods do not produce representative samples. However, Malhotra (2007) notes that even though convenience sampling has its limitations, yet it is used in huge market research surveys, and the author recommends sample sizes that are experientially suitable for market research surveys involving non-probability sampling (Malhotra, 2007). The assumption that typologies of brand loyalty can be measured on continuums bearing the semblance of interval scale may be arguably overbearing. Using interval scales for collecting data in the study presents some theoretical and pragmatic issues that may be considered to be painful assumptions. Using an interval scale to measure consumers’ behavioral brand loyalty suggests that brand loyalty in the context of the study is a continuous variable. Arguably, the calibration on the scale does not represent equal distances, but the scale suggests that it does. Churchill (1979) posited that there was some controversy surrounding the use of itemized rating scales that are used to measure variables that may be non-continuous. To worsen the pain in the assumption of continuity in the scale of measurement, theoretical statistics requires that such variables assumed to be continuous should be normally distributed; and the error terms in the analysis of variance models should be uncorrelated, normally distributed, with means equal to zero, and variances that are constant Malhotra (2007). However, Malhotra opined that, often, the statistical theory requirements are satisfied.
in pragmatic data analyses involving analysis of variance, and regression analysis, thus making them commonly used analytical techniques. Furthermore, the assumption that the variables involved in the study need not be transformed into other forms, such as log-linear, quadratic, and other forms, may be erroneous. The assumptions made in this study are by no means exhaustive.

**FINDINGS**

Computerized data analysis was used to test the hypotheses in the study, as shown in Tables I, II, IIA, IIB, and IIC below. Note that in QII on the questionnaire, a score of 4 represents the sequence AAAAAA = Undivided Loyalty, a score of 3 represents the sequence ABABAB = Divided Loyalty, a score of 2 represents the sequence AAABBB = Unstable Loyalty, and a score of 1 represents the sequence ABCDEF = No Loyalty. The findings from this study are presented in the tables that follow.

**Table I**

Ho1: Based on the ‘brand choice sequences’ theory, regular toothpaste consumers in Awka are undividedly brand loyal to the brands under study.

<table>
<thead>
<tr>
<th>Brand</th>
<th>n</th>
<th>Observed Mean Brand Loyalty</th>
<th>Test Value (Undivided Loyalty)</th>
<th>P-value</th>
<th>Significance Level (alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colgate</td>
<td>41</td>
<td>3.34</td>
<td>4.00</td>
<td>.000</td>
<td>.01</td>
</tr>
<tr>
<td>Aqua Fresh</td>
<td>55</td>
<td>3.62</td>
<td>4.00</td>
<td>.000</td>
<td>.01</td>
</tr>
<tr>
<td>Oral-B</td>
<td>78</td>
<td>3.77</td>
<td>4.00</td>
<td>.000</td>
<td>.01</td>
</tr>
<tr>
<td>Closeup</td>
<td>56</td>
<td>3.64</td>
<td>4.00</td>
<td>.000</td>
<td>.01</td>
</tr>
<tr>
<td>Sensodyne</td>
<td>30</td>
<td>2.10</td>
<td>4.00</td>
<td>.000</td>
<td>.01</td>
</tr>
<tr>
<td>Pepsodent</td>
<td>40</td>
<td>2.83</td>
<td>4.00</td>
<td>.000</td>
<td>.01</td>
</tr>
</tbody>
</table>

The results of the computerized data analysis in Table I above indicate that, generally, regular toothpaste consumers in Awka show no significant undivided loyalty to the toothpaste brands in the study. This is shown by the observed values of the consumers’ mean brand loyalties for each brand which are each significantly less than the test value of 4.00 that indicates undivided brand loyalty on the questionnaire. Relative to consumers of other brands in the study, the consumers of Colgate, Aqua Fresh, Oral-B, and Closeup show relatively higher mean brand loyalties than the consumers of Sensodyne and Pepsodent.

**Table II**

Ho2: Based on the ‘brand choice sequences’ theory, there is no significant variation in brand loyalties across the toothpaste brands in the study.

| Mean Brand Loyalty Groupings* |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Brands                      | n   | A   | B   | C   | A   | B   | C   |
| Sensodyne                   | 30  | 2.10|     |     |     |     |     |
| Closeup                     | 56  | 2.43| 2.43|     |     |     |     |
| Colgate                     | 41  | 2.59|     | 2.59|     |     |     |
| Oral-B                      | 78  | 2.72|     | 2.72|     |     |     |
| Pepsodent                   | 40  | 2.83|     | 2.83|     |     |     |
| Aqua Fresh                  | 55  |     |     |     |     |     | 2.96|

* Means with the same letter are comparable at the .05 significance level.

The model for the Analysis of Variance (ANOVA) results shown in Table II above is significant at .01 significance level (p=.000). This indicates that there are significant variations in brand loyalties across the toothpaste brands considered in the study. The results shown in Table II indicate that although there are significant variations in mean brand loyalties across the toothpaste brands, yet the mean brand loyalties are from almost unstable loyalty to, at best, divided loyalty.
Table IIIA
Ho3: There is no significant variation in brand loyalties across the education groups in the study, based on the ‘brand choice sequences’ theory.

Mean Brand Loyalty Groupings*

<table>
<thead>
<tr>
<th>Education Groups</th>
<th>n</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary</td>
<td>128</td>
<td>2.58</td>
</tr>
<tr>
<td>LT Secondary</td>
<td>96</td>
<td>2.67</td>
</tr>
<tr>
<td>University</td>
<td>76</td>
<td>2.72</td>
</tr>
</tbody>
</table>

* Means with the same letter are comparable at the .05 significance level.

The ANOVA model that produced the results in Table IIIA above is not significant (p=.642). This indicates that there is no significant variation in brand loyalties across the education groups. The mean brand loyalties across the education groups seem to be between unstable and divided.

Table IIIB
Ho3: There is no significant variation in brand loyalties across the income groups in the study, based on the ‘brand choice sequences’ theory.

Mean Brand Loyalty Groupings*

<table>
<thead>
<tr>
<th>Income Groups</th>
<th>n</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than N50,000 per month</td>
<td>110</td>
<td>2.58</td>
</tr>
<tr>
<td>Between N50,000 &amp; N200,000 per month</td>
<td>81</td>
<td>2.63</td>
</tr>
<tr>
<td>Above N200,000 per month</td>
<td>109</td>
<td>2.72</td>
</tr>
</tbody>
</table>

* Means with the same letter are comparable at the .05 significance level.

The ANOVA model that generated the results depicted in Table IIIB above is not significant (p=.665), indicating that there is no significant variation in mean brand loyalties across the income groups. Here also, the mean brand loyalties to the toothpaste brands in the study are between unstable to divided loyalty.

Table IIIC
Ho3: There is no significant variation in brand loyalties across the age groups in the study, based on the ‘brand choice sequences’ theory.

Mean Brand Loyalty Groupings*

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>n</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 50yrs</td>
<td>109</td>
<td>2.58</td>
</tr>
<tr>
<td>36 to 50 yrs</td>
<td>75</td>
<td>2.61</td>
</tr>
<tr>
<td>25 to 35 yrs</td>
<td>116</td>
<td>2.72</td>
</tr>
</tbody>
</table>

* Means with the same letter are comparable at the .05 significance level.

The ANOVA model that produced the results in Table IIIC is not significant (p = .591), indicating that there is no significant variation in mean brand loyalties across the age groups. Here also, the mean brand loyalties to the toothpaste brands in the study lie between unstable to divided loyalty.

**CONCLUSION AND DISCUSSION**
From the analysis contained in Tables I, II, IIIA, IIIB and IIIC above, and based on the study area sample, the following conclusions emanate.
1. Generally, the consumers of the regular toothpaste brands in the study do not have significant undivided loyalty towards their brands.
2. The brands of toothpaste in the study significantly do not attract undivided brand loyalties from their consumers.
3. Undivided brand loyalty does not exist across the socioeconomic and demographic segments considered in the study.

The implication of this study can be evaluated from its significance in the areas of research and marketing in the Nigerian regular toothpaste market. The behavioral construct of brand loyalty, the ‘brand-choice sequences’ theory, operationalized in this study was developed using data from USA consumers of some other products such as tea, coffee, toilet roll, etc. In this study, using data from regular toothpaste consumers in Awka, Anambra State, Nigeria, extends the global application and testing of this theory through providing additional literature and pedagogical input on brand loyalty in the Nigerian toothpaste market. Measuring and analyzing the scope of consumers’ loyalty to toothpaste brands in this part of Nigeria, and the pattern of brand loyalties across the toothpaste brands, and across the socioeconomic and demographic groups in the study, enhances understanding and intelligence of the marketing dynamics at play with respect to consumers’ loyalty to regular toothpaste brands in this part of Nigeria. For toothpaste brand managers and marketers, such marketing intelligence can contribute to formulation of appropriate marketing and promotional strategies directed towards cultivating brand loyalty in the different socio-economic and demographic groups in Nigeria. Brand loyalty may positively impact a brand’s sales volume, which often produces effect on a brand’s profitability and equity. Brand loyal consumers constitute a tractable market niche for a brand, thus imparting on a brand a competitive position, based on the brand’s attributes that have emotional appeals to its loyal consumers.

Consequently, considering the findings and significance of this study, the following recommendations are made.
1. As I have previously discussed, for academics and pedagogy on brand loyalty, since a behavioral construct, the ‘brand choice sequences’ theory, was used in the study, another study based on both behavioral and attitudinal constructs of brand loyalty is worthwhile to examine the extent to which the attitudinal antecedents of brand loyalty agree with the behavioral manifestations of brand loyalty. Furthermore, juxtaposing the two constructs in another study will provide verification of the extent to which the two constructs can be used interchangeably as valid paradigms and theories for measuring brand loyalty. Additionally, the convergent construct validity of the two theories will be further substantiated when the correlation between the behavioral and attitudinal constructs is computed.
2. Toothpaste marketers should cease the opportunities provided due to the lack of undivided brand loyalty among the beer consumers, by evolving innovative marketing strategies aimed at cultivating undivided loyalty for their brands. This may be a utopian recommendation, but the payoff in terms of sales and subsequent effect on brand equity may be rewarding for any toothpaste brand that can attract and sustain undivided brand loyalty from its consumers.
3. While caution should be exercised in adopting and generalizing the results from this study because non-probability sampling methods were used in data collection, a larger probability sample, if possible, should be used in future studies to make the results of the study more generalizable.

REFERENCES


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APPENDICES
A. Data Collection Instrument
TOOTHPASTE PURCHASES STUDY
I am Okey Akabogu, a doctoral student at Anambra State University. I am conducting a research on how consumers, who reside in this state, purchase some brands of toothpaste in this state. The information obtained from this study will be used strictly and only for the purposes of understanding the consumption patterns in the toothpaste market, and also for the teaching of marketing in educational institutions. Your name is not required for this study, and all information that you volunteer will be used only for the purposes stated above. Please, would you be kind enough to freely partake in this study by completing this short questionnaire? Your cooperation will be highly appreciated.
(Q1 is asked only after ascertaining that the respondents currently reside in Awka, Anambra State, and buy and consume the toothpaste they buy.)

Q1 Which one of the following brands of toothpaste would you say is your brand of toothpaste? (Choose one only.)
QII Which one of the following statements best describes how you buy toothpaste for your own consumption? (Choose one only.)

4. Buy your brand always.
3. Buy your brand now, buy another brand next time, buy your brand next time, and buy another brand next time….and so on in this manner.
2. Buy your brand half of the times, and buy any of the other five brands half of the times.
1. Buy your brand now, buy another brand next time, buy another different brand next time, and buy another different brand next time….and so on in this manner.

QIII Now, in thinking about your brand of toothpaste, what opinion do you think you have in your mind concerning your brand of toothpaste? Please, indicate below, on a scale of 1 to 5, your opinion of your brand of toothpaste. Select one number only.

5. Very favorable opinion
4. Somehow favorable opinion
3. Neutral opinion
2. Unfavorable opinion
1. Very unfavorable opinion

QIV Please, what level of education do you have? Select one number only.

1. Less than secondary school education
2. Secondary school education only
3. University education