

The Influence of Digital Signage on Product Sales among Leading Supermarkets in Kenya

by

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A thesis submitted to the School of Business and Economics

of

Daystar University
Nairobi, Kenya

In partial fulfillment of the requirement for the degree of

MASTER OF BUSINESS ADMINISTRATION
in
Strategic Management

June 2011

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THE INFLUENCE OF DIGITAL SIGNAGE ON PRODUCT SALES AMONG
LEADING SUPERMARKETS IN KENYA

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THE INFLUENCE OF DIGITAL SIGNAGE ON PRODUCT SALES
AMONG LEADING SUPERMARKETS IN KENYA

I declare that this thesis is my original work and has not been submitted to
any other collage or university for academic credit.

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ACKNOWLEDGEMENT

My foremost gratitude goes to God Almighty who renewed my strength at every single stage of doing this thesis.

Many thanks to my Supervisor Mr. Sam Muriithi and Reader Mr. Joseph Munyao for taking time to read the document discuss it with me and giving positive criticism, comments and suggestions that enabled me to come up with this refined document.

I am grateful to my family for their support and understanding during the whole process of studying at Daystar. Particularly, my wife Emily Kanchori, my daughter Kayla Nashipai and my son Kacey Kanchori who prayed with me and understood when I was away busy with this project and other class assignments.

I sincerely thank my friends, classmates and colleagues for their moral support. To all whose effort led to the realization of this document, thank you and may God bless you mightily.

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DEDICATION

To my family; my wife Emily, my daughter Kayla and my son Kacey.

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ABSTRACT

In the changing business environment, retailers are always searching new strategies to attract and hold customers. Digital signage is a very attractive medium for advertising and general communication in open spaces. It has been adopted by many business sectors which have benefited from the advantages it offers. This study sought to establish the effect digital signage has on the sale of products among leading supermarkets in Kenya. The objectives were to find out the influence of digital signage on product sales among leading supermarkets in Kenya; to determine the perceptions of digital signage held among the leading supermarkets in Kenya both by employees; to establish the challenges of adopting digital signage among leading supermarkets in Kenya; and to find out the areas in which digital signage system use can be improved among leading supermarkets in Kenya. This study adopted a descriptive research design. The respondents were drawn from Tuskys and Nakumatt supermarkets. They included managers, assistant managers, supervisors and merchandisers. A questionnaire was used for data collection. Data collected was analyzed using Predictive Analytical Software (PASW). The data were presented in tables and figures using frequencies and percentages. The findings showed that digital signage does influence the sales of products. It was also found out that digital signage was perceived to be helpful by informing the respondents of the products and influencing their purchase decisions. The location of digital signage was found to be critical to the success of the advertisement. However, positioning of the screens and advertisement content for relevance and completeness were the recommended remedies. From the findings, it was recommended that digital screens should be located in strategic visible locations in the supermarkets. Similarly, supermarkets should advertise available

products in the digital screens, and close attention paid to the product attribute to be incorporated in the adverts.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

Introduction

A supermarket according to Pride, Hughes and Kapoor (2010, p.409) “is a large self service store that sells primarily food and household products among other Products.” They emphasize on low cost and one stop shopping for their customers in their operations (Pride et al., 2010). Supermarkets are the most frequented retail stores. Kelly (2008, p.60) on his description of retail stores states that “Every thousand of pairs of footsteps passing a retail store is an asset to that store.” Every customer is valued and each retail store wants to make an impact on their customers’ sales experience and inform them of their products and services through advertisements.

In the changing business environment, retailers are always searching new strategies to attract and hold customers. Customers have become smarter and more price sensitive. Breaking through the clutter is another challenging facing advertiser and bother consumers (Pride et al., 2010). This chapter gives the background to the study detailing the history of digital signage and its usage in the retail stores. It also gives the problem statement, purpose, objectives, research questions, rationale, significance, scope and limitation of the study, and the definition of terms. This study is significant because the customers are the reasons for companies’ existence and informing them of company products and services is an obligation.

History of Advertising

O’Guinn, Allen and Semenik (2009) describe advertising as an essential marketing tool that helps to create brand awareness and brand loyalty. O’Guinn et al.

define advertising as a paid mass-mediated communication by a company or organization that wants its information disseminated to persuade. Similarly Gupta (2005, P.12) defines advertising as “mass communication an advertiser pays for in order to convince a certain segment of the public to adopt ideas or take actions of benefit to the advertiser.” O’Guinn et al. (2009) explains that advertising is both a communication and business process. It is a communication process because companies use it to reach their diverse audience with persuasive brand information, and a business process since it is used as a tool to retain current customers and attract new customers (O’Guinn et al., 2009).

According to Tungate (2007), the origin of advertising is doubtful that the Greeks and Egyptians were insensible of the benefits of the product promotion. Tungate points out that the Romans certainly knew how to make convincing sales pitch. Tungate cites the prehistoric cave paintings to be among the earliest forms of advertising. Tungate notes that, the invention of the printing press by German former goldsmith Johannes Gutenberg in 1447, and the works of French doctor, Journalist and advertiser Theophraste Renaudot in the 17th century are among the most significant works in the history of advertising. Renaudot who according to Tungate was a writer and a thinker, created a recruitment office and a notice board for the jobless. This grew to become a clearing house for those seeking and offering work, those in trade both buyers and sellers, and provision of information in form of public announcements. This led to the creation of the first French newspaper in 1631 (Tungate, 2007).

Gupta (2005) traces the origin of advertising to the earliest Christian era with the first known methods of advertising being outdoor advertising. Gupta explains that the paintings were done in the walls and were usually eye-catching. Gupta further explains that

the modern day advertising begun during the first quarter of the 19th century. This is because the advertising agents in early 1900s were relatively unknown and put today's context they were faced with more challenges, and risks from different perspectives (Gupta, 2005). They had ill defined responsibilities and the product mix of the advertisements was very different from the current advertisements.

Gupta (2005) notes that in the 18th century United Kingdom had the most advanced advertising. This was reflected in the signs, trade cards and handbills on items being sold in London. Gupta notes that in the late colonial and early national periods advertising was an established practice in America. Similar to the advertisements in England, Gupta records that the advertisement used in these periods in America were neither appealing to the eyes nor creative.

Gupta (2005) attribute the modern advertising to the new methods of advertising in the 1880s which lead to increased output and decreased costs for the producer of producer goods. This led to the advancement in packaging technology and advancement in the infrastructure development (Gupta, 2005). The companies that could not package their own products branded them. The branded products as noted by Gupta were advertised nationally. This led to the growth of advertising companies and increase in their activities. Gupta notes that the most widely advertised products through the 19th century were the patent medicines.

Cox and Dannelh (2007) explain that the purpose of advertising in the 18th century was to convey information to the audience. The written text was the mode of conveying the information. Cox and Dannelh notes that although the history of advertising can be traced back to the classical times, its complexity derived from the used

of implied and hidden did not exist significantly. The manipulative effect of the advertisement art is a development of the 20th century (Cox & Dannelh, 2007). According to O'Guinn et al. (2009), printed advertisements appeared in newspapers formerly known as news books. Paxson (2002) states that in the 1920s commercial radio became available as a new advertising medium which was then followed by television two decades later. Paxson further explains that the Internet advertising emerged in 1990s which led to the development of Internet aided advertisement mediums such as digital signage.

Types of Advertising Media

According to Trehan and Trehan (2009) and Medina (1990) media is describes as the vehicle that carries the advertiser's target message to the audience and thereby closing the gap between the producer and the consumer. This means that media is a means through which an advertising message is communicated to target audience. Trehan and Trehan adds that media includes all methods available to the advertiser for carrying the message to the audience. In essence media refers to communication channels through which advertising message moves from the sender to the receiver. There are different types of media. They include print media, broadcast media, direct-mail, internet and outdoor media among others (Trehan & Trehan, 2009). Medina (1990) gives the different media to include newspaper, consumer magazines, radio, outdoor, direct-mail, Cable television, yellow pages, transit, and point of purchase.

Sahaf (2008) classify advertising media into four categories; press advertising, outdoor advertising, direct mail and other forms of media. According to Sahaf press advertising is the most effective and commonly used media. It refers to any form of

advertising that appears in a publication such as daily newspapers, magazines and trade journals among others (Sahaf, 2008). In addition, Sahaf (2008) explains that outdoor advertising also known as mural advertising is suitable for products that are of interest of the general public. It includes posters, painted displays, sandwich boards, electric arrangements, car cards, bus posters, station posters, and hand-bills.

On the contrary, Sahaf describes direct mail as a form of advertising media that involves communicating messages through the mail to known individuals or those who are thought to be interested in advertiser's product or service. Baker, Graham, Harker and Harker (1998) cite Dibb et al. (1994) who state that direct mail "as printed material mailed direct to customers" addresses to entire prospective customers or sponsors." Other forms of advertising include radio, television, window displays, fairs and exhibition (Sahaf, 2008).

Digital Signage

Digital signage is one of the modern developments in the advertising media and according to Kamel and Campilho (2009, p.2) digital signage "is a very attractive medium for advertising and general communication in open spaces." Kamel and Campilho record that digital signage has been adopted by many business sectors and have benefited from the advantages it offers. Suh (2005) explains that until recently digital signage wasn't viable or cost effective and screens were too expensive and too big, and they wore out too quickly. The Light Crystal Display (LCD) plasma revolution as noted by Moore (2009) has changed and screens are now so affordable they can rival the printing costs of static posters over the course of time.

Digital signage systems developed as a result of technological advancement of television broadcasting (Lundstrom, 2008). It consists of all real time, near-real time and non-real time information together with audio and video. Lundstrom describes digital signage as a system based on technology based on various methods of using television and computer screens as well as other types of display devices.

Lundstrom (2008) further explains that, digital signage representing a varying physical quantity such as sound or light waves by means of discrete signals interpreted as numbers, usually in the binary system, as in a digital recording or digital television. Borruso (2008) describes digital signage as any form of business communication where a dynamic messaging device is used to take the place of, or supplement, other forms of messaging.

Media 2000 Systems (2007) record that digital signage was used in the 1970's in stores with Video Cassette Recorder (VCRs) and televisions to attract customers. However, the system which recorded all communications was always on a closed circuit. In the recent past, Schaeffler (2009) records that companies have been able to display high quality content with the aid of Internet connection. This led to the realization of the digital signage potential. Kelsen (2010) explains that digital signage is expected to revolutionize the consumer market in the next few years.

Kamel and Campilho (2009, p.1) defines digital signage as “a form of public display used extensively to advertise targeted and impacting content to large audiences in public venues.” Schaeffler (2008) explains that from a display point of view, both products and services are driven by the concept of stored data being replayed for viewers. According to Lundstrom (2008), digital signage is done in ways that are most efficient to

provide information on advertising and to people on public places. This makes the understanding of information systems critical in achieving higher level of productivity and effectiveness in business. Without this, domestic businesses will lose to international competition. Laudon and Laudon (2007) add that, for businesses interested in achieving superior performance, it is important to identify opportunities and threats and how information systems can help the businesses manage change or achieve competitive advantage.

Strategy and Advertising

According to CIO (2006) strategy is the course of day to day business aimed at capturing current insights by identifying actions and focusing resources on initiatives that will focus on the enterprise objectives. CIO (2006, P.42) citing Peter Drucker who said that “Strategy is a commodity, but execution is an art” further notes that a strategy is about the result than the commitment to a course of action. Therefore, CIO concludes that effective strategy development involves clear understanding of a company’s competitive positioning as well as the goals and objectives of the organization.

One of the organizational objective is communicational objectives which according to Brennan, Canning and McDowell (2011) can be arrived at through the consideration of the various tasks to be performed by promotional tools. This involves the estimation of the effort and the task to be achieved. Brennan et al. points out that due to the difference in the communication goals and the tasks to be achieved, competing organizations are likely to have different marketing strategies and consequently the communication strategies used will also differ. The various approaches will determine the investment levels for advertising, sales promotion and public relations. Brennan et al.

points out that in an organization's communication budget, advertising takes the largest share of the budget.

Brennan, Canning and McDowell (2011) point out that advertising is aimed at engaging customers (individuals and groups) and influence the behavior of different stakeholder groups. It makes selling more efficient by informing the buyers of the problem solving ability or makes its buyers aware of their products. This means that advertising is far reaching than sales representatives and at much lower cost. Advertising strategy involves setting organizations' advertising objectives, formulating a creative plan, media selection and evaluation of the adverts' effectiveness (Brennan et al., 2011). Of importance in the development of advertising strategies according to Brennan et al. is the understanding that advertising is only one component of an organization's communication mix which must be integrated with other components in order to achieve strategic marketing goals.

Supermarket Industry in Kenya

Nairobi is the focal point of the supermarket chains competing over the market share in the Nairobi which is the country's most populated city (Makau & Onyango, 2010). Kamau (2008) records that dominant supermarkets in terms of branch network and turnover were Nakumatt which was then the largest with a turnover of over 300m US dollars in 2007, Uchumi supermarket, Tuskys, and Ukwala were listed among the biggest. Kamau (2008) explains that there are many other supermarkets such as Naivas and Chandarana supermarkets. In the year 2010, Makau and Onyango (2010) explain that Woolmatt supermarket was bought by Nakumatt Holdings. The branch network expansion is also seen in Uchumu, Naivas and Ukwala supermarkets according to Makau

and Onyango. Naivas, Tuskys, Ukwala and Nakumatt are also reported by Makau and Onyango to be located in Central Business District areas with dense population as a focus to the middle class population who are many and work in the central business district. Makau and Onyango further notes that the location near of these retail stores bus terminals have resulted in big sales from the customers“ changing shopping trends.

Today, Nakumatt supermarkets has 29 branches, Uchumi supermarkets has 19 branches while Tuskys has 26 branches. Data was collected from the sales representatives of the advertisers and the management of Nakumatt and Tuskys supermarkets located in Nairobi which have digital screens. Uchumi supermarkets have 11 branches in Nairobi however digital screens are available in 4 Hyper branches located in Nairobi. Nakumatt has 14 branches while Tuskys has 10 branches in Nairobi all with digital screens.

Statement of the Problem

According to Albarran (2010), technology continues to impact marketing strategies and challenges traditional assumptions. Traditional marketing according to Levinson, Frishmar and Lublin (2002) are that customers buy a product because of the big size, and would want to stick to products which have worked for them in the past. However, the basic goal of generating audience and maintaining them remains unchanged. Katz (2007) observed that advertising media is interested in conveying specific information about a message or service to consumers. The goal of advertising is to increase sales by attracting new customers and maintaining the existing customers.

Digital signage is one of the advertising media used in Kenya. This observation is in line with Heller and Womack (2007) who note that digital signage is becoming more preferred form of conveying information.

Schaeffer (2009) explains that the use of digital signage system is growing and is now available in major customer service points such as shopping malls, and chain stores among others. Wertime and Fenwick (2008) notes that every roadside stop, billboard location, storefront and rooftop are potential areas for the connection of digital signage. Wertime and Fenwick explain that digital signage enables businesses to get „closer“ to customers. This is because most businesses do not own retail space in which their products are sold. Therefore, digital signage serves the purpose. This thus means that digital signage can enable companies to display their products in digital signage in the retail network spaces. This is done by buying time in the television networks or slot on someone else’s network where their products can be displayed without having to worry about maintenance.

A study recorded by Wertime and Fenwick (2008) conducted by TNS a company that manages Wal-Mart digital signage in the US concluded that advertising on the Walmart TV drives significantly higher motivation than advertising similar brands in the home TV. However, Wertime and Fernick argue that more brand selection decisions are made at the point of sale. Therefore, as competition intensifies among different brands, digital signage growth increase. The question then was, are the digital signage systems effective in increasing sales? The problem of this study therefore was the effectiveness of digital signage as an advertising media. This study sought to establish the effect digital signage has on the sale of products among leading supermarkets in Kenya.

Purpose of the Study

The purpose of this study was to establish the influence of digital signage to products sales among leading supermarkets in Kenya. The study focused on three supermarkets namely Uchumi, Nakumatt and Tuskys Supermarkets.

Objectives of the Study

1. To find out the influence of digital signage on product sales among leading supermarkets in Kenya.
2. To determine the perceptions of digital signage held among the leading supermarkets in Kenya both by employees.
3. To establish the challenges of adopting digital signage among leading supermarkets in Kenya.
4. To find out the areas in which digital signage system use can be improved among leading supermarkets in Kenya.

Research Questions

1. What is the influence of digital signage use among leading supermarkets in Kenya on product sale?
2. What are the perceptions of digital signage among the leading supermarkets in Kenya?
3. What challenges do leading supermarkets in Kenya face in the usage of digital signage?
4. How can the use of digital signage systems among leading supermarkets in Kenya be improved?

Justification of the Study

Most organizations have desired goals to achieve through any medium of communication and particularly with regard to advertising (Deloitte, 2008). The result of this goal/s can only be determined through the achievement of the desired results. It is therefore important that the influence advertising medium has on the audience be established. The increase in sale is one of the indicators of effectiveness of an advert. It shows that the content is well understood in the marketplace (Deloitte, 2008). Digital signage system technology has been used in the Kenyan market. Nakumatt supermarket, Uchumi supermarket and Tuskys supermarket, the Fox theaters, Sarit center shopping mall and the Inscor shops are some of businesses in different industries that have embraced the digital media.

According to the Business Daily (2007), its key target sector is the retail chains. Business Daily points out that Nakumatt supermarket has embraced this medium in all its 18 branches countrywide. The influence this system has on product sale is necessary for every decision maker responsible for products sales within the retail stores. As a result of its introduction, many companies consider different options of advertising but due to the cost constraints digital signage is an option worth exploring. Wertime and Fenwick (2008) further notes that packaged goods companies are noted to be the most frequent users of digital signage. This is because it is cost effective (Schaeffer, 2009). However, there was need to ascertain its influence on product sales which is the bottom line for businesses.

Significance of the Study

This study would be of importance to different digital signage stakeholder groups. The main stakeholders are the organizations who use it, the customers/public, the media industry, and the government. This study would be of importance to the organizations that use digital signage. This study was hoped to be useful particularly to the supermarkets in the selection of medium of advertising to be installed in the stores. It would also help supermarkets in understanding their customers. By establishing the impact of digital signage among its clientele, the findings of this study could be used in digital signage alignment. The members of the public who are the customers to the supermarkets would also benefit from the findings of this study. This is because based on the findings; the supermarkets would seek to put in place an effective advertising media hence customer information. If the findings are implemented by the supermarkets and other organizations that use digital signage, this media could effectively achieve its purpose of informing the customers which is beneficial to them in their decision-making on the advertising media usage. The media industry would also be able to gain insight into the effects of digital signage and seek to act on the findings which was hoped to improve their performance.

To the government, the findings would be useful in policy making based on the findings. This research being academic, the findings could add to the body of knowledge of what is known about digital signage. It could also serve as documentation and reference and provide basis for further research.

Assumptions of the Study

In order to carry out this study, the researcher made the following assumptions:

1. The respondents would be truthful in their responses to the questions asked by the researcher.
2. There would be support from the management of the three supermarkets.
3. Digital signage was responsible for sales increase in the supermarket.

Limitations and Delimitations of the Study

Listed below are the limitations of the study and how the researcher delimited them

1. Respondents would decline to cooperate for fear of victimization because of the categorization of the nature of information sought as sensitive in nature as regards to supermarket business. This the researcher delimited by informing the respondents of the purpose of the study which was academic and assurance of confidentiality of the responses given that they would be use for the sole purpose of this research.
2. The respondents would also give the ideal situations in their respondents which would result to misrepresentation of the current situation on the impact of digital signage. To delimit this, the researcher would use open ended questions to corroborate information gathered from the closed ended questions.

Scope of the Study

This study sought to establish the influence of digital signage on product sales in leading supermarkets in Kenya with a focus on Uchumi, Tuskys and Nakumatt supermarkets. From these branches management; managers, supervisors and merchandiser were selected as the respondents in this study. The selection of Nairobi as research location was because it carried the biggest customer base across the economic divide. Also the headquarters to these supermarkets are in Nairobi.

Definition of Terms

Advertising

A paid mass-mediated communication by a company or organization that wants its information disseminated to persuade (O'Guinn et al., 2009).

Customer responsiveness

Improved operational efficiencies leading to improved speed of delivery on all customer related issues, from product sales to customer service issues (Kotler & Armstrong, 2006).

Digital Signage

“A form of public display used extensively to advertise targeted and impacting content to large audiences in public venues” (Kamel & Campilho, 2009, p.1).

Information system

A set of interrelated components working together to collect, retrieve, process, store, and disseminate information for the purpose of facilitating planning, control, coordination, and decision making in businesses and other organization (Laudon & Loudon, 2007).

Supermarket

“A large self service store that sells primarily food and household products among other Products” (Pride et al., 2010, P.409).

Technology

The means by which data are transferred and organized for business use (Laudon & Loudon, 2007).

Summary

This research sought to identify effect of digital signage on product sales in selected supermarkets. This chapter has given a description of a supermarket, and digital signage. It has also given the problem statement, purpose, objectives, research questions, rationale, significance, scope and limitation of the study, and the definition of terms. The next chapter is a review of literature related to the study.

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CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter provides the literature related to the area of study reviewed. In addition, it gives an account of the development of digital signage, components of digital signage and a comparison of digital signage and other media. It also gives the applications of digital signage in retailing and the challenges faced in its usage. Given each organization has set objectives for the form of advertising, a discussion of digital signage return on investment is provided in this chapter together with the theoretical orientation and the conceptual framework.

Advertising Strategies

Advertising strategies are divided into two creative or word strategy and media strategy (Smith, Berry & Pulford, 2002). Creative strategy according to Smith et al. involves building a brand leadership by creating a new language. Tyagi and Kumar (2004) explain that creative strategy draws on language focusing on the consumers' objectives but not the objectives of the writer. Tyagi and Kumar explain that creative message should be objective and free from unrealistic imaginations. They should also be defined by clear purpose supplied by analytical thought through imagination (Tyagi & Kumar, 2004).

On the other hand, Hewett (2009) explains that media strategy is a carefully structured plan of how the media will be used and combined to get the understanding of the message across. Tyagi and Kumar (2004) explain that media strategies use the media to allow the advertisements to be experienced and enjoyed at leisure while the intimacy

of the experience can be hinted better through the more personal communication of press such as television advertisements. Creative strategy results in the identification of the target and the message to be passed while media strategy gets the message through the right media to the right audience (Hewett, 2009).

On the contrary, Nelissen (2002) also gives different types of advertising strategies based on the level of satisfaction of the effective communication; awareness, likeability and trust. These conditions result in the individual's consideration of the consequences of the performance, behavior influence and self-efficacy. These include persuasion strategy, sale-response strategy, symbolism strategy, self-response strategy, relationship strategy, emotions strategy and variety strategy. Nelissen notes that each strategy aims at a specific customer consideration and association.

Consumer Buying Process

Consumer buying decision process is a useful tool that businesses use in order to understand the buying behavior of their customers more accurately (Olsen & Zhao, 2010). This involves the understanding of the marketing mix inputs and involves five steps need/want recognition, information search, evaluation of alternatives, purchase and post-purchase evaluation (Olsen & Zhao, 2010).

Needs recognition involves the recognition of a need due to an imbalance between the actual and a desired state/situation. Once the need has been recognized, information search starts by recalling past information stored in the memory and/or the process of seeking information in the external environment. Sources of information may be market dominated such as in advertisements and personal selling and non market dominated such as word of mouth from friends and other people the buyer relates to (Olsen & Zhao,

2010). Regarding product purchase, digital signage is part of information source if the customer had viewed the product earlier in the screens or if the people consulted had seen the product.

From the information search, Olsen and Zhao explain that many alternatives emerge referred to as an evoked set of alternatives from which the buyer can buy from. The alternatives are then evaluated against the potential to meet the needs at hand. After the evaluation of alternation and choice of a product to purchase, a seller/service provider followed by post-purchase evaluation (Olsen & Zhao, 2010).

Consumer Buying Decisions

Lamb, Hair and McDaniel (2009) point out that there are three types of product purchase decisions. The first category is routine response to frequently purchased products low cost products that require very little effort to make purchase decisions. Routine purchase is often characterized with brand loyalty. Second is where consumers are engaged in limited decisions making for occasional purchases or for unfamiliar product categories and third, is where consumers engage in extensive decision making when purchasing expensive or infrequent purchases (Lamb et al., 2009).

Lamb et al. (2009) further classify purchase decisions based on the intensity of information search done before making the purchase decisions. Lamb et al. explains that high involvement decisions involves extensive information search and thoroughly evaluating the alternatives while low involvement decisions are characterized by brand loyalty and a lack of personal identification with the product (Lamb et al., 2009). For the routine purchase decisions, and low involvement products, digital signage may influence the purchase decisions.

Development of Digital Signage

Schaeffler (2008) notes that, the adoption and growth of digital signage is growing rapidly because as a medium it provides customized and changeable message. Schaeffler adds that the message is delivered in a unique way in places where people meet. Digital signage also gives a lot of room for flexibility and is cost-effective (Schaeffler, 2008). Schaeffler in explaining how digital signage continues to be valuable and a creative cautions that the attainment of proper growth is determined by how careful organizations are to ensure that the first attempt yield results and mistakes are minimized. Kamel and Campilho (2009) explain that as compared with traditional static signs, digital signage presents dynamic multimedia digital content. Hence offers the advertisers with more flexibility and scalability to adapt to different contexts and different audiences. Kamel and Campilho add that there is a possibility that these changes can be done with no additional cost.

Krafft and Muntrala (2010) record that prominently featured digital signage is a key point of contact with customers. Digital signage is technology intensive and therefore, its impact needs to be ascertained to establish itself as a viable and competitive form of communication, convincing organization to use it alongside the traditional mediums (Schaeffler, 2008). Schaeffler (2008) explains that, vendors can use digital signage to develop and implement unique brand messages. Kelsen (2010) explains that whether digital signage takes the form of a specific offer in the shelf or a brand message on a highway point of transit digital billboard, it offers an effective way of advertising. Lundstrom (2008) adds that a central server programmed to retrieve content automatically provides many benefits to digital signage in reaching customers.

Genr8 Digital Media (n.d.) explains that digital signage system links the company, the supermarket headquarters and individual retail stores. In addition to providing information about items for sale, Genr8 Digital Media adds that, digital signage gives brief news report. Given that the main objective of many chain stores is to sell advertising time on the screen to other manufacturers who want to sell their products in the retail supermarkets, the retail supermarkets themselves would not pay anything but would have the benefit of promoting their specials. Katz (2007) notes that, twenty five years ago there were no commercial messages in supermarkets, schools, hospitals among other customer service points, however today, have these messages.

Components of a Digital Signage System

Kamel and Campilho (2009) record that a digital signage system consists of a controller, of group of display panels, local media players, and media players. Kamel and Campilho add that some indoor digital signs often include speakers and sometimes digital cameras. The controller uses Internet to run the whole system and deliver content to the display panels. The local media players, either PC-based or embedded media player, decode data coming from the network so that they can be rendered by the displays as streamed digital content. The content can be in form of video, flash animation, graphics or any other web content. The local media player also stores the content that is to be displayed repetitively. The display panels can be light emitting display , Light crystal display, plasma or any other form of large projected screens. The content is remote controlled by the controller to allow for content updates, schedule changes and compliance reporting (Kamel & Campilho, 2009). Figure 2.1 below illustrates a digital signage system.

An example of a company that has a digital signage system that is in operation in Kenya is Nakumatt holdings. According to the Business Daily (2007), all the TV channels in the Nakumatt 18 branches is controlled in one location; a small room at Nakumatt Prestige. Business Daily explains that the advertisement content is programmed to reflect the changes necessary to meet the demands of weekly, daily, or hourly sales campaigns depending on the clients' orders.

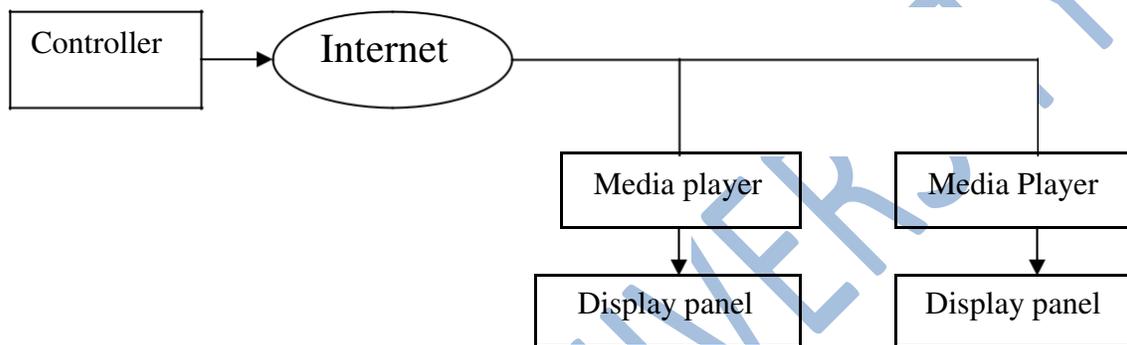


Figure 2.1: The Structure of a Digital Signage System (Kamel & Campilho, 2009)

Digital Signage Applications in Retailing

VisuealCentury (2004) note that return on investment is becoming an important aspect in decision making with emerging technologies. VisualCentury explain that return on investment concept enables companies to measure their benefits against the costs incurred in relation to the investment. VisualCentury adds that this measure is largely dependent on the companies' marketing strategy. Marketing strategies can be aimed at promoting impulse buying, informing customers of new products or promotions or to the retail stores be a source of additional income from advertising the manufacturer's products. Kanagal (n.d.) explain that the objective of marketing strategy can be to

maximize profit, market share, and sales, enhance brand image, and consequently improve customer satisfaction.

Retail environment is becoming increasingly competitive and as a result more retailers and brand owners are looking to break away from the price versus product consumer mentality (Boakes, 2008). This is achieved through creating differentiation and winning customers by delivering enhanced service and customer experience. In order to do this, businesses need to carry out and use their consumer research to find out new ways of deploying and leveraging new and innovative in-store marketing technology in the developing worlds (Boakes, 2008).

Most important, retailing has changed from a product-centric business to a customer-centric business. Shopping is now a user experience where services and products must be built around individual customers and digital signage allows businesses to customize offers around each individual customer while still offering the appropriate product based on each shopper's needs at that moment in time (Bickers, 2007). Similarly, digital signage keeps the in-store marketing message relevant and as dynamic as other forms of marketing media primarily Television and the Internet. In-store digital signage allows for instantaneous updates to marketing messages in a dynamic manner that has proven to provide better recall rates and generate unplanned purchases (ABI Research, 2008). The primary benefit of digital signage for the retailer is to enable better consumer messaging at the point of purchase, with much more targeted and timely information, specific to their shopper demographic (Bickers, 2007).

Digital signage is also used in education which involves Universities, Public and Private Schools as well as corporate training (Bicker, 2007). The growing use of digital

signage networks within schools streamline communication of information to students including faculty announcements, weather emergencies, sports scores, and academic event calendars. Bickers also explains that existing company networks in retail stores and corporate offices can double as a vital employee training tool able to reach all locations remotely (Bicker, 2007).

Retail stores of all size and scope utilize digital signage technology to better serve shoppers through screens (Business Daily, 2007). They can be used to promote weekly, daily or hourly price specials through in-store screen networks, while selling national brand advertising space to manufacturers, promoting buyer-brand awareness and improving the overall shopping experience. Deloitte (2009) adds that interactive technologies located in zones like the deli and bakery counter, produce section and pharmacy provide informative information key to the consumer. Suh (2005) explains that interactive screens enhance customer experience at the customer service point offering brand advertising, discounts, and special features.

Digital Signage Challenges

Schaeffler (2008) notes that digital signage is faced with risks, cautions and concerns which affects its future. Implementation, profitability, operations, industry adoption, and audience receptivity are among the challenges recorded by Schaeffler (2008). The implementation of digital is a challenge due to the need to start using it and using it in the right way (Schaeffler, 2008). These two steps according to Schaeffler are the most important steps towards implementing and adapting the proper implementation for a digital signage project.

Schaeffler (2008) notes that tied to any investment is return on objectives and return on investments. It is in this regard that the other measures of profitability should be drawn. However these measures may not be easily quantified since they are non financial. Schaeffler points out that once a digital signage system is operational, it should be maintain and the maintenance should be done to both the hardware and the software. This translates to additional costs relating to replacements and the upgrading. They should also be secured from compromise by competitors and other security threats (Schaeffler, 2008).

Schaeffler (2008) suggests that the end measure of the individual digital signage success is its adaptation and audience receptivity in the short, medium and long-terms. This is greatly influenced by the content of the digital signage. If the content is liked by the audience then its usage will increase hence expanded usage in the industry. All this is a challenge since this the company has no control over. Research has to be done to find out the customer needs, tastes and preference.

On the challenges facing digital signage, Moore (2009) explains that digital signage operates in a dynamic business environment which in turn complicates its operation and usage. The reasons for the complication cited by Moore relates to the content strategy, content variation, and networks. Moore (2009) explains that the content strategy usually needs to be tackled from scratch. Digital-signage content comes with a completely new set of requirements; existing media assets often provide a good starting point, but none of them can be reused outright. Moore further explains that the content needs will vary across the enterprise. Moore notes that in all but the simplest digital-signage deployments, multiple screen sizes and orientations are used and a 42-inch screen

in landscape mode calls for very different content than a 32-inch screen in portrait. Suh (2005) agrees with Moore (2009) argument explaining that the greater the number of screens in the network, the greater the organizational challenge for content (Suh, 2005).

Regarding the networks, Moore (2009) explains that multiple networks might be involved. Moore notes that the most beneficial digital-signage products touch one or more networks. At retail, for instance, the signage network might be designed to communicate with the network, in order to gauge content effectiveness versus sales. But getting any two or more networks to communicate is an information technology challenge, and that increases with the number of networks and nodes involved (Boakes, 2008). These three elements are ingredients to success in digital signage which is a challenge since not all the users can appropriate avail this to their audience.

Digital Signage and Return on Investment

VisuealCentury (2004) notes that return on investment (ROI) is becoming an important aspect in decision making with emerging technologies. VisualCentury explain that Return on Investment concept enables companies to measure their benefits against the costs incurred in relation to the investment. VisualCentury adds that this measure is largely dependent on the companies' marketing strategy. Marketing strategies can be aimed at promoting impulse buying, informing customers of new products or promotions or to the retail stores be a source of additional income from advertising the manufacturer's products. Kanagal (n.d.) explain that the objective of marketing strategy can be to maximize profit, market share, and sales, enhance brand image, and consequently improve customer satisfaction.

Digital Signage Comparison with Media

Lundstrom (2008) notes that digital signage can be used for any electronic signage of visualization application. Lundstrom points out that the most common purposes that digital signage is used for today are in commercial and advertising purposes in stores and public areas. In the home environment, Schaeffler (2009) explains that, a digital photo frame that has a chip with photo stored in it can be used to replay. Schaeffler (2009) differentiates digital signage from Digital Video Recorder by explaining that, a Digital Video Recorder records a video then replays it later for the viewer. However, Schaeffler (2009) observes that the similarity between digital signage and Digital Video Recorders is that they both deliver work well when the content is personalized and is relevant to the audience viewing it.

Empirical Literature

A study done in 2005 by Nielsen or Arbitron on over 1400 US shoppers who viewed digital signage in shopping malls recorded in Schaeffler (2008) digital signage was effective. This was shown by 40% of the respondents who were likely to make purchases using digital screens. Also retailers who advertised on digital screens had their sales increase seven times. More over, 47% of the respondents recalled having learnt on promotions and offers on digital screens while 72% of the respondents aged between 18-34 years more interested on the music videos element of digital signage (Schaeffler, 2008).

In addition, a study done by United Kingdom TescoTV supplier with 100 supermarkets with 50 screens each, JX Decaux in supermarket stores in 2006 using special cameras equipment to track the eye and head movements of the shoppers carried

out content of the of 75 shoppers over a period of 3 weeks showed that digital signage are effective mode of advertising (Schaeffler, 2008). The findings showed 85% shoppers looked at the digital screens while shopping while on average shoppers observed passed 20 screens and observed eight. The study also found out that each screen in the Tesco supermarkets had a 50% chance of being observed similar to outdoor advertisements (Schaeffler, 2008).

Theoretical Orientation

Learning, attitudes, and behaviour are all influenced by advertising. Different theories have been developed to explain these effects (Jones, 1999). One of the theories is the Learning Hierarchy theory. According to Jones (1999), the learning hierarchy is one of the earliest theories of advertising. This theory states that, people receive factual information about a brand which results in attitude change towards the brand and hence the development of preference for it (Jones, 1999). Jones adds that the attraction towards the brand is gradual hence the learning hierarchy. As time goes by and as the consumers get exposed to the advertisement of the brand, there preference for it grows and results in customer loyalty. Consumer becomes aware of the product and develops interest in it leading to the desire and eventual purchase of the product (Jones, 1999).

In this study the focus was on the information received from digital displays which as this theory postulates will result in the buyers' change of attitude towards the brand. In the long-run, information received is expected to yield increase in sales which is the aim of any form of advertising; attract new customers and retain the current customers. However, this theory has a short fall as the advertisements may work on a

reverse direction and does not consider the consumer behaviour connected with repeat purchase as pointed out by Jones (1999).

Means-end theory is another theory applicable to this study. According to Aurifeille, Svizzero and Trisdell (2007), the means-end theory is a decision theory which can be framed in form of a problem focusing on the needs/goals and the differences/discrepancies between what one wants and what has been recorded in the mind of the consumer. This is as a result of the discovery of associations between the attributes of the product or service, self relevant consequences and personal values. Olsen et al. (2001) cited in Aurifeille et al. (2007) explains that means-end theory emphasis is on obtaining consumer attributes, values and consequences. At this point, the actual attributes of the products/service have no importance to consumers. The meaning and value comes from the consequences they are perceived to bring. The end consequence in this theory represents individual goals or life goals that one wants to achieve.

A combination of the Learning Hierarchy theory and means-end theory in this study explains the interest the consumers develop by viewing the advertisements in the digital display in the supermarkets. Repeated viewing results in the customers attraction to the product, desire to buy and ultimately increase in sales. This study sought to establish the effect of digital signage on product sales. The findings of this study gave recommendation on the usage of digital signage in the supermarkets and shopping malls.

Conceptual Framework

This section provides and illustrates the relationship between the variables under study. According to Wood and Ross-Kerr (2010), there are three types of variables in research: dependent, independent and intervening variables. Wood and Ross-Kerr explain

that the independent variable is the cause or the influencing variable. In this study, the independent variable is the digital signage display of the advertisements. The dependent variable is the variable that is affected or influenced by the influencing/independent variable. In differentiating independent and dependent variables, Wood and Ross-Kerr explain that independent variables come first and cause while the dependent variables represents the results and comes last. Intervening variables come between the independent and the dependent variable as explained by Wood and Ross-Kerr (2010). They may promote the effect of the independent variable or inhibit its action (Wood & Ross-Kerr, 2010). Figure 2.1 below represents the conceptual study of this study.

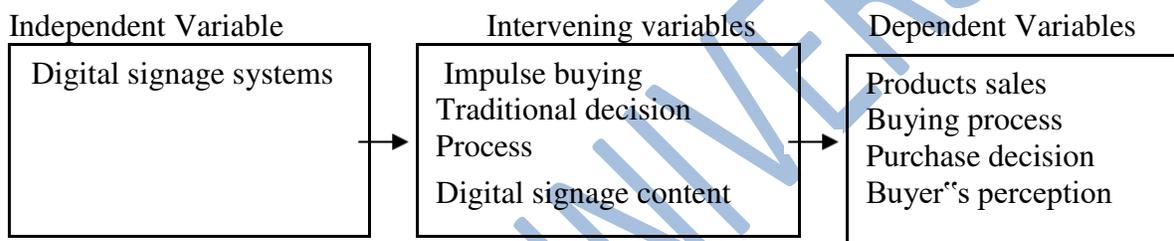


Figure 2.2: Conceptual Framework (Author, 2011)

The installation of digital signage systems in the retail chains displaying products features and attributes which in turn develops interest and awareness of the products (Moore, 2009). This leads to customers' decision to make purchase decision either rational or impulse buying. The purchase of the products is sale by the retail stores.

Summary

The media industry has evolved from the traditional advertising to the current emergence of digital medium. This chapter has discussed the factors that have led to the growth of digital signage, the components of digital signage, and the application of digital signage in retail business. The Challenges faced in the usage of digital signage

have also been discussed, and the digital signage return on investment provided. Digital signage being the latest development in the advertising media its comparison with other media has been provided.

To establish the influence of digital signage on product sales in selected supermarkets, Learning Hierarchy and means-end theories have been adopted to explain the variables under study; the advertising media and its effects on product purchase by consumers. A conceptual framework has also been provided to illustrate the relationship between the variables. The next chapter gives the research methodology. It gives details on how this study will be carried out in order to provide answers to the research questions.

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CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

Jonker and Pennink (2010) note that conducting research is goal oriented. “It entails is deliberate and methodological search of new knowledge in the form of answers to the questions that have been formulated in advance” (Jonker & Pennink, 2010, P.9). Perry (1998) defines research methodology as an operational framework within which the facts are placed so that meaning may be seen more clearly. Research methodology is determined by the type of data needed to answer the research questions.

This chapter gives the research methodology, research design, the target population, the sample and sampling procedure, data collection instruments and procedures, validity and reliability of research instrument, and the techniques for data analysis.

Research Design

Kerlinger (1986) describes a research design as the plan and structure of investigations so conceived as to obtain answers to research questions. Ragin (1994, p.191 cited by Flick, 2009, p.128) who define a research design as “a plan of collecting and analyzing evidence that will make it possible for the investigator to answer whatever the questions he/she has posed.” Flick (2009) explains that a research design touches on all the research process from the decision to carry out the study to the presentation of findings and recommendations. The plan is the overall program of the research and includes an outline of what the investigator will do from the writing of the hypothesis and their operational implications to the final analysis of data. In addition, research design

serves as a bridge between what has been established (the research objectives) and what are to be done, in the conduct of the study (Blanche, Durrheim & Painter, 2008).

The choice of a research design is determined by number of considerations among them, the research purpose as described by the research problem and questions, categories of data needed, data sources and the cost factor (Chandran, 2004). Cooper and Schindler (2003) summarizes the essential of research design as an activity and time based plan, always based on the research question, guide the selection of sources and types of information, a frame work for specifying the relationship among the study variables and outlines the procedure for every research activity.

There are four types of research designs namely: descriptive, exploratory, observation and experimental (Chandran, 2004). Descriptive research designs according to Wood and Ross-Kerr (2010) provide descriptions of situations to answer the research questions. Gravetter and Forzano (2008) explain that the purpose of descriptive designs is to describe the variables as they exist. Therefore, descriptive research design is not concerned in the relationship between variables but the description of individual variables. Mugenda and Mugenda (2003) adds that descriptive research design determines and reports the way things are and it attempts to describe such things as possible behavior, attitudes, values and characteristics. Chandran (2004) explains that descriptive research design is appropriate as it describes and portrays characteristics of an event, situation, and a group of people, community or a population.

Exploratory research design involves the discovery of ideas and insights (Hester, 1996). Kothari (2004) explains that this design aims to formulate a problem so as to conduct better investigation and develop an appropriate hypothesis. Chandran (2004)

adds that it addresses the need that certain inquiries focus on questions that requires answers in order to understand people, events and situations. The approach of exploratory research is to formulate research questions that are addressed through a scientific inquiry or investigation such as a survey (Chandran, 2004). Aggarwal and Khurana (2009) point out that the advantage of this design lies in its ability to generate ideas that could be further explored in many controlled conditions. In this view exploratory research examines the feasibility of a study and saves researchers the cost of carrying out research that is not viable (Aggarwal & Khurana, 2009). However, the disadvantage of exploratory research design is that, there is no formulation and testing of hypothesis and it only investigative in nature (Chandran, 2004).

Mugenda and Mugenda (2003) states that an observation study, the current status of a phenomenon is determined not by asking but by observing. This research design is non interactive in that the investigator does not interact or communicates verbally with the subject of research (Chandran, 2004). Mugenda and Mugenda (2003) record that, this design serves to collect objective information in that the researcher observes the behavior rather than relying on a self-report as the basic source of data. Chandran (2004) explains that this design is advantageous because it is less expensive, it takes a shorter time to implement and covers a large number of people, items or events, and free from response bias. Response bias is the error in the respondent's answer to a question due to causes such as lack of clear understanding of questions (Chandran, 2004). Chandran further explains that the disadvantages of observation research design include limitation in the scope of inquiries since there is no scope for probing, has some elements of observation error that might be contributed by the investigator, not suited to describe or

portray characteristics of people, events and situations in details in the absence of interactive probing.

According to Aggarwal and Khurana (2009) experimental research design assess the effects of particular variables on a phenomenon by keeping the other variables constant or controlled. According to Aggrawal and Khurana, the factor that is influenced by other factors is the independent variable while the dependent variables are other variables that influence the independent variable. Experimental research design involves the assignment of participants to different conditions, manipulation of one or more variables called independent variables by experimenters. Experimental design requires two groups to strictly monitor the effect of the casual factor or variable that is also called intervention. The two groups are termed control group and experimental group (Chandran, 2004). Kothari (2004) notes that experimental research design is appropriate to research situations that involve two or more concept that are related and there is a need to study the relations between them. Mugenda and Mugenda (2003) explain that this design is appropriate for controlled scientific studies.

The study adopted a descriptive research design to gather data to establish the influence of digital signage on product sales in selected supermarkets in Kenya. This was appropriate as it enables the researcher to get a description of the situation as it is. The data gathered are on questions from „what is“ hence a need for a research design which would provide the required description.

Population

Mugenda and Mugenda (2003) define population a population as an entire group of individuals, events or objects having a common observable characteristic. (Grove et

al., 2009) describes a population as the universe of events from which the sample is drawn while, target population is made up of the elements or individuals in the population with the desired characteristics which the researcher wants to observe or study (Grove et al., 2009). This study has got two sets of populations; the supermarkets, sales representatives and employees of the selected supermarkets.

The target populations of this study were; management and sales representatives/merchandisers who work for Uchumi, Tuskys and Nakumatt supermarkets. This study was conducted in 10 Tuskys branches and 14 Nakumatt branches located in Nairobi. The population of this study consisted of all the employees of the three supermarkets and merchandisers based in Nairobi. The target population of this study was the managers, supervisors, and merchandisers who are 485. The respondents targeted in this study were 38 managers, 48 assistant managers, 308 supervisors and 90 merchandisers.

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Table 3.1: Target Population and Sample

Uchumi branches (4)	Target population Per Branch	al per branch	Sample 15%
Managers	1	4	4
Deputy managers	1	4	4
Supervisors	10	40	8
Merchandisers	30	30	5
Big Nakumatt Branches (10)			
Managers	2	20	3
Deputy managers	2	20	3
Supervisors	12	120	18
Average Nakumatt Branches (4)			
Managers	1	4	1
Deputy managers	2	8	2
Supervisors	12	48	8
Merchandisers	30	30	5
Big Tuskys Branches (7)			
Managers	1	7	2
Deputy managers	2	14	3
Supervisors	10	70	11
Average Tuskys Branches (3)			
Managers	1	3	1
Deputy managers	1	3	1
Supervisors	10	30	5
Merchandise	30	30	5
Total		485	89

Source: Nakumatt, Tuskys and Uchumi Personnel and Operations Departments' Records

Sample Size

Sampling is taking any portion of a population or universe as representative of that population or universe (Wimmer & Dominick, 2002). Mugenda and Mugenda (2003) argue that the purpose of sampling is to secure a representative group which enables the researcher to gain information about a population. To be able to establish the influence of digital signage on product sales in the selected supermarkets, 15% of the target population was selected as part of the sample which gives a sample of 89. The sample size of this study therefore was 89 respondents consisting of 11 managers, 13 assistant managers, 48 supervisors and 17 merchandisers. The selection of 15% of the managers, assistant managers, supervisors as well as merchandisers is based on the

recommendation by Gay (1983) cited in Mugenda and Mugenda (2003) that a 10% sample is sufficient in a descriptive study. Therefore, 15% sample size exceeds the recommended 10% sample and is considered sufficient for this study.

Sampling Design

Sampling is a systematic process of selecting a number of individuals for a study to represent the larger group from which they were selected (Gay, 1987). According to Burns and Grove (2005), there are two main methods of sampling techniques: probability and non-probability. Wimmer and Dominick (2002) explain that there are several characteristics of a good sampling design. They include: provision of data for necessary analysis and the practicality or viability and economy and good orientation. Wimmer and Dominick (2002) add that sampling helps reduce costs, provide greater accuracy of results and enables availability of the population elements.

In probability each element of the population has equal and known probability of being selected while in non-probability sampling elements are selected from the population in some non-random manner (Burns & Grove, 2002). Probability sampling also known as random sampling, aims at providing useful descriptions of the total population by selecting a sample of individual who must have the same variation that exist in that population (Babbie, 2001; Burns & Grove, 2005). Krishnaswa, Sivakumar and Mathirajan (2009) record probability sampling methods to include simple random sampling, stratified sampling, systematic sampling and cluster sampling.

Probability sampling as explained by Mugenda and Mugenda (2003), provides researchers with an efficient system of capturing; in small group the variations or heterogeneity that exists in the target group. In probability sampling method, the principle

of equal opportunity for all members of the population for selection is followed (Chandran, 2004). Chandran also notes that by giving the elements of a population an equal chance, bias is reduced or eliminated. According to Burns and Groove (2005) probability sampling include simple random sampling, systematic sampling, stratified sampling and cluster sampling.

To randomly select a sample, Mugenda and Mugenda (2003) explain that a number is assigned to every subject or element of the accessible population, placing the number in a container and then picking any number at random. The number will then result in the selection of every n th number from the population. According to Chandran (2004), the principle of randomness is inherent in simple random sampling. In addition, Chandran argues that this ensures that the probability of selection remains constant in successive selections. Random sampling methods are the most appropriate in research situations where the representation of the population by a sample is critical and the population is not structured or its structure does not necessarily affect the random manner of selection (Chandran, 2004). In addition, Chandran (2004) observes that, random sampling is less cumbersome and economical when compared to other methods.

Krishnaswamy et al. (2009) recommend that systematic sampling is used where two samples of very different sizes are compared therefore; a number from the larger group is selected to match with the number and characteristics of the smaller one. This method allows the comparison of two groups. Systematic Sampling method is appropriate in populations in which individuals or units follow a natural arrangement or where a natural arrangement can be done (Chandran, 2004). The arrangements can then be divided into equal sub-sections and numbered by the method predetermined by the

researcher. The method involves a random selection of a number by the researcher from the first sub-section and then drawing the sample by picking the number in the corresponding position in the successive sub-section (Chandran, 2004). This method is easy to execute, however, it can only be used in populations which have natural ordering of the population units or where such an ordering is possible (Chandran, 2004).

Stratified sampling is one of the probability sampling techniques according to Burns and Grove (2005). This technique involves the division of the population into strata (Wimmer & Dominick, 2002). Chandran (2004) explains that this method is appropriate to a population in which the population units have some similarity of characteristics such as age, gender among others. Chandran observes that, the number of samples to be drawn from the homogeneous group is determined by the researcher according to pre-test selection criteria. Stratified sampling ensures that a sample is drawn from a homogenous subset of the population that has similar characteristics. Krishnaswamy et al. (2009) note that random selection of samples within each strata enhance the usefulness and effectiveness of this method.

Walliman (2006) notes that there are of two kinds of stratified sampling techniques: proportional stratified and simple stratified. Proportional stratified is when the cases in a population fall into distinctively different categories/strata of the population. Walliman explains that Proportional stratified sampling is used when the proportion of the different strata in the population are known hence the need to represent each stratum in the population. Walliman adds that simple random stratified is whereby the researcher randomly selects the sample from each stratum separately to ensure that

each stratum is represented. The different samples selected are then combined to form one whole sample for the population.

Cluster sampling involves the division of a population into large number of groups called cluster and a sample which represents the population is selected (Jackson, 2009). Each cluster is mentioned to include individuals or units and all of them are included in the sample, though not selected directly. Chandran (2004) explains that unlike in stratified sampling where the population is stratified according to certain criteria, cluster sampling involves selection of clusters that are heterogeneous.

Non-probability sampling as Jackson (2009) explains is whereby the criteria used for the selection of a sample from a population do not give all the elements of the population an equal chance. Babbie (2001) explains that non-probability sampling allows the researcher to sample respondents according to convenience and availability hence saving time and money. Non probability sampling methods include: quota sampling, purposive/judgment sampling, snowball, and convenience sampling (Babbie, 2001; Jackson, 2009; Krishnaswamy et al., 2009).

Quota sampling is to non probability sampling what stratified sampling is. Jackson explains that it involves the selection of a sample to ensure the representation of the characteristics of the population (Jackson, 2009). The selection of the sample is not random, the elements of the sample that are available are taken through whatever means the researcher finds them (Jackson, 2009).

Purposive sampling is a technique that allows a researcher to use cases that have the required information with respect to the objectives of the study (Mugenda & Mugenda, 2003). Wimmer and Dominickk (2002) explain that the purposive selection of

the respondents for inclusion in the study is based on their informative advantage to the study or possession of the required characteristics. Babbie (2008) explains that purposive sampling is characterized by the use of judgment and a deliberate effort to obtain useful or representative samples Chandran (2004) notes that the conclusions of this method cannot be generalized to the whole population as the samples selected may not represent the population.

Convenient sampling is the selection of the study unit from the population based on easy accessibility or specialized knowledge of the researcher (Robson, 2002). Jackson (2009) adds that the sample is obtained wherever they are found and the researcher's convenience. Mugenda and Mugenda (2003) explain that it is a technique which involves the selection of areas or units of observation as they become available to the researcher. This method is also known as volunteer sampling or accidental sampling.

Snowball sampling is a form of accidental sampling used when the special members of the population are difficult to locate (Jackson, 2009). In snowball sampling, data is collected from the initial subjects known to the researcher identified using the purposive sampling technique after which they are asked to name other members of that population whom they happen to know (Mugenda & Mugenda, 2003; Krishnaswamy et al., 2009). Mugenda and Mugenda also explain that this method is useful mainly in exploratory studies.

To conduct this study, probability sampling was used to select the supermarket to go to. However, since Uchumi supermarket has only four branches with digital signage, all the branches were to be studied and a census of the four branches was to be done. To identify the Nakumatt and Tuskys branches systematic sampling was used whereby a list

ranking the branches" sales turnover from the highest to the lowest. The total number of branches was divided by the number of managers in the sample. The resulting number is the interval of selection of a branch from which respondents were drawn. Managers and assistant managers were selected purposively in instances where there was only one manager and one assistant manager. In cases where there were two managers and the sample is one, convenient sampling was used. The selection of supervisors and merchandisers were 15% per branch using convenient sampling.

Types of Data

Anderson, Sweeney and Williams (2009, p.5) define data as "the facts and Figures collected, analyzed, and summarized for presentation and interpretation". Kurtz, MacKenzie and Snow (2009) note that researchers collect two types of data: secondary or primary data. Kurtz et al. describe secondary data as data that has been published previously while primary data is the data collected for the first time in a research study. Kurtz et al. point out that secondary data is less expensive to collect and takes less time to locate as opposed to primary data. There are different sources of secondary data: include books, articles, journals, thesis, and other publications.

Anderson et al. (2009) explain that data can be classified as qualitative or quantitative. Qualitative data includes labels or names used to identify an attribute of each element while quantitative data are those that are presented in numeric value and indicate the quantities, that is, how much or how many (Anderson et al., 2009). In this study both primary and secondary data were used. Secondary data were used in the literature review while primary data is the data that the researcher collected from the

respondents using the questionnaires. The questionnaire responses would also yield both qualitative data and quantitative data was collected.

Data Collection Tools

Depending on the nature of the information to be gathered, different instruments are used to conduct the assessment (Mugenda & Mugenda, 2003). Kumar (2005) explains that data collection methods often used by researchers in the collection of primary data include: questionnaires, interviews, and observation. According to Farrante (2008) and Conway (2004), a questionnaire is a set of questions written in advance before they are administered to respondents who read the instructions and fill in the answers themselves. Farrante points out that the questionnaire is one of the commonly used data collection methods.

Questionnaires presentation to the respondents as Farrante (2008) explains can be self-administered or mailed. Farrante explains that a questionnaire is advantageous due to the ability to be administered to many respondents at the same time hence saving time and cost. Also the researcher's facial expression and body language cannot influence the outcome of respondents. The disadvantages associated with the questionnaire include: misunderstanding of the questions by the respondents and where the questionnaires are sent through mail there is no certainty on whether the respondents received them or not. Also, the researcher has no control over when the answers are provided and the credibility of the answers since the respondents are the ones to decide when to fill the questions and whether to consciously and honestly fill the questionnaire or otherwise (Farrante, 2008).

Interview according to Conway (2004) is considered to be sensitive method of data collection which is used when the data required is urgent or requires descriptions of opinions and attitudes. Conway explains that interviews are used Conway adds that interviews can be conducted over the telephone, face-to-face, or in focus groups. Conway (2004) explains that interviews are appropriate when the sample is small and when the data collection tool is less structured.

Interview formats as noted by Payne and McGee-Brown (1994) can vary from highly structured interviewer directed questions and response to informal conversations whose focus and directions are directed by the participants. Payne and McGee-Brown point out that the interview format is dictated by the kind of data required, the time available for the interviews and the degree of comparability of the findings. The less structured interview formats require more time and the results are less comparable. It allows the respondents to discuss the issues and concerns that are of importance to them.

Conway (2004) points out that interviews can be more costly than the questionnaires however, it results in more reliable data. This is because in case of unclear questions, the interviewer can clarify. Also the interviewer can probe and change the questions to get the full information desired.

Focus group interviewing is a data collection where the researcher acts as the facilitator of the discussions for a small group of participants and relies on the interactions within the group to gain insight on the topic under study (Payne & McGee-Brown, 1994). Payne and McGee-Brown note that focus groups are advantageous as they are easy to conduct and allows for interviewing more than one respondent at a time while providing for group interaction in relation to the facilitator generated topics. The

disadvantage of this method is that the presence of the interviewer could influence the responses, few questions can be asked, group influence on the responses hence difficulty to separate individual and group views, and the setting in which they are conducted is not naturalistic (Payne & McGee-Brown, 1994).

Observation method of data collection according to Polit and Beck (2004, p.29) “involves the systematic selection, observation and recording the behaviours, events and settings relevant to a problem under study.” One of the observation methods is participant observation. Polit and Beck explain that in participant observation the observer takes part in the activities of the social group being observed and observes, asks questions and records information within the context, structures, and symbols that are relevant within the group members. On the contrary, Polit and Beck explain that non-participant observation is a method where the observer watches and records the behaviors without interacting with the participants. Polit and Beck point out that observation method is appropriate for studies on human behavior.

In this study the questionnaire was used as the primary data collection method. The questionnaire included different types of questions; open ended, closed ended and rating scales. Open ended questions according to Jackson (2009), are those where the respondents formulate their own responses while closed ended questions are those questions which the respondents must choose from a limited number of alternatives provided. Likert/rating scales are the questions whose responses are expected to give their rating on a numerical scale (Jackson, 2009).

Data Collection Procedure

In order to collect data on the influence of digital signage to products sales in leading supermarkets in Kenya, the researcher distributed 89 questionnaires 11 to managers, 13 to assistant managers, 48 to supervisors and 17 to merchandisers. The researcher sought for authorization from the relevant authorities; both the ministry of education and the supermarket management before carrying out the study. The researcher also trained the research assistant on data collection method and desired results after which they would then carry out the data collection under the supervision of the researcher. Since the questionnaire was filled by the research assistants and not the respondents due to the data collection environment, emphasis was made on clarity and representation of the respondents' views when writing down the responses.

Reliability and Validity

Validity and reliability refers to the quality or trustworthiness of data (Mugenda, 2008). Patton (2001) recommend that qualitative researchers should be concerned about validity and reliability while designing study, analyzing the results and judging the quality of the study, analyzing the results, and judging the quality of the study. Kroll and Ho (2009) note that reliability is concerned with the consistency of findings. This means that in a reliable study the same results/finding would be realized if the study is to be repeated.

Validity on the other hand focuses on the appropriateness of the study scale or the instrument in assessing what the study is to measure (Kroll & Ho, 2009). Bachman and Schutt (2010) explain that, the validity is affected by the researcher's perception of validity in the study and the person's choice of paradigm assumption. As in all research,

consideration must be given to construct validity, internal validity, external validity and reliability. Mugenda and Mugenda (2003) established construct validity using the single case expiatory design, and internal validity using the single case explanatory design. The use of multiple sources of evidence as suggested by Thomas (2005) is one way to ensure construct validity. This study collected data using different questionnaires to the three target groups.

External validity is more difficult to attain in a single case study. Mills (2003) provided the assertion that external validity could be achieved from theoretical relationships and from these generalizations can make. It is the development of a formal case study protocol that provides the reliability that is required of all research (Mills, 2003).

Pre-testing

A pre-testing is the testing of one's instruments with participants who match the participants to be involved in the actual study (Robson, 2002). Bachman and Schutt (2010) explain that pre-testing ensures consistency of the understanding of the questions asked among the respondents. Pre-testing of the instrument enables the researcher to assess the clarity of the instrument and its ease of use (Mugenda & Mugenda, 2003).

Cooper and Schindler (2003) point out that, pre-testing allows errors to be discovered as well as acting as a toll from training a research team before the actual collection of data begins. This is in line with Babbie (2008) explanation that by pre-testing a questionnaire, the researcher ensures that there is no ambiguity in the questions asked and that all the questions asked can be answered by the respondents.

Pre-tests results in feedback which the researcher can use to revise the questionnaire (Babbie, 2008). Mugenda and Mugenda (2003) further argue that, effective revision is the result of determining participants' interest, discovering if the questionnaire have meaning for the participants. The questionnaire was pre-tested in Naivas supermarket in Nairobi. The breakdown of the questionnaire administered for pre-testing: 4; 2 management and 2 to merchandisers.

Data Analysis

Wimmer and Dominick (2002) describe data analysis as categorizing, ordering, manipulating and summarizing data to obtain answers to research questions. Wimmer and Dominick further explain that the purpose of data analysis is to summarize them and present them in a form that is interpretable in order to study and test the relations of research problems. Perry (1998) describes data analysis as the whole process, which starts immediately after data collection and ends at the point of interpretation and processing results. The following steps are then followed; data sorting, data editing, data coding, data entry, data processing, and interpretation of the results.

Data cleaning also known as data editing ensures that the data is consistent and complete (Kumar, 2005). Data editing minimizes error resulting from incompleteness, misclassification, and gaps in the information obtained from the respondent. The data will then be coded and entered and processed for analysis using the Predictive Analytical Software (PASW). Tables and Figures were used in the presentation of findings which were in form of frequencies and percentages.

Data analysis would also incorporate unvaried analysis which examine one variable at a time as well as bivariate analysis to investigate relationships between

particular pairs of variables (Chandran, 2004). The researcher used qualitative and quantitative techniques for data analysis. Qualitative technique was used to analyze open ended questions where common themes were captured and categorized hence content analysis was used. Content analysis is a method of studying and analyzing communication in a systematic, objective and qualitative manner to measure variables (Dominick & Wimmer, 2002).

Ethical Considerations

Ethics in research according to Mugenda (2008) is an obligation of all parties. It is aimed at protecting the rights of all parties involved in the study (Mugenda, 2008). One of the ethical considerations in this study is confidentiality. Upon seeking authority to carry out this study from the relevant authorities, the researcher treated the responses with utmost confidentiality. Also, the respondents' participation in this study was voluntary and hence the respondents who declined to participate were left out of this study. Throughout the study, the researcher strived to be objective and observe high ethical standards.

Summary

This chapter has discussed the methodology of this study. It has given the research design, the population, sample, sampling procedure and instrumentation. It has also given an explanation on data collection, analysis and presentation.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

Introduction

This chapter gives the analysis and presentation of the data collected and its interpretation. A questionnaire was used to collect data from respondents from leading supermarkets in Kenya namely Uchumi, Tuskys and Nakumatt supermarkets. The respondents were expected to give information on the effect of digital signage on product sales in the supermarkets. The initial plan was to collect data from Uchumi Supermarket, Nakumatt and Tuskys Supermarkets. However, Uchumi Supermarket did not authorize the collection of data from their employees and their premises. Therefore, the researcher collected data from Tuskys and Nakumatt Supermarkets given that participation was voluntary and based on informed consent and company authorization.

Response Rate

In this study, out of the 89 questionnaires which were to be administered 68 questionnaires were administered. Out of the 68 questionnaires distributed, 50 questionnaires were received back. This gave a response rate of 73.5%. Out of the questionnaires received one was blank therefore could not be used in analysis thus the 49 questionnaires fully completed were used which represents 72.1% of the total questionnaires distributed. Babbie (2008) explains that response rate is one guide on the representativeness of the sample respondents. Babbie citing a review of published social research literature suggests that a 50% response rate is considered adequate for analysis whereas 60% and 70% are considered good and very good respectively.

Maxfield and Babbie (2008) also explain that as a rule of thumb a response rate of at least 50% is sufficient for analysis and reporting. The response rate of this study being a response greater than 60%, the researcher considered it sufficient for analysis and reporting as recommended by Babbie (2008) and Maxfiels and Babbie (2008).

Gender

In relation to the gender of the respondents, the findings show that 61.2% (30) male and 32.6% (16) females. The data therefore shows that majority of the employees at Tuskys" and Nakumatt supermarkets are males (see Figure 4.1).

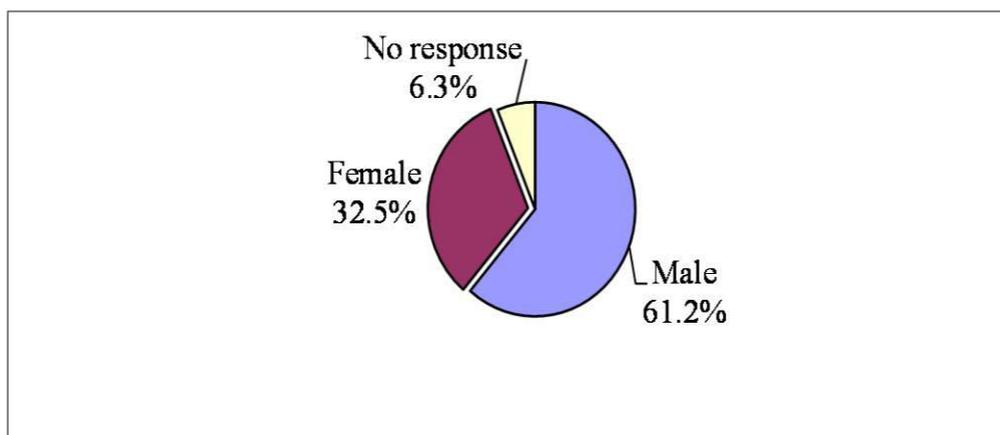


Figure 4.1: Gender of the Respondents

Age

The researcher asked about the age of the respondents and the findings are presented in Figure 4.2 below. Majority of the respondents" or 63.3 % (31) are in the age brackets of 21-30 years followed by 24.5% (12) at 31-40 years, 4.1% (2) up to 20 years while 2.1% (1) are in the age bracket of 41-50 years. The findings show majority of employees within the supermarket chains are youths aged 21-30 years with a minority below 4.1% (2) aged over 40 years and teenagers below 20 years.

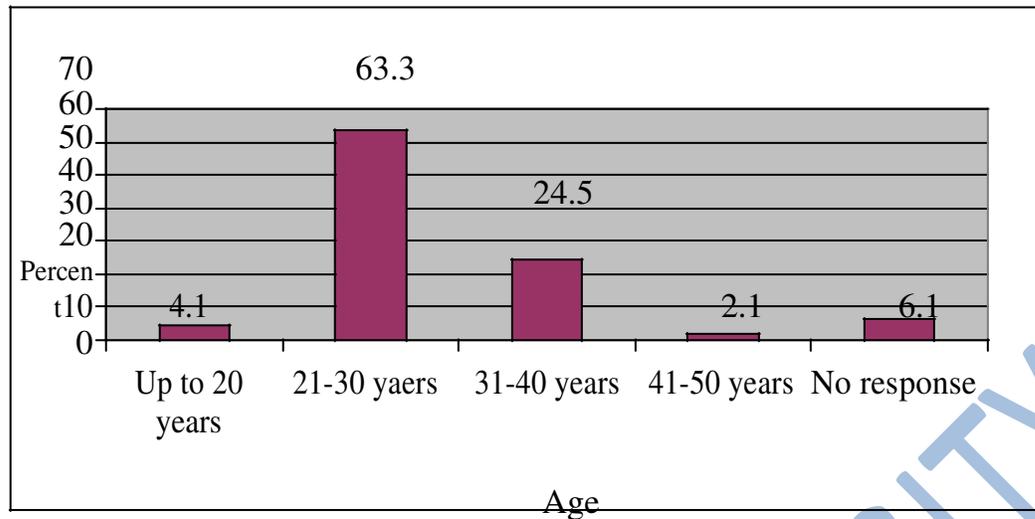


Figure 4.2: Age of the Respondents

Level of Education

The researcher asked the respondents about their level of education as it related to the role the employees play in the chain of supermarkets and indicate the level of skill required. The finding in Table 4.3 presents the education level of the respondents.

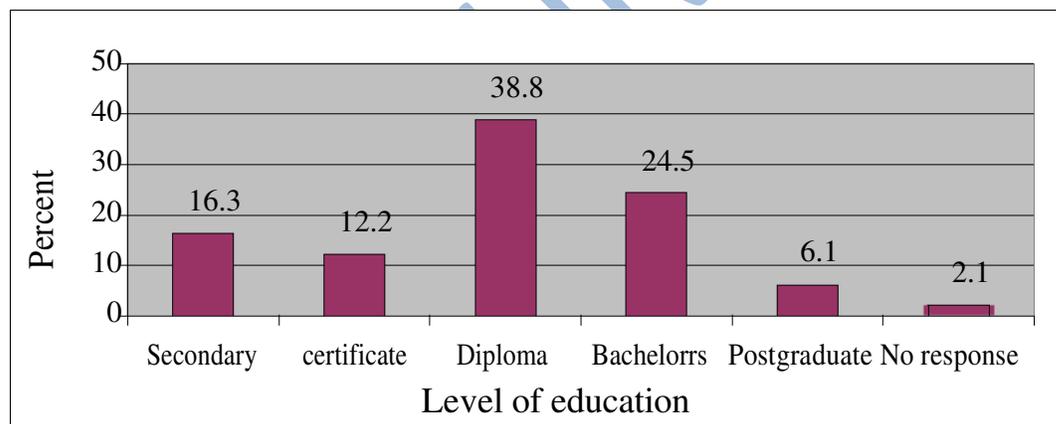


Figure 4.3: Level of Education of the Respondents

Figure 4.3 shows that majority 38.8 % (19) of the respondents reported to have a college diploma, 16.3 % (8) secondary education, while 24.5% (12) have a degree, and 6.1% (3) postgraduate level. Sixteen percent of the respondents had attained secondary school education while 12.2% (6) of the respondents had a certificate level. The findings

show that majority of the respondents in the supermarkets chains had a diploma or lower level of education compared to the graduates and post graduate as the nature of the job would require this level of knowledge and skills from the employees.

Position in company

Further the employees were asked to indicate the position they held in the company see Figure 4.4. Majority 32.7 % (16) of the respondents indicated they held the position of a supervisor, 28.6% are assistant managers, while 26.5 % (13) were merchandisers and only 12.2 % (6) were managers. The findings are correspondent to the level of knowledge and the positions held within the company as minority are managers from the information on the area of study.

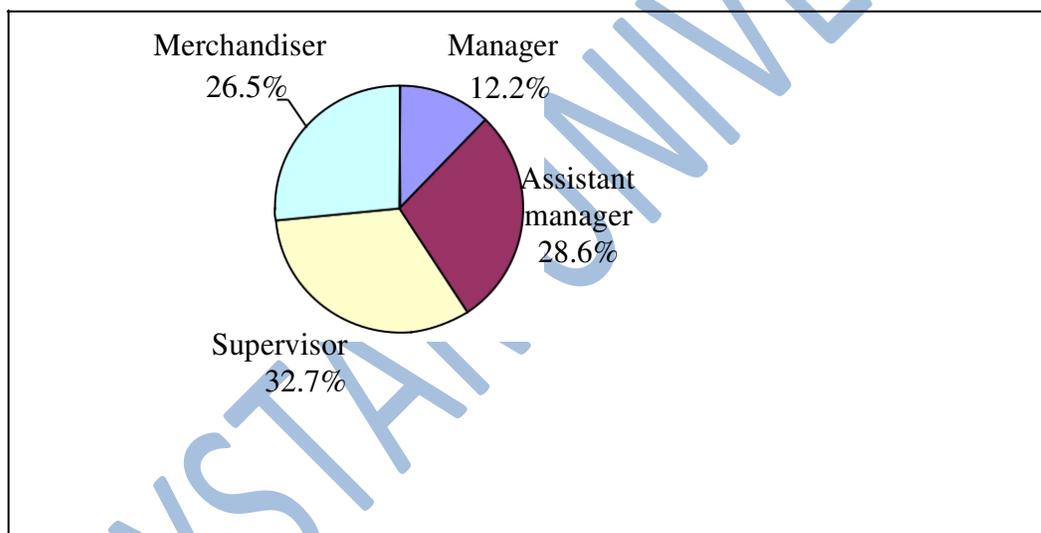


Figure 4.4: Positions of the Respondents in the Company

Duration Worked for the Company

The researcher wanted to find out what number of years individual employees had worked at either at Tuskys or the Nakumatt supermarkets.

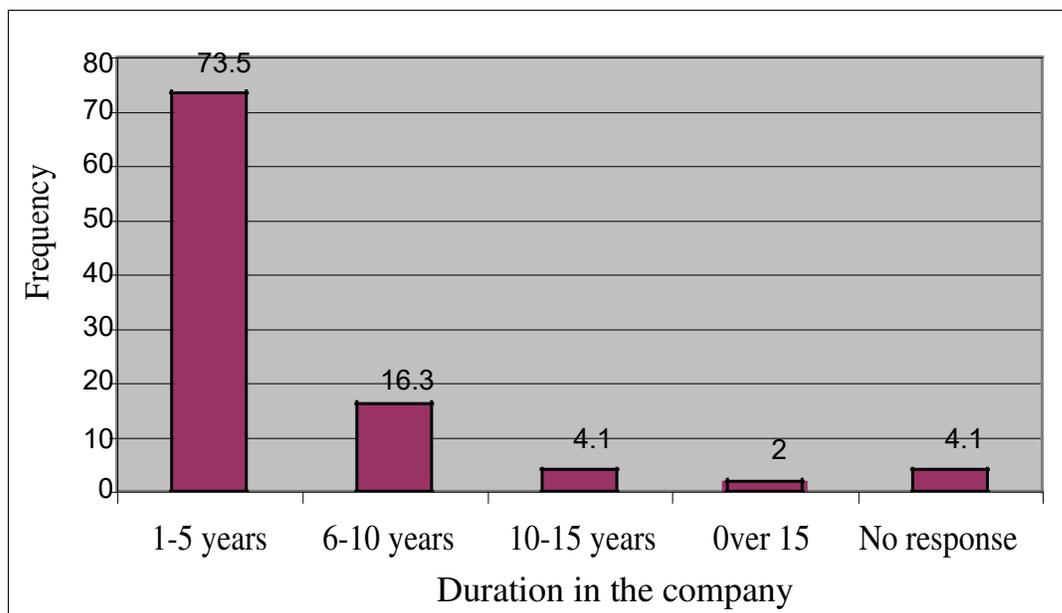


Figure 4.5: Duration in the Company

From the Figure above majority of the respondents (73.5% or 36) indicated that they had worked in for duration of 1-5 years, 16.3 % (8) had been in their current job for duration of 6-10years. Another 4.1% (2) of the respondents had worked for a period of 11-15 years while only 2% (1) had worked for over 15 years in the organization. This means that the majority (73.5% or 36) of the employees had not worked for long with the current organization and it indicates that turnover is also high and related to fast paced nature of the supermarket business. It also means that they are knowledgeable in the topic being studies.

Duration Worked in the Retail Industry

The respondents were further asked to respond to the question about the number of years they had worked in the retail industry. The Figure 4.6 below presents the findings. 46.9% (23) had worked within the retail industry up to 5 years, 36.7% (18) had worked 6-10 years while 8.2% (4) had worked for 11-15 years within the retail industry.

The length of duration the employees were in the retail industry are similar in structure to the findings on the duration in the company, meaning the industry is very fast paced and shows a lot of exit of employees .

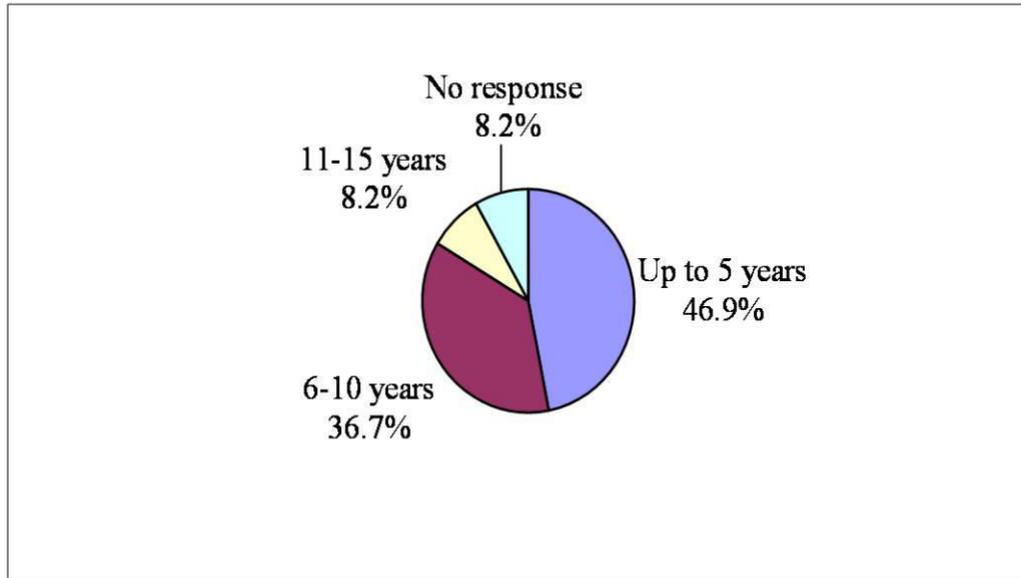


Figure 4.6: Duration Worked in Retail Industry

Digital Signage Information

Digital Screen Advertising in Supermarkets

The respondents were asked to rate several statements related to the installation of digital screens had improved product sales in the supermarkets.

Table 4.1: Rated Statements on the Usage of Digital Signage

Statements	Strongly Agree	Neutral	disagree	Strongly disagree	No response	Total
Installation of the digital screens have improved product sales in the supermarkets	59.2	32.7	6.1	-	-	100.0
The adverts in the digital display provides essential information on products available in the store and their characteristics	42.9	44.9	2.0	2.0	6.1	100.0
The advertisements in the displays influence customer purchase decisions	24.5	53.1	14.3	4.1	-	100.0
The digital displays are a form of entertainment in the supermarket.	22.4	40.8	20.4	4.1	2.0	100.0
I believe that when customers come to window shop, images in the digital screens help in identifying the product to buy.	20.4	36.7	20.4	16.3	2.0	100.0
Digital display adverts do not change or affect what I think or feel about the type of products and the brands that I buy.	14.3	26.5	22.4	26.5	8.2	100.0
Digital display positions influence my viewership not the content of the adverts.	18.4	22.4	16.3	18.4	16.3	100.0
Customers often view the digital screen images when they have finished shopping and queuing for clearance/payment.	8.2	26.5	22.4	16.3	22.4	100.0
Customers view the digital screens once they enter the supermarket.	22.4	26.5	20.4	20.4	6.1	100.0
I believe that when customers see new products in the digital screens they endeavor to buy it.	24.5	44.9	14.3	12.2	2.0	100.0
Customer products* purchase is always based on the predetermined decision on the brand.	36.7	34.7	16.3	6.1	2.0	100.0

The findings presented in Table 4.1 above shows that majority of the respondents representing 59.2% (29) said that they strongly agreed that the installation of the digital screens have improved product sales in the supermarkets followed by 32.7% (16) who

agreed with the statement while 6.1% (3) were neutral. This means that the installation of digital screens in the supermarkets have led to sales increase. This finding is supported by Schaeffler (2008) who argues that retailers who advertised on digital screens had their sales increase. This is because shoppers are likely to refer to digital screens when shopping.

Respondents were also asked to rate whether the adverts in the digital display provide essential information on products available in the store and their characteristics. 42.9% (21) strongly agreed that they did and 44.9% (22) also agreed with the statement. This means that a majority agreed that the digital screens provide essential information. On the statement whether the advertisement in the display influence the customer's purchase decision, majority (53.1%/26) agreed and 24.5% (12) strongly agreed while 14.3% (7) were neutral. Respondents also found the screens as a form of entertainment in the supermarket with majority in agreement 22.4% (11) and 40.8% (20) strongly agreed. Related to this is a statement on whether images in the digital screens aid customers identify products to buy and majority were in agreement (20.4%/20) and 36.7% (18) strongly agreed. This means digital screens aided buyers in their purchase decisions. These findings are supported by Olsen and Zhao (2010) who argues that digital signage influences product purchase decisions. This is because digital screens are part of information source if the customer had viewed the product earlier in the screens or if the people consulted had seen the product.

On the statement whether digital display adverts do not change or affect what respondents think or feel about the type of products and the brands they buy 14.3% (7) strongly agreed and 26.5% (23) agreed, 26.5% (23) disagreed and 8.2% (4) strongly

disagreed. However a significant percent (22.4%) or (20) were neutral while those who disagreed were 26.5% (23). The reactions to this statement were mixed. The disagreeing response is supported Kamel and Campilho (2009) who explain that compared with traditional static signs; digital signage presents dynamic multimedia digital content. Hence offers the advertisers with more flexibility and scalability to adapt to different contexts and different audiences. For the respondents who agreed to the statement, imply the influence of digital screens advertisements on high involvement purchase decisions. Such products according to Lamb et al. (2009) requires extensive information search therefore, they are least likely to be influenced by digital signage advertisements.

Majority (22.4%) or (11) of the respondents agreed and 18.4% (9) strongly agreed that digital display positions influence viewership not the content of the adverts while 18.4% (9) disagreed and 16.3% (8) strongly disagreed. On whether customers view the digital screen images when they have finished shopping and queuing for clearance/payment, 8.2% (4) strongly agreed and 26.5% (13) agreed while those who disagreed and strongly disagreed were 16.3% (12) and 22.4% (11) respectively. However on the statement whether customers view the digital screens once they enter the supermarket, 22.4% (11) strongly agree, 26.5% (13) agreed and 20.4% (10) disagreed and 6.1% (3) strongly disagreed. This implies that majority (49%) or (24) agreed that most customers view the digital screen advertisements when they enter the supermarket for shopping.

Further, the respondent agreed (26.5%) or (13) and 22.4% (11) strongly agreed that when customers see new products in the digital screens they endeavor to buy it while those who disagreed and strongly disagreed were 20.4% (11) and 6.1% (3) respectively.

Overall this means that the digital screens are important in launch of new products. This finding is supported by Olsen and Zhao (2010) argument that digital signage is part of information source thus they are used for product launch.

The respondents were also asked whether customer products' purchase was always based on the predetermined decision on the brand, 36.7% (18) strongly agreed and 34.7% (17) agreed that the decision are predetermined. Also 6.1% (3) of the respondents did not agree that the customers always purchase based on predetermined choices. This finding is supported by Lamb et al. (2009) explanation that high involvement purchase decisions are based on predetermined choices and thorough information search hence they are least likely to be affected by digital signage screens advertisements.

Effectiveness of Digital Displays

On the effectiveness of the digital screen display, the respondents were asked to rate the extent the position of the digital screen contributed, 59.2% (29) thought to a very large extent and 30.6% (15) to a large extent. This implies that the position of the digital screen was rated as contributing to the effectiveness of the digital screen display.

On whether the presentation content of the advertisements contributed to effectiveness of the digital display, 44.9% (22) indicated to a very large extent and 32.7% (16) to a large extent, 6.1% (3) indicated to a little extent and 2% (1) to a very little extent overall the presentation content was thought to influence the effectiveness of the digital display.

On the variety flow of the content, 32.7% (16) confirmed to a very large extent and 53.1% (26) while 4.1% (2) thought it contributed to a little extent. 46.9% (23)

indicated that the time the content is displayed rated to contribute to the effectiveness to a very large extent and 34.7% (17) to a large extent. Overall on the effectiveness of the digital display, positioning, content, variety and the time the content is displayed were all important. These findings is supported by Bickers (2007) who argues that the primary benefit of digital signage for the retailer is to enable better consumer messaging at the point of purchase, with much more targeted and timely information, specific to their shopper demographic.

Table 4.2: Rating on the Effectiveness of Digital Signage

Statements	Very large extent	Large extent	Neutral	Little extent	Very little extent	No response	Total
The position of the digital screen	59.2	30.6	6.1	-	-	4.1	100.0
The presentation content of the advertisements	44.9	32.7	12.2	6.1	2.0	2.0	100.0
The variety flow of the content	32.7	53.1	8.3	4.1	-	2.0	100.0
The time the content is displayed	46.9	34.7	10.2	6.1	-	2.0	100.0

Level of Satisfaction Resulting from the Digital Screens

In terms of information on product attributes received by customers from the digital screens in the supermarket, the respondents were asked about the level of satisfaction with the information provided in the digital screens. The findings are in Table 4.3.

Table 4.3: Level of Satisfaction with the Information Provided in the Digital Screens

Information received in the Digital screens	Very Satisfied	Satisfied	Not Satisfied	Dissatisfied	Very dissatisfied	No response	Total
New product launch	38.8	46.9	8.2	-	-	6.1	100.0
Variety of products	18.4	57.1	14.3	-	-	10.2	100.0
Promotion campaigns	30.6	44.9	18.4	-	-	6.1	100.0
Product location	38.8	46.9	8.2	-	-	6.1	100.0
Product prices	14.3	32.7	28.6	10.2	8.2	6.1	100.0

On information on new product launch, 38.8% or (19) were very satisfied, 46.9% or (23) satisfied while a minority (8.2%) or (4) were not satisfied. Majority (57.1%) or (28) of the respondents were also satisfied with the variety of products while majority (75%) or (37) were also satisfied /very satisfied with the promotion campaigns. The information on the product location over 80% or (39) rated the information as satisfying while only 8.2% or (4) were not satisfied. Notably information on the product price was rated as satisfying to a majority (32.7%) or (16) of the respondent and not as satisfying to 28.6% of the respondents. This means that to most respondents, the use of digital signage was effective in terms of product launch, advertising variety of products, promotions and product location. Pricing received a lower rating however the respondents' satisfaction with it was still favorable. They were satisfied with it. This finding is supported by Delloite (2009) who argue that digital signage is effective because it provides information essential to consumers' purchase decisions.

Reasons for Recommending the Usage of Digital Signage

The findings showed that the majority of respondents (79.6%) or (39) would recommend the usage of digital signage while 18.4% or (16) would not recommend the

usage. This finding was in agreements with Kamel and Campilho (2009) argument that digital signage is a very attractive medium for advertising and general communication in open spaces.

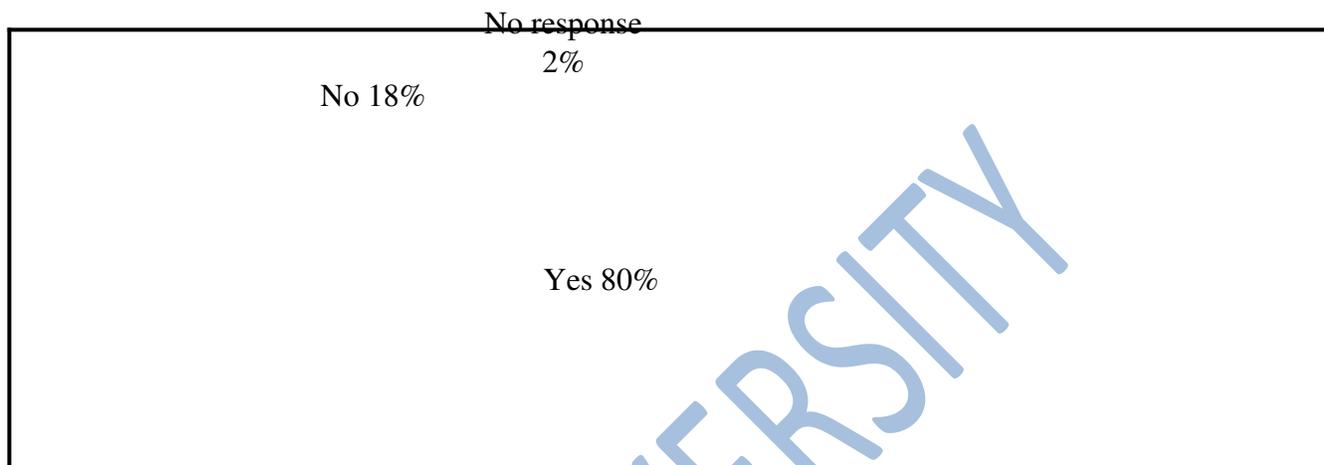


Figure 4.7: Would You Recommend Shoppers to Refer to Digital Screens when Shopping?

The reasons behind the respondents' recommendation of the usage of digital signage or failure to recommend were further solicited. The findings from the respondents who would recommend the usage of digital signage shows that creation of product awareness by this media was the main reason reported by 36.7% (18) while digital signage's ability to pass own information about the products was reported by 14.3% (7). Directing customers to product location in the supermarket and acting as reminders for customers to buy products were reported by 10.5% (5) of the respondents while creation of an urge to buy was reported by 12.2% (6) of the respondents. Other factors reported by the respondents include dynamic nature of digital signage advertisements, assisting customers in making purchase decisions, lower cost compared to other media, convenience, sequential presentation of advertisements and advertisements of real products that can be seen in the shelves.

The sequential nature of the advertisements, creation of the urge to buy, and creation of awareness are advantages of digital signage based on its advertising elements which consists of real time, near-real time and non-real time information together with audio and video (Lundstrom, 2008). Further, Borruso's (2007) explanation that the variation of the digital signage content has attracted many businesses to its usage is another explanation for the respondents' response on the willingness to recommend usage. Based on this it thus create product awareness. The respondents' readiness to recommend the usage of digital signage is further supported by Borruso (2007) who describes digital signage as any form of business communication where a dynamic messaging device is used to take the place of, or supplement, other forms of messaging.

These findings further confirm the applicability of means-end theory in this study. The recommendation is done based on the effects of the digital signage advertisements. Means-end theory is a decision theory which can be framed in form of a problem focusing on the needs/goals and the differences/discrepancies between what one wants and is recorded in the mind of the consumer (Aurifeille et al., 2007). The above basis for recommendation is formed around product attributes, and effects on the purchase decision. This is by aiding in purchase decisions, locating the products and creation of an urge to buy.

The applicability of Learning Hierarchy theory is seen when the buyers buy a product based on what they have seen. By viewing the product in the digital screens and deciding to buy it purchase implies the effects of the buyer viewership. This is supported by Jones (1999) argument that people receive factual information about a brand which

results in attitude change towards the brand and hence the development of preference for it.

Table 4.4: Reasons for the Recommendation of Digital Signage usage by Shoppers when Shopping

Recommendation of digital signage	Frequency	Percent
No response	12	24.5
Creates the urge to buy	6	12.2
Digital screens the contact that runs is dynamic in that it changes time once there is a product	1	2.0
Acts as a buyer's reminder	5	10.5
Creates product awareness	18	36.7
Directs customers to product location	5	10.5
Product knowledge	7	14.3
Helps in product purchase decisions	3	6.1
Cost saving	1	2.0
Convenient	1	2.0
It is sequential and shows variety products in a short time	1	2.0
They show real products which can be seen in the shelves	1	2.0
Total	61	124.8

The respondents reasons behind their response that they would not recommend the usage of digital signage by shoppers when shopping shows that the failure to advertise all products giving full information and customers coming to the supermarkets having their own budgets were each reported by 6.1% (3) of the respondents. Other reasons include reasons include giving full information, and the availability of other advertising methods reported by 2.0% (1) of the respondents. The above reasons are associated with the completeness of information. This finding is supported by Brennan et al. (2011) who argue that advertising is only one component of an organization's communication mix which must be integrated with other components in order to achieve strategic marketing goals. Also the adaptation and audience receptivity in the short, medium and long-terms is a challenge which Schaeffler (2008) explains that is greatly influenced by the content of the digital signage. If the content is liked by the audience then its usage will increase hence expanded usage in the industry. This then implies that

to some respondents the content of the digital signage advertisements did not meet the viewers or audience expectations.

Table 4.5: Reasons Why Respondents would not Recommend the Usage of Digital Signage

	Frequency	Percent
No response	41	83.7
Don't not advertise all products	3	6.1
Does not give full product information	1	2.0
Confuses customers	3	6.1
Customers have their own budgets	3	6.1
There are other advertising methods that can be used	1	2.0
Total	52	106

Other Methods of Advertising

This study found out that there were other advertising methods that were used in advertising other than digital signage. The findings on the advertising methods were diverse. However, Television, radio, posters, and promotions had the highest response rates. Television and radio were each reported by 26.5% (23) of the respondents while posters and promotions were reported by 30.6% (15) and 28.6% (24) respectively.

The above finding is in line with Trehan and Trehan (2009) and Medina (1990) where media is described as the vehicle that carries the advertiser's target message to the audience and thereby closing the gap between the producer and the consumer. The above listed media are a means through which advertisements are passed to the audience. In line with Trehan and Trehan argument the above listed methods are communication channels through which advertising message moves from the sender to the receiver. There are different types of media.

Table 4.6: Different types of Advertising Media Used

	Frequency	Percent
No response	12	24.5
Short message service	1	2.0
Moving trucks	2	4.1
Analogue offers	1	2.0
Display space	5	10.2
Word of mouth	3	6.1
Fliers	4	8.2
Billboards	8	16.3
Television	13	26.5
Radio	13	26.5
Magazines	4	8.2
Branding	3	6.1
Newspaper	5	10.2
Posters	15	30.6
Internet	1	2.0
Print media	3	6.1
Banners	3	6.1
Public relations	1	2.0
Promotions	14	28.6
Experimental marketing	1	2.0
Total	116	238.3

Out of the many advertising media reported, this study found out that the most effective advertising methods are television reported by 16.3% (8) of the respondents, radio and promotions each with 12.2% (6) and 14.3% (7) response respectively. Digital signage, promoters, moving trucks, newspapers, and print media were among the listed most effective advertising media.

Table 4.7: Most Effective Advertising Media

	Frequency	Percent
No response	12	24.5
Analogue	1	2.0
Billboards	2	4.1
Experimental marketing	1	2.0
Promotions	7	14.3
Digital displays	4	8.2
Radio	6	12.2
Television	8	16.3
Moving trucks	3	6.1
Newspaper	2	4.1
Print media	1	2.0
Promoters	5	10.2
Posters	5	10.2
Total	58	116.2

Challenges Facing Supermarkets in the use of Digital Signage

The researcher asked the respondents the challenges they faced in the usage of digital signage. The finding presented in Table 4.8 shows that location of the screens in the supermarket was a challenge. This was reported by 22.4% (11) while 8.2% (4) and 12.2% (6) of the respondents said that the completeness of the contents and their relevance were challenges faced by supermarkets. The speed of the runs was too fast, variation of the content, and limited number of screens in retail stores were other reported challenges. The above findings are in agreement with Schaeffler (2008) who notes that digital signage is faced with risks, cautions and concerns which affects its future. The challenges listed above fall in the implementation, profitability, operations, adoption, and audience receptivity categories as recorded by Schaeffler (2008). The usage, content, location, size and number of screens are among the challenges. Challenges relating to content are supported by Moore (2009) who argues that digital signage operates in a dynamic business environment which in turn complicates its operation and usage. Moore points out that the content strategy, content variation, and networks.

Table 4.8: Challenges Facing Supermarkets as a Result of the Use of Digital Signage

	Frequency	Percent
No response	16	34.9
Amount of content	4	8.2
Relevance of the content	6	12.2
Location of the screens	11	22.4
The speed of the runs	2	4.1
Use of voice	1	2.0
Use of different languages	1	2.0
Advertisements variety	3	6.1
Few screens installed	3	6.1
Am satisfied with it	1	2.0
Total	48	100.0

The solution to the above challenges according to the respondents are locating screens in strategic visible locations reported by 24.5% (12) of the respondents followed by advertising the products which are available in the supermarket, display of available

products, employing promoters, installation of bigger screens, incorporation of the voice in the advertisements in the stores, review of content, increasing advertisements run time and customer education reported by 18.4% (16), 6.1% (3), 6.1% (3), 10.5% (5), 12.2% (6) and 6.1% respectively. Installation of alternative power sources is another solution reported by 2.0% (1) of the respondents.

The respondent's recommendation of the use of voice implies that the digital signage systems in the retail stores do not have voice component. This is contrary to Lundstrom (2008) explanation that digital signage representing a varying physical quantity such as sound or light waves by means of discrete signals interpreted as numbers, usually in the binary system, as in a digital recording or digital television.

Table 4.9: Solutions to the challenges faced by supermarkets in the usage of digital signage

	Frequency	Percent
No response	6	12.2
Display available products	9	18.4
Employing promoters	3	6.1
Provision of more large screens	3	6.1
Use of voice	5	10.5
Source for low power consuming screens	2	4.1
Location of screens in visible and strategic positions	12	24.5
Installation of back up power source	1	2.0
Consumer education	3	6.1
Review content to ensure relevant content	6	12.2
Increase product run time	4	2.0
Total	54	106.2

Summary of Key Findings

The installation of digital screens has improved product sales in supermarkets shown by 59.2% (29) of the respondents who strongly agreed to the statement. Digital displays provide essential information on products available in the store and their characteristics shown by 42.9% (21) of the respondents who strongly agreed to the statement. They were also found to influence purchase decision with a response of 53.1%

(26) in strong agreement while 57.1% (28) indicated that digital screens help customers identify products to buy. However, the statement that digital advertisement does not change or affect what customers think or feel about the type of products and the brands they buy; 14.3% (7) strongly agreed and 26.5% (13) agreed, 26.5% (13) disagreed and 8.2% (4) strongly disagreed.

Display positions influence digital screens viewership (22.4% or 11) which happens when customers view the digital screen images when they have finished shopping and queuing for clearance/payment according to 33.7% (who at least agreed but to 46.9% (23) of the respondents indicated that customers view the digital screens once they enter the supermarket. When customers see new products in the digital screens they endeavor to buy it reported by 48.9% (24) of the respondents however to 71.4% (35) customer products" purchase was always based on the predetermined decision on the brand. Digital signage is an effective method of advertising shown by 59.2% response with contributions being presentation content of the advertisements (87.6% or 43), variety flow of the content (85.8%), and the time the content is displayed.

The respondents were satisfied with digital screen role in product launch (85.7% or 42), Variety product (75.5% or 37), promotion campaigns (75.5% or 37), product location (85.7% or 42), and product prices (47.0% or 23). The majority of the respondents (79.6% or 39) recommend shoppers to refer to digital screens when shopping. The respondents who would not recommend reference to digital screens is based on the view that digital screens do not advertise all products giving full information, customers coming to the supermarkets having their own budgets, digital

advertisements do not give full information, and the availability of other advertising methods.

Effective advertising methods include television, radio, digital signage, moving trucks, and newspapers. Challenges faced in the usage of digital signage are; location of the screens in the supermarkets, completeness of the contents, and relevance of the content. Solutions to the challenges in the usage of digital signage include locating screens in strategic visible locations, advertising the products which are available in the supermarket, display of available products, employing promoters, installation of bigger screens, incorporation of the voice in the advertisements in the stores, review of content, increasing advertisements run time and customer education.

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CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The study was designed to assess the effectiveness of digital signage as an advertising media in the supermarket chains in Kenya. The chapter presents the conclusions and recommendations on the area of digital advertising.

Summary of Findings

The influence of digital signage on product sales among leading supermarkets in Kenya

Digital displays provide essential information on products available in the store and their characteristics shown by 42.9% (21) of the respondents who strongly agreed to the statement. They were also found to influence purchase decision with a response of 53.1% (26) in strong agreement while 57.1% (28) indicated that digital screens help customers identify products to buy. However, the statement that digital advertisement does not change or affect what customers think or feel about the type of products and the brands they buy; 14.3% (7) strongly agreed and 26.5% (13) agreed, 26.5% (13) disagreed and 8.2% (4) strongly disagreed. The above findings are supported by Kanagal (n.d.) explanation that the objective of marketing strategy can be to maximize profit, market share, and sales, enhance brand image, and consequently improve customer satisfaction.

These findings concur with Wertime and Fernick (2008) who argue that retail chains brand selection decisions are made at the point of sale therefore the installation of digital has led to sales increase. The increase in sales reflects the implication of Learning Hierarchy theory which posits that learning, attitudes, and behaviour are all influenced by advertising (Jones, 1999). Different theories have been developed to explain these effects.

According to this theory, people receive factual information about a brand which results in attitude change towards the brand and hence the development of preference for it (Jones, 1999).

Perceptions of digital signage held among the leading supermarkets in Kenya both by employees

Display positions influence digital screens viewership (22.4% or 11) which happens when customers view the digital screen images when they have finished shopping and queuing for clearance/payment according to 33.7% (17) that at least agreed but to 46.9% (23) of the respondents indicated that customers view the digital screens once they enter the supermarket.

On the effectiveness of the digital screen display 59.2% (29) of the respondents indicated that they are effective. This study found that the position of the digital screen contributed and the presentation content of the advertisements contributed to a very large extent to the effectiveness of the digital display. Its effectiveness was due to presentation content of the advertisements (87.8%) or (43), variety flow of the content (85.8%) or (42), and the time the content is displayed. In essence, the effectiveness of the digital display, positioning, content, variety and the time the content is displayed were all important. These findings is supported by Bickers (2007) who argues that the primary benefit of digital signage for the retailer is to enable better consumer messaging at the point of purchase, with much more targeted and timely information, specific to their shopper demographic.

These findings is further supported by Bickers (2007) record that proponents of the usage of digital signage, cites the major benefit for the retailer as enabling better consumer messaging at the point of purchase, targeted and timely information, specific to

their shopper demographic. Thus overall on the effectiveness of the digital display, positioning, content, variety and the time the content is displayed were all rated as important.

The respondents were satisfied with digital screen role in product launch (85.7% or 42), Variety product (75.5% or 37), promotion campaigns (75.5% or 37), product location (85.7% or 42), and product prices (47.0% or 23). The majority of the respondents (79.6% or 39) recommend shoppers to refer to digital screens when shopping. The respondents who would not recommend reference to digital screens is based on the view that digital screens do not advertise all products giving full information, customers coming to the supermarkets having their own budgets, digital advertisements do not give full information, and the availability of other advertising methods. This is in agreement with Lundstrom (2008) who argues that the most common purposes that digital signage is used for today are in commercial and advertising purposes in stores and public areas hence the overall customer willingness to recommend the usage of digital.

On the level of satisfaction with the information provided in the digital screens, customers had different uses for the digital signage and cited it as an effective tool in terms of product launch, advertising variety of products, promotions and product location. Pricing received a lower rating however the respondents' satisfaction with it was still favorable and understandability due to the high competition amongst brands; advertisers tend to reduce the pricing exposure to reduce comparative analysis. However price is an important element in the consumers' purchase decision and Delloite (2009) argue that digital signage is effective tool in provision of the pricing information.

The challenges of adopting digital signage among leading supermarkets in Kenya and their solutions

The challenges faced in the usage of digital signage are; location of the screens in the supermarkets, completeness of the contents, and relevance of the content. Solutions to the challenges in the usage of digital signage include locating screens in strategic visible locations, advertising the products which are available in the supermarket, display of available products, employing promoters, installation of bigger screens, incorporation of the voice in the advertisements in the stores, review of content, increasing advertisements run time and customer education.

The adoption of the implications of Means-end theory is the most probable way of eliminating the short-comings faced in the usage of digital signage. This is because the means-end theory is a decision theory which can be framed in form of a problem focusing on the needs/goals and the differences/discrepancies between what one wants and what has been recorded in the mind of the consumer (Aurifeille et al., 2007). This is as a result of the discovery of associations between the attributes of the product or service, self relevant consequences and personal values as recommended by Aurifeille et al. (2007). This will enable the alignment at this point, the actual attributes of the products/service with the meaning and value it creates to the consumers and thus the desired consequence which represents the manufacturers/retail stores attainment of increased sales.

The usage of digital signage was highly recommended in the retail outlets in terms of the sequential nature of the advertisements, creation of the urge to buy, and creation of awareness. However there were objections to digital signage associated with the incompleteness of information provided and creating undue pressure or urge to buy

the advertised brands. Externally as a medium of advertising digital signage is not a standalone medium of advertising and faces competition from, Television, promoters, moving trucks, newspapers, and print media which were listed among the most effective advertising media. Further internally, digital displays contend with issues of completeness of the contents and their relevance in the supermarkets. Other challenges cited indicated some of the digital displays runs were too fast and variation of the content is also a problem. The limited numbers of screens in the retail stores as the stores do in size but the brand competing for the space increase dramatically over time. Thus the challenges listed relate to the usage, content, location, size and number of screens amongst others and fall in the implementation, profitability, operations, adoption, and audience receptivity categories as recorded by Schaeffer (2008).

Conclusions

1. Digital signage does influence product sales in retail stores. Further, digital display advertising is an effective medium of advertising and is recommended to all the companies in retail industry. However, their need to rove visibility and position them strategically incorporating the voice component in the retail stores.
2. Due to aggressive competition consumers need to be persuaded to make favorable purchase decisions on their brands. However, advertised products should be available in the store if the products have to make an immediate impact on sales.
3. Digital signage is perceived to be one of the most effective advertising media.
4. The challenges of adopting digital signage among leading supermarkets established amongst the content and completeness of the information provided.

5. Areas of improvement in digital signage are on the positioning of the digital screens and the content of the advertisements run on the digital screens.

Recommendations

Based on the research findings the researcher made the following recommendations:

1. There is need to locate screens in strategic visible locations and incorporate the voice component since in the supermarket it displays the images without the voice. Some of the customers have a lot of interest in the explanations especially where the product being advertised is technical. Furthermore, a consideration for the installation of bigger screens where space is available to increase visibility of the products.
2. Advertising the products which are available in the supermarket as the adverts are related to specific buying decisions and this will reduce the customer's level of disappointment.
3. The advertisers on the digital display should pay close attention to the product attribute to be incorporated in the adverts. The review of content for completeness is also very important and the length of each run to be carefully designed. This would increase advertisements run time and customer education and thus more informed customer choices.

Recommended Areas for Further Studies

Based on the findings this study recommends that a study to be done on the effect of digital signage on in other forms of businesses and industries and effective methods of creating product awareness in the retail industry. Also a study should be done on the environmental effect of the disposal of the digital screens.

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APPENDICES

APPENDIX A: QUESTIONNAIRE

Dear Respondents,

My name is Daniel Kanchori I am a student at Daystar University pursuing a Master's of Business Administration- Strategic Management. As part of the course requirements I am required to carry out a study. My study is on the influence of digital signage system on product sale in the leading supermarkets in Nairobi Kenya. I kindly request you to answers the questions below. Your responses will be treated with utmost confidentiality and used for the sole purpose of this study only. Thank you for participating in this study.

Background in formation

1. Gender: Male () Female ()
2. Age: Up to 20 years () 21 – 30 years () 31-40 years ()
41-50 years () Over 51 years ()
3. Education level (give options)
 - Secondary ()
 - Certificate ()
 - Diploma ()
 - Bachelors Degree ()
 - Postgraduate degree ()
 - Other (specify) _____
4. What is your Position in the company?
 - Manager ()
 - Assistant manager ()
 - Supervisor ()
 - Merchandiser ()
5. For how long have you worked for your company?
 - 1 to 5 year () 6-10 years () 11-15 years () Over 15 years ()
6. For how long have you worked in the retail industry?
 - Up to 5 year () 6-10 years () 11-15 years ()

INFORMATION ON DIGITAL SCREEN

7. Please give your ratings of the following statements related to digital displays in this supermarket

Scale: Strongly agree= 1, Agree=2, Neither agree nor disagree=3, disagree=4, strongly disagree= 5

Statements	1	2	3	4	5
a. Installation of the digital screens have improved product sales in the supermarkets					
b. The adverts in the digital display provides essential information on products available in the store and their characteristics					
c. The advertisements in the displays influence customer purchase decisions					
d. The digital displays is a form of entertainment in the supermarket.					
e. I believe that when customers come to window shop, images in the digital screens help in identifying the product to buy.					
f. Digital display adverts do not change or affect what I think or feel about the type of products and the brands that I buy.					
g. Digital display positions influence my viewer ship not the content of the adverts.					
h. Customers often view the digital screen images when they have finished shopping and queuing for clearance/payment.					
i. Customers view the digital screens once they enter the supermarket.					
j. I believe that when customers see new products in the digital screens they endeavor to buy it.					
k. Customer products' purchase is always based on the predetermined decision on the brand.					

8. Please give your ratings on the effect of the following in the effectiveness of digital displays

Scale: Very large extent=1, large extent= 2, Neutral=3, little extent=4, very little extent = 5

Statements	1	2	3	4	5
a. The position of the digital screen					
b. The presentation content of the advertisements					
c. The variety flow of the content					
d. The time the content is displayed					

9. In terms of information on product attributes received by customers from the digital screens in the supermarket, what is your level of satisfaction with the information provided in the digital screens

Information received in the Digital screens	Very Satisfied	Satisfied	Not Satisfied	Dissatisfied	Very dissatisfied
New product launch					
Variety of products					
Promotion campaigns					
Product location					
Product prices					

10. Would you recommend another shopper to refer to Digital signage screens when shopping?
 Yes () No ()

11. If Yes is your answer in question 11, please explain why you would recommend to a shopper reference to digital screens when shopping.

12. If No is your answer in question 11, please explain why you would not recommend to a shopper reference to digital screens when shopping.

13. To what extent do digital influence the purchase of the following products
 Scale: Very large extent=1, large extent= 2, Neutral=3, little extent=4, very little extent= 5

Statements	1	2	3	4	5
Regularly bought products like bread and milk					
Expensive products such as electronics and furniture					

14. Besides digital signage, what other tools do you use to promote your products?

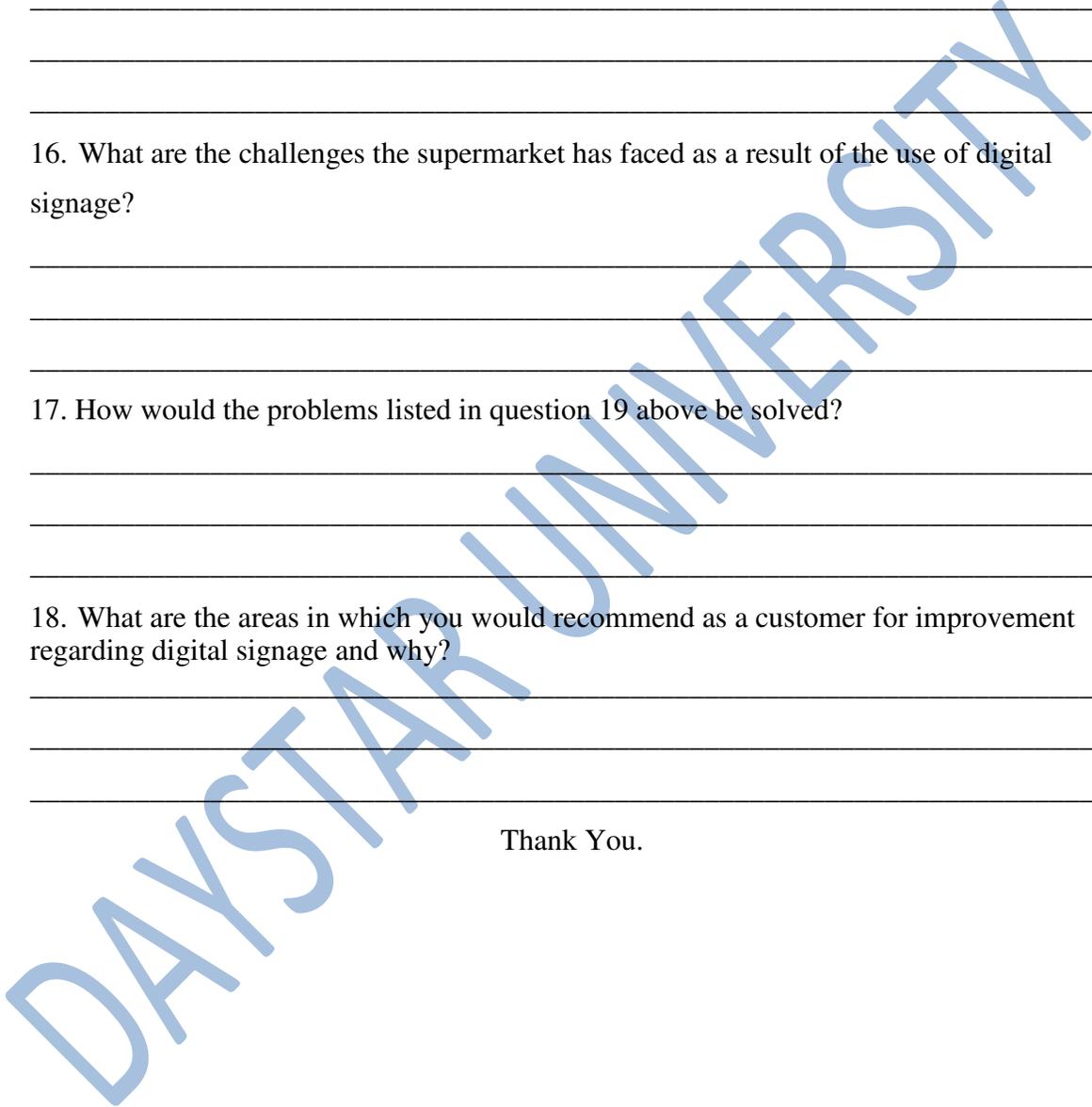
15. Of the list given, which method would you consider most effective and why compared to digital signage?

16. What are the challenges the supermarket has faced as a result of the use of digital signage?

17. How would the problems listed in question 19 above be solved?

18. What are the areas in which you would recommend as a customer for improvement regarding digital signage and why?

Thank You.



APPENDIX B: RESEARCH PERMIT

DAYSTAR UNIVERSITY