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PERCEPTION OF VISUAL SEMIOTICS IN CARTOON CHARACTER DESIGN FOR ADVERTISING

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Abstract

The message(s) conveyed to the public by semiotic profile attribute characteristics may not be congruent across demographic groupings. As a result, disparate messages are communicated to a public to whom a specific message has been disseminated. The main objective of the study was to analyse select semiotics for disparate impacts on consumers. The respondents' aged 18 years and above were sampled from clusters covering Nairobi. Pre-tests were conducted by a selected panel of three experts. Idioms describing profession, personality, and social class were used to design questionnaires further pre-tested using Cronbach's Alpha. The Kruskal-Wallis test was applied to data collected on a 6 point Likert scale, to assess the statistical significance and differences in scores for choices between groups. Taking cue from the Semiotics Theory, it can be seen that the dissimilar socialisation of the respondents due to their disparate demographics affected their assessment of the external semiotics deployed. This study of pictorial metaphors as found in cartoon semiotics offers a position from which to view the effect of the signs and symbols employed in cartoon characters and their influence on consumers' perception of cartoon images. Further research should be carried out on a wider variety of semiotic material to understand and create a topology of the visual literacy patterns. This could inform the design of audience specific cartoon material that communicates effectively.

Keywords: Animated Character Design, Cartoon, Semiotics, Visual Metaphor

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INTRODUCTION

There is an increase in the use of animated characters in advertisements in Nairobi. The rhetorical capabilities that images have, and the fact that many people more readily respond to, and easily process visual information, as opposed to textual information makes visuals an indispensable tool of communication (Patterson, 2010, p. 133). This paper seeks to uncover whether or not residents of Nairobi are capable of deciphering the meaning of semiotics used to express character in cartoon drawings. Being multi-cultural, the consumers may interpret the semiotics shown them in different ways. This will specifically be looked at, from two perspectives, first, semiotics as manifested by accessories and second, semiotics as manifested by body manipulations. This is important because it provides information on whether or not semiotics can be used to successfully communicate with consumers viewing advertisements and what to take into consideration when designing characters.

Internationally Animated characters have for a long time been used and considered fundamental to branding and advertising fast moving consumer goods for example Tony the Tiger, California Raisins, and Joe Camel (Heiser, Sierra, & Torres, 2008, p. 75). “Characters act as shorthand for brands and assist the communication process in developing brand relationships (Lawrence, 2003, p. 44).” Audiences sometimes do not have the time or gumption to scrutinise characters in the time they allocate to view an advertisement (Eero, 2000, p. 181). The character designer who is the encoder of a communiqué “crafts the message in anticipation of the audience's probable response, using shared knowledge of various [visual] vocabularies and conventions, as

THEORETICAL FOUNDATIONS

well as common experiences. Receivers of the message use this same body of cultural knowledge to read the message, infer the sender's intention, evaluate the argument, and formulate a response (Scott, 1994, pp. 252 - 253; Eero, 2000, p. 181).” In this way, characters as used in advertisements act to promulgate a specific pre-determined persona. The characterised actors connotatively, administer their personality traits unto the brands’ message or even product.

Character based promotion have been used successfully in Kenyan advertisements such as those authored by *Fatboy Animations*, for Jamii Telcom to audience intentions (Eero, 2000, p. 191). It is necessary that the use and deployment of characters in such animation based advertisements be evaluated. Target viewers’ needs and cognitive abilities should be understood, if the advertisements are to be designed so as to achieve saliency and appeal. This is particularly important in a competitive viewership field that is now global due to the proliferation of access points to imported, quality animation that boast characters that are well thought out, designed and produced.

Advertisements currently need to go beyond the literal and tap into the subconscious of their audiences who have become fatigued by constant initiatives to influence them. Media literacy and by extension, visual literacy is not intuitive. Visual media developers need codes to apply by which to develop apposite material. To this end, The Semiotic Theory serves as a model to create, or fabricate messages. It serves to help think and analyse dimensions of communication. Semiotics is “a system of principles for sign based behaviour (Danesi, 2002, p. 28; Jamani, 2011, p. 193).”

The semiotic tradition is characterised by a host of theories that have in common signs

and symbols as a perspective from which to approach communication (Littlejohn & Foss, 2011, p. 44). Ferdinand de Saussure, and Charles Pierce, are said to be the progenitors of Semiotics first studied as semiology by Saussure and Semeiotics by Pierce. They worked at parallel times and touted principles, that had both similarities and differences (Bignell, 2002, p. 5). Saussure leant more towards linguistics, and Pierce towards both verbal and non-verbal sign systems. However, to equate their philosophies is to misinterpret their work. "The unholy union of Saussure's supposed conventionalism with the breadth of Pierce's semeiotics gave bastard birth to an extreme relativism and irrealism – a modern version of sophistry that Saussure and Pierce would both have rejected (Short, 2007, p. xiii)." In this study, they are treated as heterogeneous.

Saussure postulated that our comprehension and perception of reality is governed by the signs we use regularly within the social context in which they exist. Signs do not act to merely convey prevailing matters, they go further and shape our concept of reality. Saussure theorised that a sign was a palpable object with meaning attached to it that possessed two disparate parts. One, the signifier, that which evoked notions of a material object and secondly the signified which expressed a material object (Short, 2007, p. 17).

Peirce posited that semiotics was a dogma of signs, meaningful to a person, as a conveyer of a form of communiqué. His writings did not entirely agree with Saussure, particularly in the concept that all signs were arbitrary. Pierce propounded that signs must have a latent or real connection to that which they signified. He constructed a model to expound on this (fig 1). He had in similarity to Saussure the Sign Vehicle and Object, but added the *interpretant* (Short, 2007). In proposing an *interpretant*, he denoted that in order for a sign to have meaning, there must be a decipherer. Pierce added reality into the dialogue that is communication using signs. The role of the *interpretant* is not fixed. By their very nature, they add the dimension of personal experience influenced by a multiplicity of variables such as, culture, background, education, ideas, emotions, making the combinations of interpretations potentially limitless (Crow, 2010, pp. 22-23; Jamani, 2011, p. 193).

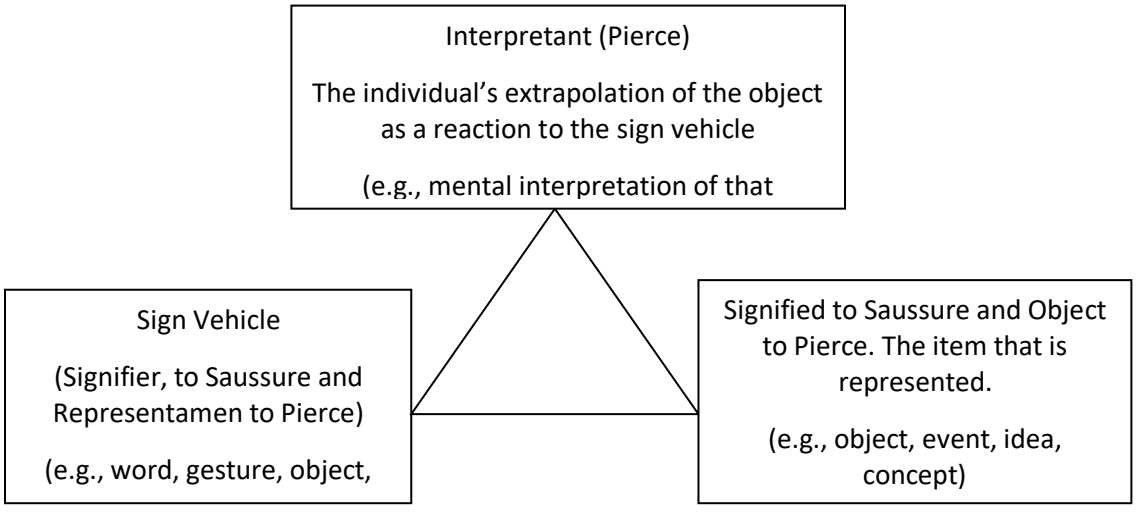

Figure 1 Triadic relationship of sign, referent, and meaning (Jamani, 2011, p. 193)

In order to decipher a sign, a reader must have knowledge of the context in which the sign operates. They must comprehend the meaning of the medium and connect this to the context. This social process within a matrix gives rise to social norms that contribute to the formation of codes which are accepted by a critical mass (Hertz, 2006, p. 49). These systems are arranged into groups that define signs structures. For instance, societies have distinct dress codes for the male of the species. These dictate what is acceptable and convey a coded message of formality or informality as is required by a social situation. It is possible to select clothing so as to communicate pre-determined messages about ourselves, such as the donning of career uniforms, which indicate our professions (Bignell, 2002, p. 10). Denim jeans, once viewed suitable for manual labour, are today seen as an indication of casualness and/ or youthfulness. This is in converse to suits, which are regarded as formal. Clothing systems like signs, must be considered in relation to other clothes. Bignell, (2002, p. 11) whose analogy of semiotics is a blend of Saussure and Pierce writings, postulates that "the coded meaning of jeans depends much more on their relationship with, and difference from other coded signs in the clothing system today, rather than their meaning depending on the history of jeans." Synchronic analysis, (the study of dress at a specific moment in time), "reveals more about the contemporary meaning of jeans than diachronic analysis," (evolution of costume through time) (Bignell, 2002, p. 11).

Barthes modifies this into the garment system and postulates that language represents costume. Speech constitutes the character and nuances of the wearer and the individual garment in question. It manifests as "the opposition of pieces, parts of garment and 'detail', the variation of which entails a change in meaning (to wear a beret or a bowler hat does not have the same meaning) (Barthes, Elements of Semiology, 1964, p. 27)". He goes further to clarify that "the rules which govern the association of the pieces among themselves," such as "size of garment, degree of cleanliness or wear, personal quirks, free association of pieces (Barthes, Elements of Semiology, 1964, p. 27)" are also of consequence as concerns defining the speech of a garment.

"Pierce also describes three ways that signs are related – resemblance, relation and convention – in turn represented through: icons, indexes, and symbols (Jamani, 2011, p. 193)," An icon resembles the object it represents, an index has a physical or causal connection to it and a symbol references the object by virtue of social convention alone. "Eco [Umberto] expands Pierce's notion of sign and describes a sign as "everything that, on the grounds of a previously established social convention that can be taken as something standing for something else (Jamani, 2011, p. 194)"

Signs can be either denotative or connotative. There is often no distinction made between the meanings proffered by a denotative signified and connotative signified image. A denotative signified image projects exactly what it represents. It has not been altered by the use of the elements and principles of design to influence a viewer. On the other hand, a connotative signified image can be nuanced by changes in any one of the elements and principles of design. Connotative images gain their meaning from social convention (Crow, 2010, p. 55).

In her article on military uniforms, Hertz (2006, p. 43) explains that "like clothing, uniforms mediate interactions between individuals and groups; they offer observers visual clues that lead to expectations of the

wearer's behaviour and social status." Clothing operates "at a symbolic level" and can raise "questions about individuality and conformity ... and the visual representation of identity." She goes on to elucidate that clothing has "the ability to communicate multilayered messages that embody different meanings for different audiences simultaneously (Hertz, 2006, p. 43)." Social codes of dressing serve the function of distinguishing members of one strata of society from another. Individuals do in certain instances deviate from coded dressing for a variety of reasons, such as defiance, sloppiness, misinterpretation of codes, personal comfort, accommodating fashion. These cases of departure from the norm, though they may delay recognition are often not fundamental enough to deter identification.

Cartoon in Pop Art

Cartoon art has been produced under the aegis of Pop Art style, which can also be described as popular art that is transient in nature. Cartoons tend to be objective in their production of visual images. They edit the elements of the object illustrated, simplifying and abbreviating it, yet leaving it at a state in which the original item is still recognisable. The images portray hard lines, are flat, simple in nature, and employ bold, flat colour. Perspective is often collapsed. Lucie-Smith, (1997), posits that cartoons are removed from their subject matter, embracing a distant stand and do not get involved in the emotionality of the issue to be tackled or portrayed. (Lucie-Smith, 1997, pp. 152 - 154).

The low costs of production of cartoon material, often promotes the thought that it is cheap, cheery, attainable, easily accessible and expendable, unwittingly transferring this impression to the goods it is used to advertise. These qualities make it ideal for advertising homogenous, commodified fast moving consumer goods. Cartoons are often used for campaigns targeted at a young, vibrant audience, including toddlers, children, teens, and young adults, though their appeal may be wider (Lucie-Smith, 1997).

Demographics

Peirce refers to the transfer of meaning as semiosis. He views it as a two way process that is by its very nature conditioned by the background of a reader. As such, it has not fixed meaning and is a tangible variable in the communicative exchange (Crow, 2010, p. 34). This makes the study of demographics vital to the comprehension of visual communication. Chamarro-Premuzic, Burke, Hsu and Swami (2010) explored the associations between the *Big Five* personality factors, unconventionality, selected demographics, and preference for four distinct visual art genres (portraiture, abstract art, geometric art and impressionism). They chose to narrow down the demographic variables to investigate to age, level of education and gender. The study found that demographics were correlated to art preferences. Further to this, Hagtvedt and Patrick (2011) engaged in research that demonstrated that art images have a favourable, content-independent influence on individuals' evaluation of objects, such as consumer products associated with art. The variables used in this study were fit, defined as the relevance of the image's content to product, salience, seen as emphasis of image's content to the product in question, demographics, and the evaluation of the product. The variables considered under demographics were age and gender. This study concluded that though it is important to consider content of a visual image, artistic style (manner), particularly in cognitively demanding situations, is more important. This is

because style relies on specific heuristic characteristics rather than graphic details to convey messages. As such, artistic style of an image transmits the impressions of a brand more effectively than image content. For purposes of the study at hand, the reader's demographic background is segregated by age, gender and level of education, informed by the preceding studies.

Of the studies looked at, the vast majority chose to work with university students as respondents. This is because they form a readily accessible source of respondents. They can also be argued to be homogenous to a degree that allows for more stable results. Several researchers believe that demographic segmentation alone is not enough, though it can be used as an introduction into gaining an understanding of consumers' choices (Amine & Smith, 2009). To create insightful segregation of a consumer base, divisions in spheres such as geographical, psychographic and behavioural segments are ideal (Silayoi & Speece, 2007, p. 1496).

This study used images as would be found in advertising to study garments, accessories and posture as semiotic systems. This is because with advertising images, the creator of the message employing cartoons, clearly sets out to communicate and persuade and strives for excellence in this endeavour (Barthes, 1977, pp. 152 - 153).

Significance of study

For the researcher, it will assist in the developing recommendations that consider and embrace the communication requirements of a targeted audience, when designing cartoon characters. The outcomes of this study will help the Cartoon Character Designer understand how the elements and principles of design as used in fabricating semiotics, that contribute to the construction of persuasive, iconic characters. Consumers will benefit from effective application of visual rhetoric in cartoon characters that will generate greater comprehension of their role.

The question the Research sets out to answer is; How congruent are profile attribute characteristics of cartoons characters, such as accessories, semiotic identification and body characteristics, with perceptions of demographic groupings delineated on the basis of age, gender and level of education?

METHODOLOGY

Three cartoon characters were selected as the stimuli from a series of cartoons. They had the following attributes:

(i) Male character, profession, personality, and social class defined by only accessory based semiotics

(ii) Male character profession, personality, and social class defined by visually neutral semiotics

(ii) Male character profession, personality, and social class defined by only body structure and stance based semiotics

Pre-tests were conducted with a convenience panel of three graduate experts from different creative fields. They were tasked to generate as many descriptive idioms as possible for the three cartoons. They were then asked to select the seven most accurate idioms. They selected idioms that encompassed profession, personality type and social class. The questionnaires that were developed were then pre-tested using 38 respondents. There were problems reported on comprehension of descriptive nouns used on the first and second cartoon.

These were corrected in the final questionnaire.

Stimuli Presentation

The selected cartoon images were picked form the internet 'Google Images' and only copyright free images were used. The internet is a reliable, rich source of images that was favoured in order to promote external validity. Only images that the respondents were not familiar with were used to avoid introducing bias created by having pre-existing knowledge. The three images were presented on two A4 sheets of paper.

Research Approach

In the preliminary investigations of this quantitative study, a pilot study was conducted. The primary data was collected through distribution questionnaires. Each of the three categories of cartoon type presented, had seven questions. All the seven questions measured one latent feature observed from the selected cartoon image. Cronbach's Alpha was administered to test the internal consistency reliability of the questionnaire. Picardi & Kevin, (2014, p. 51) as well as Mangal & Mangal, (2013, p. 575) posit that a reliability coefficient alpha that is greater than or equal to 0.7 is generally an acceptable value indicating high reliability of a questionnaire. This value therefore selected as the benchmark for this study. Other studies in visual communication such as by Mulken, Rob & Forceville (2010, p. 3423) concerning the perception, complexity, deviation and comprehension of the visual metaphor as found in images used in advertising, also accept the reliability coefficient alpha of 0.7. The Cronbach's Alpha Coefficient for this study was 0.880, which fell above the acceptable range. The questionnaire had an N = 21 items and employed a five point Likert Scale.

A five-point Likert Scale was used to demonstrate the intensity of conviction of the informative qualities of the semiotics where 1 stands for 'False', 2 for 'Not Quite True', 3 for 'Maybe', 4 for 'Almost Certain' and 5 for 'Definitely'. The Likert Scale was selected for the research because with a population that is largely visually illiterate, it is necessary that the questionnaire used is easy to understand and complete whilst being reliable. However, it may show central tendency bias caused by various factors such as response acquiescence to please the researcher. The Kruskal-Wallis test which is a non-parametric test that is an alternative to a one-way ANOVA (Boone & Boone, 2012), was used. It was applied with a p value of .05 to assess the statistical significance and differences in scores for choices among groups. This is because non-normal distribution of data was expected as well as the occurrence of a small sample size.

In the final comprehensive study the number of respondents was increased to produce results that met the stringent requirements of reliability. Reproducibility was created by larger sample sizes, as well as the use of seven questions to access one variable per cartoon. Validity, to ensure that the questionnaires measured what they set out to measure was also mitigated for by using a panel of professional designers to vet what the cartoon communicated before the questionnaires were passed out.

Quantitative Sampling: In pursuance of the objectives of the substantive Quantitative study, data was collected with a structured questionnaire adopting stratified, convenience sampling technique in various pre-selected sites within Nairobi. 269 responded of which 134 were male and 135 female. Their ages ranged from 18 years to 70 years.

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Findings and Analysis

The findings of the quantitative data were analysed using a Kruskal-Wallis Test and recommendations issued.

Research Limitations/ Implications

A limited number of cartoon styles were offered so as to keep the numbers manageable for purposes of research. As such, the results reflect choices made by the respondents based on what was offered for scrutiny.

FINDINGS

Cartoon with Accessories and Age

A Kruskal-Wallis Test of Age tested against the Cartoon with Accessories revealed a statistically significant difference in cartoon perception levels across three different age groups in only two out of seven questions.

(Gp1, 15: 18-24yrs, Gp2, n = 12: 25-34yrs, Gp3, n = 11: 35+yrs, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance and Median Scores							
	Question number						
	1	2	3	4	5	6	7
Chi-Sq.	5.115	3.433	4.443	8.625	1.120	2.470	7.510
Sig.	.077	.180	.108	.013	.571	.291	.023
Median Scores							
Age	Question number						
18 - 24	5.00	5.00	4.00	3.00	2.00	2.00	5.00
25 - 34	5.00	4.00	2.00	1.50	1.50	2.00	2.00
35+	4.00	4.00	3.00	1.00	2.00	.00	2.00

A marginally higher Median score was recorded in questions one and two, more due to question type, as opposed to age.

Cartoon with Accessories and Gender

A Kruskal-Wallis Test of Gender tested against the Cartoon with accessories revealed a statistically insignificant difference in cartoon perception levels across two different gender groups in all of seven questions.

(Gp1, 19: Male, Gp2, n = 19: Female, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance, and Median Scores							
	Question number						
	1	2	3	4	5	6	7

Chi-Sq.	.528	1.171	.072	.050	.767	.091	.756
Sig.	.467	.279	.788	.823	.381	.762	.384
Median Scores							
Gender	Question number						
Male	5.00	4.00	4.00	2.00	2.00	2.00	3.00
Female	5.00	5.00	4.00	2.00	3.00	2.00	4.00

A marginally higher Median score was recorded in questions one and two, more due to question type, as opposed to gender.

Cartoon with Accessories and Education

A Kruskal-Wallis Test of Education tested against the Cartoon with Accessories revealed a statistically significant difference in cartoon perception levels across two different education groups in four of seven questions.

(Gp1, 14: Secondary, Gp2, n = 24: Tertiary, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance, and Median Scores							
	Question number						
	1	2	3	4	5	6	7
Chi-Sq.	3.445	4.611	8.844	5.544	.592	2.814	6.184
Sig.	.063	.032	.003	.019	.442	.093	.013
Median Scores							
Ed. Level	Question number						
Secondary	5.00	5.00	5.00	3.00	2.00	2.00	5.00
Tertiary	5.00	4.00	3.00	1.50	2.00	.50	2.50

A marginally higher Median score was recorded in questions one and two, more due to question type, as opposed to education.

Avatar Cartoon and Age

A Kruskal-Wallis Test of Age tested against the Avatar Cartoon revealed a statistically significant difference in cartoon perception levels across three different age groups in only four out of seven questions

. (Gp1, 15: 18-24yrs, Gp2, n = 12: 25-34yrs, Gp3, n = 11: 35+yrs, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance and Median Scores

	Question number						
	1	2	3	4	5	6	7
Chi-	6.719	8.041	12.546	7.629	4.500	.842	1.277

Sq.							
Sig.	.035	.018	.002	.022	.105	.656	.528
Median Scores							
Age	Question number						
18-24	1.00	1.00	1.00	3.00	1.00	.00	.00
25-34	.00	.00	.00	.00	.00	.00	.00
35+	.00	.00	.00	1.00	.00	.00	.00

A slightly higher Median score was recorded among the 18 – 24 yr old.

Avatar Cartoon and Gender

A Kruskal-Wallis Test of Gender tested against the Avatar Cartoon revealed a statistically significant difference in cartoon perception levels across two different gender groups in only two of seven questions.

(Gp1, 19: Male, Gp2, n = 19: Female, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance, and Median Scores							
	Question number						
	1	2	3	4	5	6	7
Chi-Sq.	3.410	1.747	1.967	3.947	2.545	.279	7.139
Sig.	.065	.186	.161	.047	.111	.597	.008
Median Scores							
Gender	1	2	3	4	5	6	7
Male	.00	1.00	1.00	2.00	1.00	.00	1.00
Female	.00	.00	.00	.00	.00	.00	.00

A slightly higher Median score was recorded among the Males.

Avatar Cartoon and Education

A Kruskal-Wallis Test of Education tested against the Avatar Cartoon revealed a statistically significant difference in cartoon perception levels across two different education groups in five of seven questions

. (Gp1, 14: Secondary, Gp2, n = 24: Tertiary, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance, and Median Scores							
	Question number						
	1	2	3	4	5	6	7
Chi-Sq.	10.492	10.616	8.356	13.248	7.979	.582	3.387
Sig.	.001	.001	.004	.000	.005	.445	.066
Median Scores							
Ed. Level	Question number						

Secondary	1.00	1.00	1.00	4.50	1.00	.00	1.00
Tertiary	.00	.00	.00	.00	.00	.00	.00

A slightly higher Median score was recorded among the respondents with a Secondary level of education.

Cartoon with Features and Age

A Kruskal-Wallis Test of Age tested against the Cartoon with features revealed a (Gp1, 15: 18-24yrs, Gp2, n = 12: 25-34yrs, Gp3, n = 11: 35+yrs, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance, and Median Scores							
	Question number						
	1	2	3	4	5	6	7
Chi-Sq.	6.719	8.041	12.546	7.629	4.500	.842	1.277
Sig.	.035	.018	.002	.022	.105	.656	.528
Median Scores							
Age	Question number						
18	1.0	1.0	1.00	3.0	1.0	.0	.00
25-34	.00	.00	.00	.00	.00	.00	.00
35+	.00	.00	1.00	2.00	.00	.00	.00

A slightly higher Median score was recorded among the 18 – 24 yr old.

Cartoon with Features and Gender

A Kruskal-Wallis Test of Gender tested against the Cartoon with Features revealed a statistically significant difference in cartoon perception levels across two different gender groups in only two of seven questions.

(Gp1, 19: Male, Gp2, n = 19: Female, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance, and Median Scores							
	Question number						
	1	2	3	4	5	6	7
Chi-Sq.	3.410	1.747	1.967	3.947	2.545	.297	7.139
Sig.	.65	.186	.161	.047	.111	.597	.008
Median Scores							
Gender	Question number						
Male	0.00	1.00	1.00	2.00	1.00	.00	1.00

statistically significant difference in cartoon perception levels across three different age groups in only four out of seven questions.

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Female	.00	.00	.00	.00	.00	.00	.00

A slightly higher Median score was recorded among the Males.

Cartoon with Features and Education

A Kruskal-Wallis Test of Education tested against the Cartoon with Features revealed a statistically significant difference in cartoon perception levels across two different education groups in five of seven questions. (Gp1, 14: Secondary, Gp2, n = 24: Tertiary, χ^2 (2, n = 38))

Chi-Square, Asymptotic Significance, and Median Scores							
	Question number						
	1	2	3	4	5	6	7
Chi-Sq.	10.492	10.616	8.356	13.248	7.979	.582	3.387
Sig.	.001	.001	.004	.000	.005	.445	.066
Median Scores							
Ed. Level	Question number						
Secondary	1.00	1.00	1.00	4.50	1.00	.00	1.00
Tertiary	.00	.00	.00	.00	.00	.00	.00

A slightly higher Median score was recorded among the respondents with a Secondary level of education.

ANALYSIS AND DISCUSSION

Cartoon with Accessories

The Null Hypothesis for this cartoon states that Age, Gender and Level of Education are not a factor in the consumer's ability to decipher the semiotics of a cartoon character based on the accessories they possess. In the significance levels scores for the seven questions asked of the respondents in this category, when it comes to Age, only two are statistically significant. With Gender, none were statistically significant. Education had four statistically significant questions. This means that the null hypothesis can be resoundingly accepted in the case of Gender, and largely again, accepted in the case of Age. The mild acceptance of the null hypothesis with Age comes about due to the fact that questions one and two were denotative. This is shown by the Median scores of these two question that were very high. The respondents were able to decipher the carpenter's trade due to his tools. They were also able to gauge his working capacity by virtue of his overalls, which is the outfit of choice for manual labourers. However, the remaining five questions were connotative in nature, requiring the respondents to unravel the carpenter's traits from clues found within the image. They were not able to do this very successfully. The Median scores also point to the fact that the younger respondents in the 18 – 24 year bracket read more accurately into the message of the cartoons. This may be due to

the fact that they have been more exposed to cartoons and the messages they encode as compared to the older age groups. This trend is reflected in the progressive decline in decoding abilities with the 35 years and over respondents being the least adept at decoding, ad in particular decoding connotative messages. With Education however, the null hypothesis should be given consideration. Four of the seven question responses point towards a definitive but weak rejection of the null hypotheses. This means that Education, though a factor contributing to comprehension of cartoon images, it is not an overt factor. The less educated respondents were slightly more capable of decoding the images when examining the cartoons. Both levels of education are more likely to elaborate on the cartoons when answering denotative questions. This is illustrated by the higher Median scores seen with the less educated as well as the first two questions. The rest being connotative, were not well decoded. Crow, Jamani, and Barthes concur that demographics influence a person's perception of images. (Crow, 2010, pp. 22-23; Jamani, 2011, p. 193; Barthes, 1977, p. 160). However, they do not go further to explain how each demographic impact on an individual, or group of individuals. These results give insight as to how listed demographics may affect discernment of images.

Avatar Cartoons

The Null Hypothesis for Avatar Cartoons states that Age, Gender and Level of Education are not a factor in being inept at deciphering the semiotics of a cartoon character based on an avatar with no distinct semiotic identification. With Age, four out of seven of the questions attract a statistically significant score. Therefore, Age is a factor in the understanding of Avatar type cartoon figures. The youthful respondents represented here by the 18 – 24 year olds are far more adept with technological communication mediums which tend to use Avatars more than communication materials aimed at a wider age group. They are therefore more likely to be familiar with the nuances of what message an Avatar is encoded to transmit. Gender came in at two out of seven questions showing statistical significance. This being relatively low suggests that Gender is not a factor in the ability to decipher the meaning of Avatars. It must be noted that Males come in with a higher Median score showing a slightly higher disposition towards deciphering the message conveyed by the cartoons. This may be due to their nature and greater willingness to extrapolate meaning as compared to Females. Level of Education is at five out of seven questions and therefore strongly points towards Education being a factor in the ability to decode Avatar based Cartoons. This may be due to a respondent being trained to think analytically, or simply due to the exposure and penchant for exploration that come with tertiary education. Barthes (1977, p. 160) speaks of socialisation which can be offered by Education as in this case, as being a contributor to a persons' ability to interpret visual images. The Median score for Secondary educated respondents is higher. They decode more from Avatars as compared to Tertiary educated respondents.

Cartoons with Features

The Null Hypothesis for Cartoons with Features states that Age, Gender and Level of Education are not a factor in the ability to decipher the semiotics of a cartoon character based on the body characteristics they possess. With Age, four out of seven of the questions attract a statistically significant score. Therefore, Age is a factor in the understanding of Cartoons embodied with Physical Features to express messages. The

youthful respondents' who fall in the 18 – 24 year olds bracket, are more capable of recognising the identifying semiotics in the cartoon, as they may be more exposed to this medium of expression. One must however, take cognisance of the very low Median scores across all three age brackets. The respondents were generally unable to decipher what the features on the cartoon portrayed. This maybe because are associated with male college athletes in America, which is an unrecognised foreign culture. This outcome is in line with Alosque's writings (2014, p. 64). It is further supported by Barthes (1977, p. 160) who emphasises the contribution of a persons' socio-cultural background to their image perception abilities. Gender came in at two out of seven questions showing statistical significance. The null hypothesis was not generally statistically significant. This being relatively low suggests that Gender is not a factor in the ability to decipher meaning. It must be noted here that Males come in with a slightly higher Median score showing a mildly higher disposition towards deciphering the message conveyed by the cartoons. Level of Education is at five out of seven questions and therefore convincingly suggests that Education is a factor in the ability to decode Cartoons that use features for expression. This may be due to the respondent exposure to tertiary education. It is necessary that a respondent have prior awareness and knowledge of image semiotics and what they portray so that they are able to understand an image. The Median score here is very low as a whole showing that the respondents were not very familiar with the semiotics used to convey messages. Respondents educated exclusively up to Secondary level seem to have the ability to decode the images better.

CONCLUSION AND RECOMMENDATIONS

With these results, it can be seen that respondents have a greater ability to decode denotative semiotics found in cartoons, and a lesser capacity to decode connotative semiotics. Age and Gender are not major factors in the comprehension of cartoon images, but Level of Education is a contributing factor. As much as a visual communicator may set out to encode with the intention of delivering a message in a specific way, the decodier is at liberty to decode it according to their discretion, to the best of their abilities. This is supported by Kjeldsen (2015, p. 199). The study has so far noted that further research can be carried out on a wider variety of semiotic material to understand what the visual literacy patterns of residents are towards other visual semiotics in semi-realistic cartoons and other genre of cartoon style. As the results of the study stand presently, illustrators should lay greater emphasis on using denotative semiotics to inform the design of cartoon material in Nairobi, in the design of suitable characters for the various target audiences.

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