Project on detergent assignment

Business, Marketing

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Any suggestions to improve are always welcomed. To Whom It May Concern: I, Dr. S. K. Laroiya, hereby authorize the following students, to conduct a comparative study on detergents. They are authorized to act on my behalf in all manners relating to conducting of this study. Any and all acts carried out by them on my behalf shall have the same affect as acts of mine. Name of Students: 1. 2. 3. 4. 5. 6. Siddharth Saraswat Saurabh Kumar Ankush Garg Mohd. Haris Khan Abhilash Mishra Getanjali

This authorization is valid until further written notice from me. Sincerely, Dr. S. K. Laroiya (H. O. D. Economics Dept. ABS) ABSTRACT With the increase in per capita income and wide range of choices being available, consumers are main focus for many detergent producing organizations. With competition at its all time peak and with changing trends in demand the companies are finding it hard to survive or to retain their market share. In order to lure the consumers, companies study the quantity being purchased by consumers and at what price.

We here try to find out how these factors, confining ourselves to detergent market of India, and many other factors effect the demand of consumers for

detergents. Executive Summary This is based on our research work on Detergents, being FMCG, it made us go to households and interact to find out the consumer’s buying behavior. Our objectives were to find out what are the main features consumers look in detergents while buying, brand loyalty towards a particular brand, major reasons of switching from one brand to the other.

To gather the data we used the questionnaires method. This data was fed in a data analysis tool SPSS. With the help of which we analysed and interpreted the data gathered, pertaining the buying behavior of consumers. Along with questionnaires, we also used Internet to find out about the detergent industry and the various brands available. There are more than 10 brands available in the Indian market, but we have chosen 6 major brands. The Indian laundry market is Rs 5000 crore, with HUL enjoying highest 38% of share, followed by others like P, Nirma, Ghari etc.

Detergent bar comprises of 43% of market share and powder enjoying the rest 57%. The brands which we tapped are Nirma, Ariel, Surf, Tide, Wheel, Surf Excel and leaving others as option. Competition in this market is really high with HUL, P, Nirma etc strategizing and innovating to capture the market. The research design used in our research was descriptive incorporating knowledge from secondary information analysis, qualitative research, methodology selection, question measurement & scale selection, questionnaire design and sample design to be used.

And simple random sampling was done. Target customers were mainly housewives, bachelors and others who are using detergents. The age group

was not defined. Area where research is done is UP, Delhi & NCR because of the convenience factor. Marjory Quantitative Techniques like frequency distribution and cross tabulation to make interpretations Findings ... ka 1 para likhna padega... after u write recommendations.....likhna hai.. Introduction to Project Detergent Detergent is a material intended to assist cleaning.

The term is sometimes used to differentiate between soap and other surfactants used for cleaning. As an adjective pertaining to a substance, it (or “ detersive”) means “ cleaning” or “ having cleaning properties”; “ detergency” indicates presence or degree of cleaning property. The term detergent by itself is sometimes used to refer specifically to clothing detergent, as opposed to hand soap or other types of cleaning agents. Plain water, if used for cleaning, is a detergent.

Probably the most widely used detergents other than water are soaps or mixtures composed chiefly of soaps. However, not all soaps have significant detergency and, although the words “ detergent” and “ soap” are sometimes used interchangeably, not every detergent is a soap. The term detergent is sometimes used to refer to any surfactant, even when it is not used for cleaning. This terminology should be avoided as long as the term surfactant itself is available. Components

Detergents, especially those made for use with water, often include different components such as: • • • Surfactants to ‘ cut’ (Emulsify) grease and to wet surfaces Abrasive to scour Substances to modify pH or to affect performance or stability of other ingredients, acids for descaling or caustics to break down

organic compounds • Water softeners to counteract the effect of “ hardness” ions on other ingredients • • • oxidants (oxidizers) for bleaching, disinfection, and breaking down organic compounds Non-surfactant materials that keep dirt in suspension Enzymes to digest proteins, fats, or carbohydrates in stains or to modifyfabric feel • • • • • Ingredients that modify the foaming properties of the cleaning surfactants, to either stabilize or counteract foam Ingredients to increase or decrease the viscosity of the solution, or to keep other ingredients in solution, in a detergent supplied as a water solution or gel Ingredients that affect aesthetic properties of the item to be cleaned, or of the detergent itself before or during use, such as optical brighteners, fabric softeners, colors, perfumes, etc.

Ingredients such as corrosion inhibitors to counteract damage to equipment with which the detergent is used Ingredients to reduce harm or produce benefits to skin, when the detergent is used by bare hand on inanimate objects or used to clean skin Preservatives to prevent spoilage of other ingredients Sometimes materials more complicated than mere mixtures of compounds are said to be detergent.

For instance, certain foods such as celery are said to be detergent or detersive to teeth. Types There are several factors that dictate what compositions of detergent should be used, including the material to be cleaned, the apparatus to be used, and tolerance for and type of dirt. For instance, all of the following are used to clean glass.

The sheer range of different detergents that can be used demonstrates the importance of context in the selection of an appropriate glass-cleaning

agent: • • • • • a chromic acid solution—to get glass very clean for certain precision demanding purposes such as analytical chemistry a high-foaming mixture of surfactants with low skin irritation—for hand washing of dishware in a sink or dishpan any of various non-foaming compositions—for dishware in a dishwashing machine other surfactant-based compositions—for washing windows with a squeegee, followed by rinsing an ammonia-containing solution—for cleaning windows with no additional dilution and no rinsing • • thano l or methanol in windshield washer fluid—used for a vehicle in motion, with no additional dilution glass contact lens cleaning solutions, which must clean and disinfect without leaving any eyeharming material that would not be easily rinsed History of Detergent The earliest detergent substance was undoubtedly water; after that, oils, abrasives such as wet sand, and wet clay. The oldest known detergent for wool-washing is stale (putrescent) urine. Other detergent surfactants came from saponin sand ox bile. The detergent effects of certain synthetic surfactants were noted in 1913 by A. Reychler, a Belgian chemist. The first commercially available detergent taking advantage of those observations was Nekal, sold in Germany in 1917, to alleviate World War I soap shortages. Detergents were mainly used in industry until World War II.

By then new developments and the later conversion of USA aviation fuel plants to produce tetrapropylene, used in household detergents, caused a fast growth of household use, in the late 1940s. In the late 1960s biological detergents, containing enzymes, better suited to dissolve protein stains, such as egg stains, were introduced in the USA by Procter & Gamble. Indian detergent market The first companies to manufacture detergents in India

were HLL and Swastik. HLL test marketed Surf between 1956 and 1958 and began manufacturing it from 1959. Swastik launched Det, a white detergent powder, in 1957. By 1960, Det had made rapid inroads in eastern India.

Surf, a blue detergent powder, became the national market leader with dominant positions in the west, north and south. In the early 1960s, the total volume of detergents manufactured in India grew from around 1600 tonnes to 8000 tonnes. HLL dominated the market with a share of almost 70 % compared to Det's 25%. In 1966, another player entered the fray. Tata Oil Mills Company (TOMCO) 2 launched its detergent powder ' Magic'. In 1973, TOMCO introduced ' Tata's Tej' in the low-priced segment. TOMCO unveiled another economy detergent powder called OK in 1977. Important inventions over the years of the history of detergents 1950s Liquid laundry, hand dishwashing and all-purpose cleaning products • • •

Automatic dishwasher powders Detergent with oxygen bleach Fabric softeners (rinse-cycle added) 1960s • • • Laundry powders with enzymes Prewash soil and stain removers Enzyme presoaks 1970s • • • Fabric softeners (sheets and wash-cycle added) Multifunctional products (e. g. , detergent with fabric softener) Liquid hand soaps 1980s • • • Automatic dishwasher liquids Detergents for cooler water washing Concentrated laundry powders 1990s • • • • Ultra (super concentrated) powder and liquid detergents Automatic dishwasher gels Ultra fabric softeners Laundry and cleaning product refills Indian Market • • • The Indian laundry market is estimated to be Rs 5, 000 crore in size Making India world's third largest detergents market.

Detergent bars comprise 43 per cent of the total market and detergent powders comprise the balance 57 per cent. However, the detergent bar market is shrinking in India Detergent Brands NIRMA Various Products offered by Nirma are: Nirma Washing Powder This product created a marketing miracle, when introduced in the domestic marketplace. In 1969, when the detergents were priced so exorbitantly that for most of the Indians, it was a luxury item. Nirma envisioned the vast Fabric Wash market segment and sensed a tremendous potential therein. This product was priced at almost one third to that of the competitor brands, resulting into instant trial by the consumers.

Owing to its unique environment-friendly, phosphate-free formulation, the consumers became loyal to this brand, helping it to over-take the decades' old brands, in terms of volumes. This brand had been ranked as the " Most widely distributed detergent powder brand in India" as per All India Census of Retail Outlets carried out in 435 urban towns by the AIMS (Asian Information Marketing & Social) Research agency [Brand Equity – The Economic Times, March 11, 1997]. As per the ORG-MARG Rural Consumer Panel [December 1998] survey, Nirma brand has been ranked as highest in terms of penetration in washing powder category [BT Rural Market Watch, Business Today, June 22, 1999].

Super Nirma Washing Powder Exploding the myth that ' better quality always demands higher price", Nirma introduced a spraydried blue coloured washing powder in the premium segment, in 1996. Available in 25g, 500g and 1000g packs, this product out-classed its competitor brands. Though,

priced almost 40 % lesser, thus providing a very attractive ‘ value-for-money’ proposition. This brand, within a short span of two years, had cornered substantial market share in the premium detergent segment and continues to perform well. Nirma Popular Detergent Powder To cater to the needs of the specific target audience, Nirma launched a good quality product at a very affordable price.

The objective is to convert the non-users of detergents into users and also prevent the competitors and local manufacturers to lure away the prospective Nirma consumers by sub-standard products. This product has created a loyal consumer base of its own and has established substantial amount of volumes. It is available in pack sizes of 500g and 1000g pack sizes. Nirma Detergent Cake Deriving inspiration from its success in the Detergent Powder market, Nirma expanded its product portfolio by introducing the “ Nirma detergent cake” in 1987. Here again, the excellent pricequality equation tempted the consumers to try the product. Available in 125g and 250g pack sizes, this brand has done exceptionally well. AIMS survey ranked Nirma detergent cake as “ The Most widely distributed detergent cake brand”.

Due to its unique formulation, this product offers benefits like less melting in water, better stability, and therefore lasts longer. As per the ORGMARG Rural Consumer Panel[December 1998] survey, Nirma brand is ranked highest in terms of penetration in washing cakes / bars category [BT Rural Market Watch, Business Today, June 22, 1999]. Super Nirma Detergent Cake To meet the growing aspirations of consumers and to offer them value-chain

product portfolio, Nirma introduced Super Nirma Detergent Cake, in 1992. Available in 125g and 250g pack sizes, this product, within a short span, convinced the consumers of competitor brands to switch their loyalty towards Super Nirma detergent cake.

With a high detergency value, this product offers quality wash to their consumers. Super Nirma Detergent Cake was ranked as the fastest Climber for the year 1997-98 in the detergent cake/ bars category [BUSINESS TODAY, Octobers 22, 1998]. Nirma Popular Detergent Cake The positioning of Nirma Popular Detergent Cake is similar to that of Nirma Popular Detergent Powder. This product is available in 125g and 250g pack sizes, targeted to first-time detergent cake user segment. WHEEL Wheel – your smart laundry choice The largest laundry brand in Bangladesh, Wheel has always been focused in making laundry a pleasurable and delightful experience for the housewives.

Based on its years of understanding of its consumers and huge experience in laundry, Wheel has been continually improving its formulation and form to suit the modern day users. Different formats and pack sizes of Wheel has been designed to cater to the requirements of users with different family sizes, laundry requirements and income groups. Wheel Laundry Soap Wheel Laundry Soap has a perfect formulation that not only gives great clean, but also is gentle to both hand and cloth. The soap comes in individual shrink wrap designed to ensure that the consumers receive a fresh soap with great lemon fragrance. The improved formulation of Wheel Laundry Soap also helps the users to wash more number of clothes than the traditional ball soap.

Wheel Washing Powder A dominant market leader in the detergent segment, Wheel Washing Powder is known for its great cleaning ability with minimum effort. The superior formulation of Wheel Washing Powder is enhanced with the power of lemon, which not only removes the tough dirt in your cloth, but also leaves a pleasant lemon fresh fragrance well after washing. The convenience provided by Wheel Washing Powder has relieved many housewives from the laborious laundry process of the tradional Ball Soaps. ARIEL Ariel is a marketing line of laundry detergents made by Procter & Gamble. It is the flagship brand in Procter & Gamble's European, Mexican, Japanese, Brazilian, Peruvian, Turkish, Filipino, and Venezuelan portfolios.

Ariel first appeared on the UK market circa 1968 and was the first detergent with stain-removing enzymes. It was a high-sudsing powder designed for twin-tub and top-loading washing machines. With the rise in popularity of automatic front-loading washing machines, a suitable low-suds variant was launched in the early 1970s. The mid-eighties saw the range expanding to encompass liquid detergent and compact powder. The compact powder was originally known as " Ariel Ultra"; and was subsequently reformulated into the nineties as " Ariel Futur". This was possibly in response to Unilever's launch of the ultimately doomed " Persil Power", which was seen to damage clothes.

Compact powders never proved popular in the UK; so when the tablet variant appeared in July 1999, the compact version disappeared. In 2003, Ariel brought out its quickwash action to its detergents, to allow consumers to be able to do their laundry on a quickwash cycle. In 2006, Ariel started its " turn

to 30” campaign to inspire consumers to wash in cool water so that energy can be saved. Ariel launched a concentrated version of their liquid detergents named Ariel Power in the spring of 2008. In October 2008, Ariel launched their new Excel Gel product which can be used in temperatures as low as 15 degrees celsius. This product was launched under Ariel’s “ cold is the new hot” campaign. SURF EXCEL • • • • • • Launched in 1959 & first in Indian detergent powder mkt. It was the first Fast Moving Consumer Goods (FMCG) for Detergent. Surf was the first brand of detergent that was advertised on TV. It is advertised on more than 300 channels across the globe . Introduced the concept of bucket wash to housewives who up till now used to washing clothes with laundry soap bars. Brand to set up a one-stop shop – called Care line – for people seeking solutions to their varied laundry problems. Surf Excel, launched in 1954, is one of the oldest detergent powders in India. Initially, the brand was positioned on the clear proposition of “ washes whitest”.

Surf Excel underwent various changes in its Brand Communication; from ‘ Lalitaji’ to ‘ dhoondte reh jaaoge’ to ‘ jaise bhi daag ho, surf excel hai na’, and is today communicated on the platform of ‘ Dhaag achcha hai’. • • • • 2006 saw a unique marketing move from HLL. Rin Supreme bar is being migrated to Surf Excel. Right from ‘ Lalitaji’, representative of the true-blue cost-conscious Indian woman, till the inspiring storyboards of today, Surf Excel has done it all and in style! HLL to revise Surf Excel pricing – A change in the pricing strategy for HLL Surf Excel brand, which dominates the Rs 5, 000 crore detergent powder market, seems to be on the cards. • HLL is now reworking the Surf Excel strategy by moving away from positioning the

brand on functional benefits, to building an emotional connect Price Index Size Market growth

TO NEAREST COMPETITOR Unilever brand Relative share PREMIUM 15% ++ Surf Excel 2. 4 MID-PRICED 25% ++ RIN 1. 8 MASS 60% + Wheel 1. 4 TIDE • • • • • • • • • • • • Tide is the name of a popular laundry detergent in the market of Canada, the United States and other countries. It is manufactured by Procter & Gamble. First introduced in test marketed in 1946 with national distribution reached in 1949 Tide is the World's Oldest & Most Trusted Detergent brand and is the Market Leader in 23 Countries around the world. The brand regularly introduces new products and technologies to beat the laundry blues Launched in India in mid-2000 It gives outstanding hiteness due to its anti redeposition global technology Anti-redeposition Agents help keep soils from re-settling on clothes after they have been removed during the wash itself It offers solution to virtually any stain The brand in India being a relatively new entry has only two types of products namely Tide detergent and Tide bar Tide detergent is available in India in packs of 200 gm, 500 gm, 1 kg, 2 kg and 20 gm single use sachet. • Tide bar is available in 75gm, 125gm, 200gm bars. Fighting Competition • • • The latest move comes in the wake of the high profile launch of Tide detergent bar. Tide and Ariel always created problems for Surf and Rin. The migration of Rin Supreme bar to Surf Excel bar is aimed at countering Tide. HLL has announced a drastic reduction in price by Rs 20 per kilo on Surf Excel, its premium detergent brand, making it cheaper than competing brand Ariel from Procter & Gamble (P&G). rice cut, from Rs 155 to Rs 135 per kg. Research Objective Objectives The following project has been given to us in order to make us understand

the real environment of the market in which research is conducted. Marketing research, being a very important field of study in management can only be learned through practically working in the markets. The subject of our study being an FMCG product made us go and interact with the households and know their buying behaviour, preferences and expectations from the detergents they use. In our study we defined our research objectives as follows:• • • • • • • • • • To find the customer preference in the forms of detergents To ind the customer frequency of use of detergents/ number of times they purchase a product in a month To find the various ways by which the customers wash their clothes/ dishes To find the brand loyalty of the customers To find the qualities they look for while buying a detergent To study the reasons that made the customer switch from their previous brands To find the mode of communication through which they came to know about the qualities/ features of their present brand To find the number of times the customer switches from one brand to another. To find the role of packaging in the purchase behavior of a product- quantity. Consumers' awareness about the harmful effects of the detergents. The objectives hence set paved the way for the exhaustive research that we conducted in the field to elaborate and analyse separately in order to get a complete and a dynamic overview. Market Research Market Research Market research is any organized effort to gather information about markets or customers. It is a very important component of business strategy. The term is commonly interchanged with marketing research; however, expert practitioners may wish to draw a distinction, in that marketing esearch is concerned specifically about marketing processes, while market research is

concerned specifically with markets. Market research as defined by the International Code on Market and Social Research, includes social and opinion research is the systematic gathering and interpretation of information about individuals or organizations using statistical and analytical methods and techniques of the applied social sciences to gain insight or support decision making. TYPES OF MARKETING RESEARCH Quantitative marketing research Quantitative marketing research is the application of quantitative research techniques to the field of marketing. It has roots in both the positivist view of the world, and the modern marketing viewpoint that marketing is an nteractive process in which both the buyer and seller reach a satisfying agreement on the “ four Ps” of marketing: Product, Price, Place (location) and Promotion. As a social research method, it typically involves the construction of questionnaires and scales. People who respond (respondents) are asked to complete the survey. Marketers use the information so obtained to understand the needs of individuals in the marketplace, and to create strategies and marketing plans. Qualitative Market Research Qualitative marketing research is a set of research techniques, used in marketing and the social sciences, in which data is obtained from a relatively small group of respondents and not analyzed with inferential statistics. This differentiates it from quantitative analyzed for statistical significance.

Qualitative research tools are used primarily to define a problem and generate hypotheses. They are often used as the prelude to quantitative research in order to identify determinants, and develop quantitative research designs. They can be better than quantitative research at probing below the

surface in order to understand what drives and motivates behaviour. Because of the low number of respondents involved and the idiosyncratic nature of some data collection methods findings from qualitative marketing research should be applied to larger populations with caution. They are however, very valuable for exploring an issue and are used by almost all researchers at various points during large research campaigns.

In short, most businesses use one or more of six basic methods to perform market research: literature, surveys, focus groups, personal interviews, observation and field trials. The type of data you need and how much money you’re willing to spend will determine which techniques you choose for your business 1. Literature search involves reviewing all readily available materials. These materials can include internal company information, relevant trade publications, newspapers, magazines, annual reports, company literature, on-line databases, and any other published materials. It is a very inexpensive method of gathering information, although it generally does not yield timely information. Literature searches take between one and eight weeks. 2. Surveys.

Using concise, straightforward questionnaires, you can analyze a sample group that represents your target market. The larger the sample, the more reliable the results In-person surveys are one-on-one interviews typically conducted in high-traffic locations such as shopping malls. They allow you to present people with samples of products, packaging or advertising and gather immediate feedback. In-person surveys can generate response rates of more than 90 percent, but they are costly. With the time and labor

involved, the tab for an in-person survey can run as high as $100 per interview. Telephone surveys are less expensive than in-person surveys, but costlier than mail.

However, due to consumer resistance to relentless telemarketing, getting people to participate in phone surveys has grown increasingly difficult. Telephone surveys generally yield response rates of 50 percent to 60 percent. Mail surveys are a relatively inexpensive way to reach a broad audience. They’re much cheaper than in-person and phone surveys, but they only generate response rates of 3 percent to 15 percent. Despite the low return, mail surveys are still a cost-effective choice for small businesses. Online surveys usually generate unpredictable response rates and unreliable data because you have no control over the pool of respondents. But an online survey is a simple, inexpensive way to collect anecdotal evidence and gather customer opinions and preferences. 3. Focus groups.

In focus groups, a moderator uses a scripted series of questions or topics to lead a discussion among a group of people. These sessions take place at neutral locations, usually at facilities with videotaping equipment and an observation room with one-way mirrors. A focus group usually lasts for one to two hours, and it takes at least three groups to get balanced results. 4. Personal interviews. Like focus groups, personal interviews include unstructured, open-ended questions. They usually last for about an hour and are typically recorded. Focus groups and personal interviews provide more subjective data than surveys do. The results are not statistically reliable, which means they usually don’t represent a large segment of the population.

Nevertheless, focus groups and interviews yield valuable insights into customer attitudes and are excellent ways to uncover issues related to new products or service development. 5. Observation. Individual responses to surveys and focus groups are sometimes at odds with people’s actual behavior. When you observe consumers in action by videotaping them in stores, at work or at home, you can observe how they buy or use a product. This gives you a more accurate picture of customers’ usage habits and shopping patterns. 6. Field trials. Placing a new product in selected stores to test customer response under real-life selling conditions can help you make product modifications, adjust prices or improve packaging.

Small business owners should try to establish rapport with local storeowners and Web sites that can help them test their products. 7. Questionnaires. A questionnaire is research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. Although they are often designed for statistical analysis of the responses, this is not always the case. The questionnaire was invented by Sir Francis Galton. Questionnaires have advantages over some other types of surveys in that they are cheap, do not require as much effort from the questioner as verbal or telephone surveys, and often have standardized answers that make it simple to compile data. However, such standardized answers may frustrate users.

Questionnaires are also sharply limited by the fact that respondents must be able to read the questions and respond to them. Thus, for some demographic groups conducting a survey by questionnaire may not be

practical. Question types Usually, a questionnaire consists of a number of questions that the respondent has to answer in a set format. A distinction is made between open-ended and closed-ended questions. An open-ended question asks the respondent to formulate his own answer, whereas a closed-ended question has the respondent pick an answer from a given number of options. The response options for a closedended question should be exhaustive and mutually exclusive.

Four types of response scales for closed-ended questions are distinguished: _ Dichotomous, where the respondent has two options _ Nominal-polytomous, where the respondent has more than two unordered options _ Ordinal-polytomous, where the respondent has more than two ordered options _ (Bounded)Continuous, where the respondent is presented with a continuous scale A respondent’s answer to an open-ended question is coded into a response scale afterwards. An example of an open-ended question is a question where the testee has to complete a sentence (sentence completion item) Question sequence In general, questions should flow logically from one to the next. To achieve the best response rates, questions should flow from the least sensitive to the most sensitive, from the factual and behavioural to the attitudinal, and from the more general to the more specific. Before designing the questionnaire, many decisions have to be made. These decisions affect the questionnaire, and should be part of the draft plan for a survey.

The draft plan should address the following issues: Survey objectives and data requirements In order to address the survey’s objectives, you should

prepare a document that provides a clear and comprehensive statement of the survey’s goals, data requirements, and the analysis plan. This document will determine the variables to be measured, and ultimately, the survey questions and response alternatives. When formulating the questions, consult with subject-matter experts and if possible, members of the target audience. Also, examine questions from other surveys on the same or similar topics. This research will provide you with a useful starting point and will help you create appropriate and informative questions.

Make certain that the questions are relevant to the survey objectives and information requirements and ensure that there is an established rationale behind each question. Also, you should explain how the information gathered from these questions will be used and whether they will be good measures of the required data. • Analysis plan The next step in designing a questionnaire is to create an analysis plan. First, outline the questionnaire’s objectives and data requirements. Describe the target audience as clearly as possible. Then, identify the reference period (the time period under construction—in the last year, in the last month etc.). Develop a list of the units to be sampled (e. g. , students, houses, teachers, etc.). Decide on the method of data collection to be used (e. g. face-to-face interview, telephone interview, mailed questionnaire, etc.). Explain how the questionnaire content, wording, format and pre-testing process will be developed; as well as the procedures put in place to deal with the interviewer training and non-response results. Also, choose the methods to be used during the data processing (e. g. , coding, editing etc.). Some of the other issues that can be analysed during this step include estimation methods, result output tabulations, result

reports and the analysis. Finally, the last two important issues to be considered are the time required to complete the entire process and the budget that has been allotted to it. Survey target population Often the target population (the population for which information is required) and the survey population (the population actually covered) differ for practical reasons, even though they should, in actuality, be the same. Sometimes, it is necessary to impose geographical limitations excluding certain parts of the target population because they are inaccessible due to difficulty or cost. It is also possible that some of the survey concepts and methods that are used can be considered inappropriate for certain parts of the population. For example, consider a survey of post-secondary graduates where the objective is to determine if the graduates found jobs and, if so, what types of jobs.

In this case, you might exclude graduates who specialized in religious seminaries or military schools, as these types of graduates would be reasonably assured of securing employment in their respective fields. Thus, the target population might contain only those graduates who graduated from universities, colleges and trade schools. • Method of data collection This next step in questionnaire design involves developing the methods of data collection. This is important step because you need to consider the costs, physical resources, and time required to conduct the survey. First, select the best method for gathering the required data. Keep in mind that cost and data quality will be directly impacted by the method you choose.

There are several options available: face-to-face interviews or computer assisted personal interviewing (CAPI) are two examples. These methods are

administered by a trained interviewer and can have either a structured or unstructured line of questioning. There are also two telephone methods available: telephone interviews or computer assisted telephone interviewing (CATI). Both of these methods are also administered by a trained interviewer, but the telephone versions are structured with a more formal interview schedule. Finally, there is also the option of a collecting data through a selfcompleted questionnaire. This method allows the respondent to complete the questionnaire without the aid of an interviewer.

It is highly structured and can be returned by mail or through a drop-off system. • Size of the survey Since each survey is different, there are no hard and fast rules for determining its size. The deciding factors in the scale of the survey operations are time, cost, operational constraints and the desired precision of the results. Evaluate and assess each of these issues and you will be in a better position to decide the sample size. Also, consider what should be the acceptable level of error in the sample. If there is a lot of variability in the population, the sample size will need to be bigger to obtain the specified level of reliability. • Data processing plans This processes the questionnaire responses into output.

Coding; data capture; editing; dealing with invalid or missing data; and, if necessary creating derived variables are the tasks that will be completed during data processing. In short, the aim in this step is to produce a file of data that is as free of errors as possible. • Budget Sometimes, questionnaire design is decided upon by the amount of money available to do a specific survey. Costs are one of the main justifications for choosing to conduct

sample surveys instead of a census. With surveys, it is possible to obtain reasonable results with a relatively small sample or target population. For example, if you need information on all Canadian citizens over 15 years of age, a survey of a small percentage of these (1, 000 or 2, 000 depending on the requirements) might provide adequate results. Time One of the advantages of survey sampling is that it permits investigators to produce the information quickly. It is often the case that survey results are required shortly after the need for information has been identified. For example, if an organization wants to conduct a survey to measure the public awareness of a media advertisement campaign, the survey should be conducted shortly after the campaign is undertaken. Since sampling requires a smaller scale of operation, it reduces the data collection and processing time, while allowing for greater design time and more complex processing programs. • Questionnaire testing This is a fundamental step in developing a questionnaire. Testing helps iscover poor wording or ordering of questions; identify errors in the questionnaire layout and instructions; determine problems caused by the respondent’s inability or unwillingness to answer the questions; suggest additional response categories that can be pre-coded on the questionnaire; and provide a preliminary indication of the length of the interview and any refusal problems. Testing can include the entire questionnaire or only a particular portion of it. A questionnaire will at some point in time have to be fully tested. • Data Quality This step identifies errors and verifies results. No matter how much planning and testing goes into a survey, something unexpected will often happen. As a result, no survey is ever perfect.

Quality assurance programs such as interview training, information editing, computer program testing, non-respondent follow-ups, and data collection and output spot-checks are required to minimize non-sampling errors introduced during various stages of the survey. Statistical quality-control programs ensure that the specified error levels are controlled to minimum. Research Methodology Research Methodology Meaning of Research • Research is composed of two syllables, a prefix re and a verb search. • Re means again, anew, over again. • Search means to examine closely and carefully, to test and try, to probe. • The two words form a noun to describe a careful and systematic study in some field of knowledge, undertaken to establish facts or principles. Research is an organized and systematic way of finding answers to questions. Basic Research and Applied Research • Basic research is geared toward advancing our knowledge about human behavior with little concern for any immediate practical benefits that might result. • Applied research is designed with a practical outcome in mind and with the assumption that some group or society as a whole will gain specific benefits from the research. The Wheel of Science • Theory – Hypotheses – Observation – Empirical Generalization Hypothesis and Focused Question • In deductive research, a hypothesis is focused statement which predicts an answer to your research question.

It is based on the findings of previous research (gained from your review of the literature) and perhaps your previous experience with the subject. The ultimate objective of deductive research is to decide whether to accept or reject the hypothesis as stated. When formulating research methods (subjects, data collection instruments, etc.), wise researchers are guided by

their hypothesis. In this way, the hypothesis gives direction and focus to the research. • In heuristic research, a hypothesis is not necessary. This type of research employs a “ discovery approach. ” In spite of the fact that this type of research does not use a formal hypothesis, focus and structure is still critical. If the research question is too general, the search to find an answer to it may be futile or fruitless.

Therefore, after reviewing the relevant literature, the researcher may arrive at a focused research question. Research Process • Choosing the research problem • Review of related literature • Collection of data • Interpretation of data • Preparing the research report Research Methods 1 Action research Action research is regarded as research that is normally carried out by practitioners (persons that stand in the field of work). It is a method par excel lance for instructors/trainers. It enables the researcher to investigate a specific problem that exists in practice. According to Landman this requires that the researcher should be involved in the actions that take place.

A further refinement of this type of research is that the results obtained from the research should be relevant. to the practice. In other words it should be applicable immediately. This means that the, researcher, as expert, and the person standing in the practice, jointly decide on the formulation of research procedures, allowing the problem to be solved Action research is characterized according to by the following four features: Problem-aimed research focuses on a special situation in practice. Seen in research context, action research is aimed at a specific problem recognizable in practice, and

of which the outcome problem solving) is immediately applicable in practice. – Collective participation.

A second characteristic is that all participants (for instance the researchers and persons standing in the practice) form an integral part of action research with the exclusive aim to assist in solving the identified problem. – Type of empirical research. Thirdly, action research is characterized as a means to change the practice while the research is going on. Outcome of research can not be generalized. Lastly, action research is characterized by the fact that problem solving, seen as renewed corrective actions, can not be generalized, because it should comply with the criteria set for scientific character. 2 Historical research Historical research, as the term implies, is research based on describing the past.

This type of research includes for instance investigations like the recording , analysis and interpretation of events in the past with the purpose of discovering generalizations and deductions that can be useful in understanding the past, the present and to a limited extent, can anticipate the future Historians should consequently aspire to getting to the original events that took place and therefore the researcher is dependent on the availability of documentary sources. 3 Descriptive research The term descriptive is self-explanatory and terminology synonymous to this type of research is: describe, write on, depict. The aim of descriptive research is to verify formulated hypotheses that refer to the present situation in order to elucidate it.

Descriptive research is thus a type of research that is primarily concerned with describing the nature or conditions and degree in detail of the present situation The emphasis is on describe rather than on judge or interpret. According to Klopper researchers who use this method for their research usually aim at: • demarcating the population (representative of the universum) by means of perceiving accurately research parameters; and recording in the form of a written report of that which has been perceived. • The aim of the latter is, that when the total record has been compiled, revision of the documents can occur so that the perceptions derived at can be thoroughly investigated .

Because the total population (universum) during a specific investigation can not be contemplated as a whole, researchers make use of the demarcation of the population or of the selection of a representative test sample. Test sampling therefore forms an integral part of descriptive research. In descriptive research the following steps should be included: • Problem selection and problem formulation. The research problem being tested should be explicitly formulated in the form of a question. Literature search. Intensive literature search regarding the formulated problem enables the researcher to divide the problem into smaller units. Problem reduction. Hypothesis formulation. Test sampling.

The researcher should determine the size of the test sample. Information retrieval. The application of appropriate information retrieval techniques to comply with the criteria set for authenticity and competency, is relevant. General planning. Any research requires sound planning. Report writing. The

report entails the reproduction of factual information, the interpretation of data, conclusions derived from the research and recommendations. • • • • • • • You should make sure that you understand the meaning of the terminology used. Consult the recommended sources for detailed explanations. However, further reference must be made to aspects related to test sampling. • Test sampling

As mentioned previously, when descriptive research is exposed, demarcation of the population become unavoidable. Test sampling therefor forms an integra! part of this type of research. Two important questions arise frequently when test sampling is anticipated by researchers, namely: How big should the test sample be? What is the probability of mistakes occurring in the use of test sampling (instead of the whole population)? Special care should be taken with the selection of test samples. The results obtained from a survey can never be more authentic than the standard of the population or the representatives of the test sample, according to Klopper The size of the test sample can also be specified by means of statistics.

It is important for the researcher to bear in mind that it is desirable that test sampling be made as large as possible. The most important criterium that serves as a guideline here, is the extent to which the test sample corresponds with the qualities and characteristics of the general population being investigated. The next three factors should be taken into consideration before a decision is made with regard to the size of the test sample: What is the grade of accuracy expected between the test sample and the general population? What is the variability of the population? (This, in general terms,

is expressed as the standard deviation.) What methods should be used in test sampling? • Bias saying

When you attempt descriptive research, you should take care that the test sample reflects the actual population it represents. The following example holds validity for the latter: you cannot make a statement regarding all first-year students if you do not include all first-year students in your research. If you do make such a statement, you have to select enrolled first-year students at all the tertiary institutions or a balanced proportional manner, and include the latter when you select your test sample for your research. Landman points out that, when a test sample does not truly represent the population (universum) from which it is drawn, the test sample is considered a bias sample.

It then becomes virtually impossible to make an accurate statement or to predict about the population. 4 Experimental research This type of research is known in literature by a variety of names. Synonyms are, for instance: the cause and consequence method, before and after design, control group design and the laboratory method. Landman summarises experiential research when he states that it is research designed to study cause and consequence. A clear distinction between the terms experiment and experimental research should be evident. In the former there is normally no question about the interpretation of data in the discovery of new meaning.

Experimental research, however, has control as fundamental characteristic. The selection of control groups, based on proportional selection, forms the basis of this type of research. Experimental research is basically the method

that can be applied in a research laboratory. The basic structure of this type of research is elementary: two situations (cause and consequence) are assessed in order to make a comparison. Following this, attempts should be made to treat the one situation (cause) from the outside (external variable) to affect change, and then to reevaluate the two situations. The perceivable changes that occurred can then be presumed as caused by external variables. • Control group

Because: control is a fundamental characteristic of this type of research, control groups are a prerequisite. Control groups are selected from a group of selected persons whose experience corresponds with that of the experimental group. The only difference is that they do not receive the same treatment (Landman 1988: 58). • Variable In order to do experimental! research, it is necessary to distinguish clearly between the terms dependent and independent variables. In experimental research it is a prerequisite that the researcher should be able to manipulate the variable and then to assess what the influence of the manipulation on the variable was. A variable is any characteristic (of man or his environment) that can take on different values.

Objects are usually not considered as variables – but their characteristics are. As example the following can be considered: a transparency is not a variable (it is an object). The characteristics of the transparency are variables, for example the colour, design etc. In other words, a transparency as an object can take on different values. • Independent variable the independent variable is the circumstances or characteristics which the According to Landman researcher can manipulate in his effort to determine

what their connection with the observed phenomenon is. This means that the researcher has direct control over the variable. As example of an independent variable, is study methods. • Dependent variable

The dependent variable, on the other hand, is the circumstances or characteristics that change, disappear or appear when the researcher implements the independent variable. For example, learning content that should be mastered (student performance) is the dependent variable, while the manipulation of study methods by means of different teaching methods, is the independent variable. • Internal and external validity The importance of control in conducting experimental research has been pointed out earlier. A further pre-requisite for this type of research is validity. Validity is a term used in research methodology that indicates the extent to which a test complies with the aim it was designed for.

Internal validity Internal validity means that the perceived difference in the independent variable (characteristics that change) is a direct result of the manipulation of the obtained research results, and therefore possible to conclude. In experimental design, emphasis is placed on the way in which reference between independent and dependent variables should not be confused by the presence of uncontrolled variables External validity External validity means that the results of the experimental research should be applied to a similar situation outside the experimental design. The results of the experimental research can then be confirmed in similar situations. 5 Ex post facto-research

Experimental research, where the researcher manipulates the independent variable, whilst the dependable variable are controlled with the aim of establishing the effect of the independent variable on the dependable variable, is also applicable. The term ex post facto according to Landman is used to refer to an experiment in which the researcher, rather than creating the treatment, examines the effect of a naturally occurring treatment after it has occurred. In other words it is a study that attempts to discover the pre-existing causal conditions between groups. It should, however, be pointed out that the most serious danger of ex post facto-research is the conclusion that because two factors go together, one is the cause and the other is the effect. Jacobs et al. efers to the following procedures when conducting ex post facto-research: • • The. first step should be to state the problem. Following this is the determination of the group to be investigated. Two groups of the population that differ with regard to the variable, should be selected in a proportional manner for the test sample. • • • Groups, according to variables, are set equal by means of paring off and statistical techniques of identified independent and dependent variables. Data is collected. Techniques like questionnaires, interviews, literature search etc:. are used to determine the differences. Next follows the interpretation of the research results. The hypothesis is either onfirmed or rejected. Lastly it should be mentioned that this type of research has shortcomings, and that only partial control is possible. Other Methods • Case and field method: to study intensively the background, current status, and environmental interactions of a given social unit. • Correlational method: to investigate the extent to which variations in one factor correlate with variations in one or

more other factors based on correlation coefficient. • Casual-comparative or " Ex post facto" method: to investigate possible cause-and-effect relationships by observing some existing consequence and looking back through the data for plausible casual factors. True experimental method: to investigate possible cause-and-effect relationships by exposing one or more experimental groups to one or more treatment conditions and comparing the results to one or more control groups not receiving the treatment, random assignment being essential. • Quasi-experimental method: to investigate the conditions of the true experiment in a setting which does not allow the control or manipulation of all relevant variables. • Action research: to develop skills or new approaches and to solve problems with direct application to the classroom or other applied setting. Parametric Analysis • Description and examination of relationships between different parameters, such as energy and economic factors. It is an excellent way to get accurate information about the influence of all parameters on the design objectives, such as system performance with respect to other variables. • Together with sensitivity analysis, it enables the engineer to identify the key parameters and know where the focus should be. Sensitivity Analysis • It is the study of how the variation (uncertainty) in the output of a mathematical model can be apportioned, qualitatively or quantitatively, to different sources of variation in the input of a model. • In more general terms, uncertainty and sensitivity analyses investigate the robustness of a study when the study includes some form of mathematical modeling.

While uncertainty analysis studies the overall uncertainty in the conclusions of the study, sensitivity analysis tries to identify what source of uncertainty

weights more on the study’s conclusions. • It looks at the effect of varying the inputs of a mathematical model on the output of the model itself. Sensitivity tests help people to understand dynamics of a system. Research Design Research Design A research design is a framework or blueprint for conducting the marketing research project. It details the procedures necessary for obtaining the information needed to structure or solve marketing research problems. Although a broad approach to the problem has already been developed, the research design specifies the details- the nut and bolts- of implementing that approach.

A research design lays the foundation for conducting the project. A good research design will ensure that the marketing research project is conducted effectively and efficiently. A research design involves the following components or tasks: • Design the exploratory, descriptive, and/or causal phases of the research. • Define the information needed • Specify the measurement and scaling procedures • Construct and pretest a questionnaire (interviewing form) or an appropriate form for data collection • Specify the sampling process and sample size • Develop a plan of data analysis Research design is the most encompassing of all the steps of marketing research.

Research design includes incorporating knowledge from secondary information analysis, qualitative research, methodology selection, question measurement & scale selection, questionnaire design and sample design to be used. According to the objective of the marketing research, the research design is descriptive. The aspect of what, who, how, when and where are

defined in the research. Desriptive research determines the perception of toothpaste characterstics in the minds of respondents. Here, respondents are asked questions their behaviour, intentions, attitude, lifestyle, awareness and buying behaviour towards the toothpaste. Research Instrument

The research instrument used by us is Questionnaire method because it is the most feasible way to interact with the sample organizations and get the relevant data for our market research. Mostly all the questions are in structured form as the questions are multiple choice questions or they are to be answered in yes or no. Scaling techniques used by us in the questionnaire includes:- CONTINUOUS RATING SCALE Where the respondents rate the object by placing a mark at the appropriate position on a line that runs from one extreme of the criterion variable to the other. DICHOTOMOUS QUESTIONS Which has only two response alternatives: yes or no. The decision of the respondent is guided by whether they approach the issue as a yes or no. MULTIPLE CHOICE QUESTIONS In which respondents have to choose one answer from many options.

These questions gives a wide choice to the respondents so that they can give the most accurate and reliable answer. LIKERT SCALE Where the respondents are provided with a scale that has a number or brief description associated with each category. This scale is useful as respondents readily understand how to use the scale, making it suitable for almost all kind of surveys. Data Analysis Techniques Methods of Data Analysis Qualitative Analysis Suppose that we have carried out an experiment on the effects of noise on learning with three groups of nine participants each. One group was

exposed to very loud noise, another group to moderately loud noise, and the third group was not exposed to noise at all.

What they had learned from a book chapter was assessed by giving them a set of questions, producing a score between 0 and 20. What is to be done with the raw scores? There are two key types of measures that can be taken whenever we have a set of scores from participants in a given condition. First, there are measures of central tendency, which provide some indication of the size of average or typical scores. Second, there are measures of dispersion, which indicate the extent to which the scores cluster around the average or are spread out. Various measures of central tendency and of dispersion are considered next. Measures of central tendency

Measures of central tendency describe how the data cluster together around a central point. There are three main measures of central tendency: the mean; the median; and the mode. Mean The mean in each group or condition is calculated by adding up all the scores in a given condition, and then dividing by the number of participants in that condition. Suppose that the scores of the nine participants in the no-noise condition are as follows: 1, 2, 4, 5, 7, 9, 9, 9, 17. The mean is given by the total, which is 63, divided by the number of participants, which is 9. Thus, the mean is 7. The main advantage of the mean is the fact that it takes all the scores into account.

This generally makes it a sensitive measure of central tendency, especially if the scores resemble the normal distribution, which is a bell-shaped distribution in which most scores cluster fairly close to the mean. However, the mean can be very misleading if the distribution differs markedly from the

normal and there are one or two extreme scores in one direction. Suppose that eight people complete one lap of a track in go-karts. For seven of them, the times taken (in seconds) are as follows: 25, 28, 29, 29, 34, 36, and 42. The eighth person’s go-kart breaks down, and so the driver has to push it around the track. This person takes 288 seconds to complete the lap. This produces an overall mean of 64 seconds.

This is clearly misleading, because no-one else took even close to 64 seconds to complete one lap. Median Another way of describing the general level of performance in each condition is known as the median. If there is an odd number of scores, then the median is simply the middle score, having an equal number of scores higher and lower than it. In the example with nine scorescin the no-noise condition (1, 2, 4, 5, 7, 9, 9, 9, 17), the median is 7. Matters are slightly more complex if there is an even number of scores. In that case, we work out the mean of the two central values. For example, suppose that we have the following scores in size order: 2, 5, 5, 7, 8, 9. The two central alues are 5 and 7, and so the median is The main advantage of the median is that it is unaffected by a few extreme scores, because it focuses only on scores in the middle of the distribution. It also has the advantage that it tends to be easier than the mean to work out. The main limitation of the median is that it ignores most of the scores, and so it is often less sensitive than the mean. In addition, it is not always representative of the scores obtained, especially if there are only a few scores. Mode The final measure of central tendency is the mode. This is simply the most frequently occurring score. In the example of the nine scores in the no-noise condition, this is 9. The main advantages of the mode

are that it is unaffected by one or two extreme scores, and that it is the easiest measure of central tendency to work out.

In addition, it can still be worked out even when some of the extreme scores are not known. However, its limitations generally outweigh these advantages. The greatest limitation is that the mode tends to be unreliable. For example, suppose we have the following scores: 4, 4, 6, 7, 8, 8, 12, 12, 12. The mode of these scores is 12. If just one score changed (a 12 becoming a 4), the mode would change to 4! Another limitation is that information about the exact values of the scores obtained is ignored in working out the mode. This makes it a less sensitive measure than the mean. A final limitation is that it is possible for there to be more than one mode. Measures of dispersion

The mean, median, and mode are all measures of central tendency. It is also useful to work out what are known as measures of dispersion, such as the range, interquartile range, variation ratio, and standard deviation. These measures indicate whether the scores in a given condition are similar to each other or whether they are spread out. Range The simplest of these measures is the range, which can be defined as the difference between the highest and the lowest score in any condition. In the case of the no-noise group (1, 2, 4, 5, 7, 9, 9, 9, 17), the range is 17 _ 1 _ 16. What has been said so far about the range applies only to whole numbers.

Suppose that we measure the time taken to perform a task to the nearest one-tenth of a second, with the fastest time being 21. 3 seconds and the slowest time being 36. 8 seconds. The figure of 21. 3 represents a value

between 21. 25 and 21. 35, and 36. 8 represents a value between 36. 75 and 36. 85. As a result, the range is 36. 85 _ 21. 25, which is 15. 6 seconds. The main advantages of the range as a measure of dispersion are that it is easy to calculate and that it takes full account of extreme values. The main weakness of the range is that it can be greatly influenced by one score which is very different from all of the others. In the example, the inclusion of the participant scoring 17 increases the range from 9 to 17.

The other important weakness of the range is that it ignores all but two of the scores, and so is likely to provide an inadequate measure of the general spread or dispersion of the scores around the mean or median. Standard deviation The most generally useful measure of dispersion is the standard deviation. It is harder to calculate than the range or variation ratio, but generally provides a more accurate measure of the spread of scor