

Original Research Article

Multimodal Analysis of Selected Health Awareness Materials: A Visual Grammar Approach

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Abstract: The Visual Grammar approach is effective in examining the communicative value of healthcare posters. As semiotic resources, these posters comprise both images and text for persuasive and informative ends. Previous studies have looked at multilingual health care texts and medical information leaflets using different approaches, but the focus here was monolingual healthcare posters written in English. Hence, this study analyzed five purposefully selected online healthcare posters meant for a Nigerian audience. It looks at the ways image and text cohere as syntagm within narrative and conceptual representations to form persuasive and informative messages, and the multimodal constraints on the healthcare posters as they serve communicative ends. A descriptive research design was adopted to analyse corpus from five online health care materials. Features of the materials were identified and classified according to manifested multimodal features before they were subjected to narrative and conceptual analyses. The way image and text cohere; their functions and communicative values were also discussed to highlight attendant constraints. Findings show that as a multimodal text the healthcare posters employ semiotic resources to project messages as either contextualized or decontextualized. Major and minor semiotic processes, achieved by image and text coherence, form both narrative and conceptual meaning-making units. Added to this informative value are colour variations and font size which are also employed as enhancers of detail, mood and contrast as well as attention drawing devices. Logos of sponsors give the health messages varying credibility values as rhetorical questions and advice-clauses serve persuasive ends. Thus, the study concluded that the communicative potential of a healthcare poster are hinged on semiotic resources that constrain readers' or viewers' perceptions on health matters.

Keywords: Multimodal, healthcare poster, visual grammar, informative value, persuasive value, communicative potential.

INTRODUCTION

Different approaches to language analyses have justified language as arbitrary, rule governed, dynamic, unique, complex and systematic. In no other way is this fully demonstrated than in the multimodal nature of language. The carrier of information, whether visual or non-visual, is language. To get information that translates to the right knowledge, appropriate material has to be encoded using the right conventions, and decoded in line with complex systems of interpretation. And this is what follows in the domain of healthcare information. Likewise, and undoubtedly, multimodal language becomes the tool for designing and deciphering health related issues. Patients visit patent medicine stores, pharmacies, clinics, health centres and hospitals. Several processes might take place there: from prognosis, diagnosis, prescription, to treatment. Information can be confidential such as results of tests, prescriptions or treatment which is the exclusive domain of health professionals. In such cases, medical ethics would mandate more technical communication. However, there are situations where other sources of information are meant for the general public. This perspective explains why medicine packs come with ' product information leaflets called Medical Package Leaflets (MPL) or what Begoña Furtuno describes generally as medical informative leaflets (MIL) that display the following:

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composition, pharmacology, indications, contradictions, dosage and administration, side effects, precautions and warning, drug interactions, storage recommendations and similar features (Furtuño, 2018). As Furtuño rightly observed, the medical informative leaflets (MIL) are meant for 'general communicative goals'; that is, to 'inform' and 'advise' user in order to accomplish 'behavioural changes' for better 'health habits'. Other varieties exist: the healthcare posters and flyers and billboards which are found as print or online copies in health facilities and public spaces. Thus, healthcare posters and flyers are multimodal (print or digital) materials that aid public enlightenment on health issues. Unlike MIL which give information of medicine usage and composition or interaction, these health informative posters or health informative flyers boost public awareness about prevention or treatment of health conditions.

In Nigeria, healthcare messages generally disseminate information about prevalent diseases or health conditions. Each is designed for a specific purpose; to give information on prevention, treatment or awareness. In both features and functions, they differ from the MILs in terms of layout; though Furtuno (2018) takes them as the same materials. Since Healthcare Informative Posters (HIP) or Healthcare Informative Flyers (HIF) are meant to educate and motivate the public in terms of knowledge and behavioural change. Reading information correctly is premised on the level of literacy of the reader. This point explains why such public awareness materials come in multilingual varieties (Aworh-Okoroh and Badaki, 2019). Added to this fact is the primacy of the multimodal text in attracting the attention of the reader by the graphic capture of narrative and conceptual representations. Across the multimodal plain, the reality and conspicuousness of health issues become graphic. With multiple modes, the posters or flyers become 'socially' and 'culturally' motivated resources for behavioural change (Kress, 2010). Hence, the multimodal healthcare text in this sense is a combination of modes that accomplish persuasive and informative intentions with different degrees of realization.

Equally, in Nigeria the eradication of major health challenges is part of the millennium development goals. The World Health Organisation, Federal and State ministries of health and non-governmental organisations engage in public health campaigns. Hence, health information materials become relevant. Significantly, knowing the way multiple modes interact in a multimodal text enhances apt comprehension. The deciphering of narrative and conceptual processes help in information processing. Processes within each multimodal text cohere to either make the text persuasive, informative or inappropriate. This communicative situation is then hinged on the argumentative structure of the multimodal text: how narrative and conceptual processes form persuasive and informative features, how these features cohere as syntagms, and how they function within the multimodal text and serve as communicative materials. Understanding multimodal messages in healthcare posters and flyers should be the priority of every reader.

From the stated objectives, a study of multimodal text in English would exclude Medical Package Leaflets (MPL) or Medical Informative Leaflets (MIL). Studies by Worden and Flynn (2001), Boker and Pearson (2002) and Begano Furtuno (2018) have addressed the writing and designing of MPL and MIL extensively from a pedagogical approach in Europe. Aworh-Okoroh and Badaki (2019) have analysed healthcare posters of selected health conditions in terms of semantic appropriateness in multilingual text; looking at the changes between the original and translated texts. This study extends the scope of literature in the area of healthcare materials from a visual grammar perspective. Since healthcare materials are from open or free access online or print sources for public consumption, this informs a multimodal study of selected healthcare posters in Nigeria.

Theory and Analysis Framework

To begin with, the Grammar of Visual Design (1996, 2006) would provide the needed foundation for the later development of multimodal discourse analysis. The diverse influences of fine art, iconography, psychology, semiotics and systemic functional linguistics thus, conditioned the path multimodality was to follow. Visual grammar is based on two basic principles: narrative and conceptual representations. The two form convergence in representations of modality and composition. Viewed from a multimodal perspective, images are either read by the way of narrative processes or by conceptual processes (Kress and van Leeuwen, 1996, 2006).

Narrative representation is seen as the way that processes, circumstances and near-narrative structures like geometrical symbolism present 'unfolding actions and events, processes of change, transitory spatial arrangements' as visual communication (Kress and van Leeuwen, 2001). The processes are further divided into agentive (active and passive participants) and non-agentive presentations. Agentive processes are delineated as either non-projective or projective. In the non-projective case are the action (which can be transactional or non-transactional) and non-transactional reaction processes (of actor—zero goal, zero actor—goal called event). Such non-projective processes are either unidirectional or bidirectional communication. In the projective processes there exit the reactional, verbal and mental. Two reactional processes identified are the transactional reactional (where reactor looking at the phenomenon) and the non-transactional (where the reactor's look points to nothing). With respect to the verbal process, Halliday has observed that speech bubbles or dialogue balloons form protrusions that mediate the speaker's verbiage like in cartoons. A similar form of projective is the mental process. They occur a representation of an inner thought process of a senser in terms of perception (as cited in Kress and van Leeuwen, 2001). Both non-projective or projective form part of the

agentive process. Unlike this process, there exists a non-agentive process classified as the conversion process. Conversion involves a chaining of participants where one can play several roles of actor and goal or vice versa in a transformational relay mode. Good examples of these are the communication models, food chain or nature cycle diagrams. As mentioned earlier, narrative structures also comprise of circumstance in different forms: locative, means and accompaniment. Locative arises from the use of modality markers and composition styles to create foreground and background upon which narrative processes act upon. Means refers to the tools that aid the execution of actions; according to the Kress and van Leeuwen, 'they constitute the vectors which realize the action processes' whether in the form of animate or inanimate objects. The third is accompaniment which has no vectoral connections but illustrates a descriptive capture. A similar process is the geometrical symbolism where 'arrowheads' and 'infinity signs' draw attention to actions beyond stated possibilities. Present scholarship in visual grammar attests to only seven processes that underlie the realization of narrative representation of the multimodal text.

Considered in a similar perspective is conceptual representation—the other basic principle. It refers to static representation of participants in a 'timeless' and 'generalized' essence as 'classes' or 'structures' that do not enact actions. Rather, they are defined in terms of three distinct processes: classificational, analytical and symbolic processes. The classificational process enacts relationship with its various participants employing a network of taxonomies. A taxonomy is a hierarchical representation of participants vertically or horizontally without 'context' but 'as objective as possible' (Kress and van Leeuwen, 2006). The two major variations of taxonomies are covert (where participants occupy a symmetrically order in an image) and overt taxonomies (where components appear in hierarchical order). Within the later are single-levelled overt and multiple-levelled overt taxonomies. As single-levelled overt taxonomies, participants occupy a superordinate-to-subordinate one layered hierarchical relationship: and as multiple-levelled overt taxonomies, the participants are involved in a multi-layered superordinate-interordinate-subordinate hierarchical relationship. The analytical process is the second type of conceptual representation. It entails a part-to-whole relationship comprising a carrier (the whole) and possessive attribute (part of the whole). Nevertheless, differences in their realizations provide other seven variations. One of the variations is the exhaustive and inclusive analytical process. The exhaustive structure is described as an assemblage where all the Possessive attributes serve as part-components join together to form the whole which is called Carrier. In contrast is the inclusive structure with some of the Possessive attributes forming a composite within the Carrier; other blank parts are left unaccounted for in relation to the whole. Here the inclusive property is recursive; a spatial representation whereby the Possessive attributes can also stand as carriers. Next is the unstructured analytical process which displays only the Possessive attributes of the Carrier but not the Carrier (implicity suggested). That is, the parts are displayed without the logic of assemblage. It resembles a puzzle where to make sense depends on the parts being fitted from a maze of haphazardness. A third process is the temporal analytical process which overlaps between the narrative and analytical. It is represented by a timeline horizontally or vertically captured and which arranges history into 'successive stages with fixed and stable characteristics—stages which can be treated as though they were things'. The topographical and topological make up the fourth analytical processes. In the topographical, the 'physical spatial relations and the relative location of the Possessive Attributes' are represented within the Carrier. An example is a map where the dimensions are scaled down to represent boundaries and relief features (Possessive Attributes) as they relate to one another in the whole map (Carrier). In the case of the topological processes, it is based on 'adjacency' and 'co-location' in a particular sequence not drawn to scale but with interconnectors or linkages; e.g. the diagram of an electric circuit or that of an engine block—where the Possessive Attributes are the component parts and the Carrier is the whole structure. In the view of Kress and van Leeuwen, topological processes represent accurate 'logical' relations in which participants are connected without the following: the actual size of the participants, the distance between them, or from the boundaries of the Carrier. Within the processes discussed so far, realizations exist which form intermediate or overlapping structures.

One of the analytical structures is the Spatio-temporal type. The example given in Kress and van Leeuwen (2006) is the two-dimensional charts that combine 'exhaustive, compounded, quantitatively abstract and topographical analytical structures' as well as 'timelines'. As we find in a linegraph, it depicts a 'quasi-vectorial' and 'quasi-narrative' structure e.g. temperature, growth, profit charts. This one-dimensional structure changes to a more dynamic entity as the dimensions become solid with background and depth along a horizontal axis. As they suggest, this produces a more dynamic structure. However, they are quick to note that a two-dimensional process cannot be dynamic when arranged on a vertical axis only; it such occurs, the analytical process has only 'discrete' Possessive Attributes that are stable but not dynamic. Thus, a topographical timeline must also be quantitative or drawn to scale.

A second realization is the conjoined and compound structures. According to Kress and van Leeuwen (2006), these structures have 'Possessive attributes that are either connected by a line lacking a feature of directionality, or disengaged by a layout of Possessive Attributes which separates them, yet clearly shows how they fit together'. Their apt example is a three dimensional pie chart that shows a sociometric display of social behaviors (strivers 23%, adapters 13%, achievers 27%, pressured 13%, traditional 14%, unassigned 10%). At this point, they are referred to as conjoined; either imaginary or by visible connectors. In contrast, the compounded structures combine Possessive

Attributes with different identities but are welded together as a unit; e.g., the keyboard, screen, power outlet in a laptop drawing. In the subsequent part, structures can also be dimensional and quantitative.

The dimensional and quantitative structures exist in the topographical sense. On one hand, the dimensional structure comes about when in an analytical process both the Possessive Attributes and Carrier are narrowed to scale as aggregates of the same participants—that is, ‘the physical dimensions of the participants’(100). In contrast, the quantitative structure dwells on the ‘frequency or quantitative’ characteristics of the participants. At this point, the Possessive Attributes accurately represents the quantitative elements of other Possessive Attributes. In multimodal structures, processes overlap and only a complex interpretation of structures can justify any acceptable reading.

For a rounded reading, Kress and van Leeuwen introduce the concepts of modality and composition which underpin the processes and structures discussed so far. In visual communication, it is premised on the degree to which the borders of reality are stretched in the representation of the natural to the idealized world (Kress and van Leeuwen, 2001). It looks at features like colour differentiation (scale from colour spectrum to monochrome), colour modulation (scale from one colour shade to plain), colour saturation (scale from full colour to black and white), representation (scale from abstract to concrete), illumination(contrast of light versus shadow), brightness(scale from maximum degree of brightness to two degrees of black and white or the same colour) and, contextualization and decontextualization (scale from detailed background to abstract background). In terms of composition, it is the way in which the representational and interactive elements of an image are made to relate to one another as an integrated whole. Considered here are information value, salience and framing (Kress and van Leeuwen, 2001). The way elements or participants are arranged to give specific information values (top-down, left-right and centre-margin) along cultural or social accordance is essential in image-text relations. Also important is salience which involves the attention drawing devices of tonal variations, sharpness, size relativity, foregrounding and backgrounding. A third aspect concerns the connectivity and conductivity that separate or join the elements of an image known as framing. So, both modality and composition belong to the practical aspects of multimodality.

In working with visual grammar, the narrative and conceptual processes with transactional and non-transactional pathways form the image-text continuum. Overlapping structures result from this processes which make for tighter integration of image-text interpretations. Finally, tools of modality and composition prove the essentials of social and culture specific reading.

METHODOLOGY

Research Design

The descriptive research approach of this study is premised on the fact that multimodal ‘meanings are made, distributed, received, and interpreted through many representational and communicative modes’ (Jewitt and Kress, 2003). In analysing a multimodal text also, these underpinning modes of argument processes integrated in modality and composition structures (Kress Gunther and Theodore van Leewen, 1996, 2006).

3.2 Data and Analytical Method

Data for the study were sourced from online free access health information archives. A total of four (4) health information materials were used: an info graph on obstetric fistula, a sickle cell anaemia poster, a drug resistant TB poster, a malaria prevention poster and an online World Day Hepatitis poster. Monolingual texts in English were preferred over multilingual texts.

Kress and van Leeuwen’s (2001) visual grammar would be adopted for the identification, classification, interpretation and explanation of the modes used in the corpus. It provides methods of looking that the multimodal text in four major ways. First, the identification of the process as either narrative or conceptual would involve the intrinsic properties of the subsets: that is, the narrative divided into action, reactional, verbal, mental, conversion processes and, geometrical symbolism; then the conceptual, comprising classificational, analytical and symbolic processes. Within the classificational process are the covert, overt two-levelled and multi-levelled processes. Next is the analytical process which would explain unstructured, spatio-temporal, inclusive and exhaustive processes and their accompanying structures of realization identified as dimensional and quantitative, conjoined and compound, and topographical and topological. The third conceptual representation is the symbolic process which consists of symbolic suggestive and symbolic attributive processes. Overarching this multimodal procedure is the elements of modality (colour modulation, differentiation, saturation, depth, illumination, brightness, representation and contextualization) and composition (information value, salience and framing).

ANALYSIS AND DISCUSSION

Narrative Representation

As explained earlier, this process concerns the unfolding of 'events, actions, process of change and transitory spatial arrangements' (Kress and van Leeuwen's (2006) through either of seven pathways. This can be transactional (where either an eyeline contact is made between the actor and goal in unidirectional transitivity or a bidirectional path where a double recursive arrow connects interactors) or non-transactional (usually an element or arrow that stems from the actor but not directed to no other visible participant) through either positive (+) or negative (-) points of interaction called vectors.

In the Malaria poster, the woman's gaze makes the minor process a non-transactional action process, an 'offer' with negative vector (the gaze is not directed to the viewer). She holds out some caplets in her open hand and around her are identifiable objects that suggest a contextualized background. This is evidence of the action process identified as *actor+ circumstance*. But an equally significant process is realized via the verbal process which reads: 'ZERO Malaria starts with me' (though not in speech balloons or quotation marks, its declarative force is a speech act). This personal statement signifies a sayer+ verbiage+ implicit listener. The next is an identifying process that explains the image better: 'A pregnant woman takes malaria preventive therapy'. The transitive verb acts as a tense deixis that point at the action of the woman as evidence of what viewers ought to do in order to fight malaria. This serves as the major process in the photograph where the action process is Actor (Woman)+Process(takes)+ Goal(malaria preventive therapy). It becomes a unidirectional action with a positive vector(+vector) where the raised hand follows an action path of raising the hand, which holds the caplets(object), towards the mouth 'takes' (swallowing the medicine). Other processes are minor.

The poster has a high modality. Evidence of high colour saturation is seen in the integration of eight colour pigments (shade of red, blue, white, pink, green, yellow, brown, ash) which capture and differentiate their real life properties. Three font sizes also serve as markers of emphasis. The largest font foregrounds the word 'ZERO' against the medium font in 'START WITH ME'. This is meant to signal the seriousness for the mission statement of eradicating the health challenge completely. However, the rest of the declarative message is tied to personal responsibility; more of an effort to take advantage of the apparently free administration of the preventive therapy at the health facility. This explains why the exemplification and evidence in the statement 'A pregnant woman takes malaria preventive therapy' is printed in the smallest font but significantly remedied by the major process captured in the photograph.

Modality and composition structures ranking from the highest to lowest scales determine the success of the poster as a communicative channel. In terms of saliency, the image of the woman is centred (occupying a central space in the photograph) while the other items (bench, poster, wall, floor) are polarized (not in the centre). The foregrounding of the woman against a detailed background contextualizes the photograph and gives it a high level of representation. So, attention is drawn to the action of the woman while the backgrounded items give the sense of locative circumstance the health facility and the caption 'NIGERIA'. The absence of framing stresses the level of unity accomplished which depicts the photograph as 'a single unit of information'; mainly an action process. Added to this compositional balance is the spread of the images over the centre and margins of the poster with the foregrounded image as given and the other elements at the background as New. Physical and locative elements in the poster represent it as a cohesive unit of information. Thus, high modality is achieved through these characteristics.

Functionally, the multimodal features present the poster as a slice of real life situation, a contextualized piece that exemplifies what the fight against malaria should entail. Both the major and minor processes serve the intended awareness towards malaria; where the sure preventive strategy is to take medicine sourced at the health facilities. As a poster that targets malaria prevention and eradication in Nigeria, it lays more emphasis on pregnant women (as the exemplification illustrates) since they are among the most vulnerable. Patterned along the argument structure volition (declaration) + exemplification (treatment), the textual message reinforces the action process represented in the image. The message is also given credibility by the World Health Organization and RBM Partnership logos. Another function is that of gesture replacing gaze, seen in the woman's raised hand, which also enacts a vectorial force of a demand on the viewer to look at what she takes. This observation contradicts Kress and van Leeuwen (2006) whose position arises from a highly westernized semiotic premise. In most parts of Africa, the social and cultural semiotics of direct gaze as 'demand' contradicts a gender aligned convention. Here modesty requires a moderate and not a direct gaze. Hence, the projectory of the raised hand replaces a direct gaze as 'demand'. This justifies the notion of language as a narrative system influenced by cultural nuances.

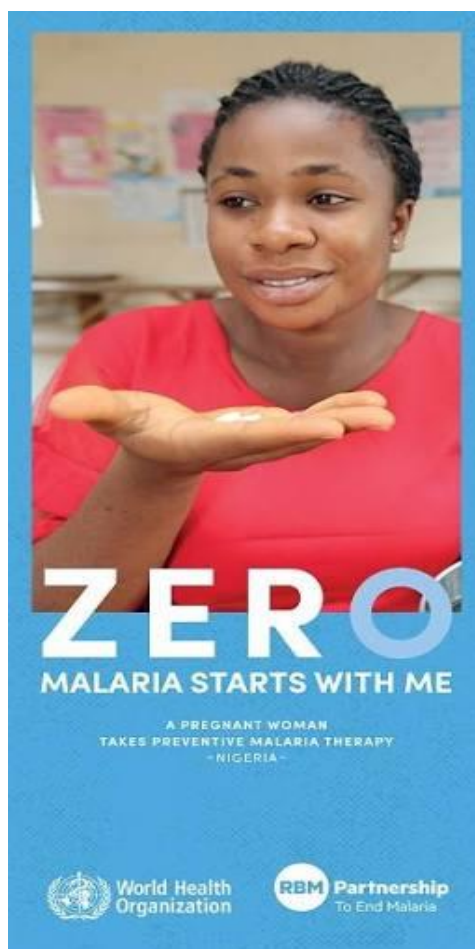


Figure 1: Malaria, World Malaria Day, WHO Infographics, <<<https://www.who.int>>> 9 May 2019

Conceptual Representation

Several processes are realized as structures under the conceptual representation. These processes present images as timeless and portray participants as a more generic, static, and stable essence (Kress and van Leeuwen, 2006). Further integration of these four processes yield three analytical structures. These have been mentioned in the theoretical and analytical framing previously stated. Analytical processes can overlap in several realizations called structures as a result of integration between major and minor processes.

The spatio-temporal structure, for instance, can result from a number of processes; the exhaustive, compounded, quantitative, and topographical. In Figure 2, which is an infographic, the conceptual representation has a number of analytical processes in its structure. According to the vertical and horizontal axis, white-lines split them into six equal squares. But they are not equivalent (unlike in the covert taxonomy, classificational process). The six frames have a low representation because of the level of abstraction, having iconic representations in colours of pink and blue set against an ash background. Frame 1 carries the title 'OBSTETRIC FISTULA' which flows into a smaller font elaboration 'IS THE RESULT OF PROLONGED OBSTRUCTED LABOR THAT LEAVES WOMEN INCONTINENT'. The pink coloured title serves as the graphic (in place of an icon or image) which is elaborated upon by the blue coloured second part, the definition. The next generic essence is found in the way the text explains the icon of healthcare by exposition in Frame 2. This quasi-narrative structure tells of the possibilities of neglect or inaccessibility to healthcare: 'WITHOUT ACCESS TO ADEQUATE HEALTHCARE, A WOMAN CAN LIVE THE REST OF HER LIFE WITH OBF'. The icon of a health facility is reiterated by exposition in the word 'healthcare' revealing a quasi-narrative structure of circumstance (result). Frames 3 and 4 are separated by lines but fused by a large centred icon of pink and brown colours. It forms a topological essence that links frames 2, 3, 4 and 6. Its elements become inclusive Possessive Attributes in the frames. This difficult spatio-temporal structure is further remedied by the verbal text captioned 'Faces of Fistula' as found in an analytical process. Frame 5 falls within the quantitative process whereby a statistical chart reveals an increase in the cases of OBF. With a high level of abstraction, the linegraph adopted employs a diagonal arrowed line that rises vertically to indicated such a rise as captured in quantitative topography of chart and temporal information of the text: '50,000-100,000 NEW CASES EACH YEAR' stand for the Possessive Attributes of the linegraph (carrier) with a larger carrier the frame. In the case of Frame 6, a symbolic suggestive com identifying process is depicted by the image of a pink

fissured heart (Value) and a situation-result clause (Token): 'WOMEN WITH OBF LIVE AS OUTCAST, REJECTED BY THEIR FAMILIES'. By exposition the text describes the new identity of sufferers of OBF as 'outcasts' and the traumatic state as 'rejected'. The textual content draws attention to challenges of maternal and reproductive health. Added to this communicative force is the fragmented representation of the centred image which reiterates the fragmentation of the sufferers with respect to inaccessible healthcare and social stigmatization.

Elements of modality and composition come as attentions drawing devices in the infographic. There are full colour saturation and differentiation in the use of pink, blue, brown, white and ash in representing icons, text, lines and background. This creates the high level of abstraction and decontextualized form of the infographic. In terms of composition, it is strongly framed with white lines and fragments of the centred image acting as connectors; its salience is captured by the centred image that contrasts with the relative sizes of the smaller icons creating sharpness and the use of different sizes and colours of fonts forming contrast; and, the information values is such that the centred image serves as the mediator, while the left and right images on the horizontal plane serve as Given(cause + condition) and New (situation-result) respectively. Viewed vertically, the top frames form the Given (cause or situation) while the bottom is the New (condition or result) with a zero-mediator. The infographic as a whole is the Carrier while the frames are Possessive Attributes. Conversely, the frames are also Carriers with respect to the inclusive elements which are the Possessive Attributes. Certainly, this is not a conversion process (narrative representation) because there exist no transformations but it is recursive. We regard the infographic as a composite because of the quasi-narrative, temporal, topographical, topological, quantitative and inclusive structures it forms. They form the minor processes and structures and build up the argument along a cause-condition-situation-result relationship. It reveals the communicative force of language typology, though arbitrary, as a product of universal application.

The icon of a health facility, an arrowed graph and the shape of a heart presents a woman with OBF as a fragmented personality. And since it pertains to health, evidence of credibility of the information is supplied in the identification of the writer (Tessy Igomu) and the news publisher (Punch Nigeria). Its significance is informative, as found in journalistic reportage, considering the temporal elements of the health message.



Figure 2: Obstetric Fistula, Punch Online, Tessy Igomu, June 1 2020 <<<https://healthwise.punch.ng.com>>>

Other ways where the conceptual representation depicts 'specific ideas of 'temporarity', 'timeless feelings' and abstract essence exist in the multimodal text. Kress and van Leeuwen (2006) identify two forms of symbolic processes, namely: symbolic attributive and symbolic suggestive. In the first variation, the image has two segments or parts; the Carrier and the Symbolic Attribute. The second, symbolic suggestive, has the Carrier as the only participant. It represents 'meaning and identity as coming from within, as deriving from qualities of the Carrier themselves'.

Figure 3 is an example of a symbolic suggestive form. Here, according to Kress and van Leeuwen details are de-emphasized in preference of 'mood' and 'atmosphere', and colour blend or lighting may be applied to suggest 'genericity'. Thus, 'meaning' and 'identity' comes from within to establish the qualities of the Carrier. Both the red ribbon and bold capitalized text 'WORLD SICKLE CELL DAY' form a complex syntagm by exposition. The text goes beyond the symbol in terms of a general essence of existence. Symbolically, the ribbon stands for both genetic and contagious health challenges. It is also the universal symbol of AIDs. A look at the heading reveals a more stylistic twist to the precondition signalled in the message: Is your Love COMPATIBLE? The bold, small and capital font variations anticipate the contradictions of anaemia in love relationships. The rhetorical poise is re-enforced by the two iconic representations of a gentleman and a lady. On the left is the gentleman in blue baseball cap and shoes, black sunglasses, and red socks. His body (head and torso) are represented as fluorescent lamp holder without the tube with spindle-like

hands and legs. The thumbs up action of his establish a 'relationship of identity' not an action process. To the left is the lady portrayed in a spectrum of colours: head (wrapped with red head band) and torso depicted as a lit electric bulb, slender hands and fat limbs tapering into a stiletto. Both are Carriers having 'meaning' and 'identity' emanating from them. They reflect what Lakoff and Turner (1989) call 'image metaphors' which utilizes one mental image from a different source or domain into another. An example is the use of electrical accessories 'fluorescent holder' and 'electric bulb' in the field of electricity to depict a relationship and human condition in healthcare. The glow of love from the lady is represented as a charged bulb--an idea that she radiates love all over her. In contrast is the absent tube on the fluorescent holder which represents lack of that love. In this case, it signifies the emotional intelligence of the gentleman; he is more real than ideal. A hue of contrast is the red sock (passion) balanced by the blue baseball shoes (stability/calm). This contrasts the yellow heart shapes that suggest the inner mental process of intense love on the part of the lady as a Reactor; though, this stands as a minor process which is quasi-symbolic. As it is characteristic of healthcare messages, this poster carries the overriding message: 'Nigeria accounts for the highest number of sickle cell births annually in the world. CHECK YOUR GENOTYPE'. The text also carries the circumstance: locative and temporal. The font types provide the contrast of bold small and capital letters which also serve the purpose of demarcating the argument into separate units. Hence, in the symbolic suggestive form every feature is aligned conceptually.

The high level of modality of the poster is present in the full colour saturation, differentiation, representation, modulation, illumination, depth, and brightness. Against the lilac background which gives way to narrower whitish portion, different colours are used both for the image and text. Red, blue, yellow, brown, black and white. Modulation effectively utilized in the shade of red which are maroon (for text) and ox blood (for the lady's headband and stiletto). The two shades of brown reveal complexion in the man's outstretched hand (dark brown) and the lady's hands and legs (light brown). Also noticeable is the two shades of black which mark out the man's sunglasses and trousers against the lighter black of the shadows the two images cast. This also serves as the scale of light and shade, though minor. Two dimensional symmetries foreground the images in a very bright hue of colour variation against a very decontextualized and abstract background. Symbolically, the lilac background suggests the happiness and tranquillity that answers the textual question and advice captured in the poster. The composition is 'strongly formed' as a unit of information. Contrast in tonal use of colours and 'differences in sharpness' are devices of salience that attract the attention of viewers. Distribution of elements position the man on the left (Given) and the woman on the right (New) of the information value plane. In this poster we confirm how 'conceptual images represent the world in terms of more or less permanent states of affairs or general truths rather than in terms of actions or mental processes'. Therefore, it follows an argument pattern; caution (rhetorical question)—information (sickle cell births)—advice (check status). This indicates the communicative force of the message; that is, public awareness of a prevalent hereditary health condition. Likewise, giving credibility to the health message in the poster is the outfits identified as digital X and Sami whose awareness goal is for the World Sickle Cell Day.

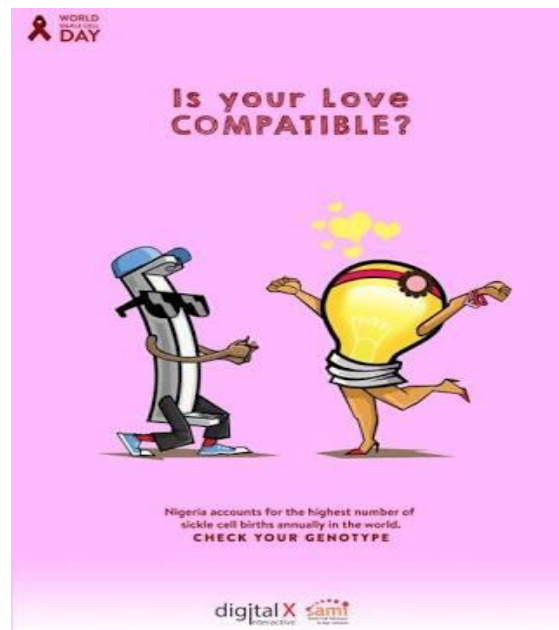


Figure 3: Is Your Love Compatible? World Sickle Cell Day. Digital X and Sami

A third conceptual representation is the classificational process. Variations of this process are covert and overt analytical (single-levelled and multi-level) taxonomies. Here participants are presented 'without context'. They are seen as 'a set of participants distributed symmetrically across the picture space, at equal distance from each other, equal in

size, and oriented towards the vertical and horizontal axes in the same way' (Kress and van Leeuwen, 2006). An example is Figure 4 which is an online poster on Hepatitis. The poster has the characteristics of the covert taxonomies. It has seven borderless frames which contain silhouettes with each comprising minor processes. The frames are arranged to form a classificational process because they which 'conflates' notion of disease transmission (Kress and van Leeuwen, 2006).

The processes are static and impersonal. But within the frames is a symbolic process. For example, the first frame actualizes a symbolic process that displays an ideogram. Through an intensive identifying relational process where the verbal text 'Mother with Newborn' serves as the Possessive Attribute also recoverable in the iconic foetus within the larger icon which form the Carrier. This minor process is symbolic suggestive. The six other frames follow the same process of realization: Possessive Attributes as verbal labels (Token) and Carriers as the ideograms (Value). Modes of transmission, known as token, are identified by the verbal labels 'Sharing Toothbrush', 'Sexual Activity', 'Sharing Food', 'Tattoos', 'Health Care Worker,' and 'Body Piercing'. The Carriers stand as graphic symbols called Value. This justifies Kress and van Leeuwen (2006) who implied that the verbal labels which accompany classificational structures serve as identification markers not reporting markers as found in 'reporting diagrams'. Reference to pictures is Token and the meaning of the picture is Value. Most of the icons within the ideograms form the minor subordinate processes which represent ideas about the disease transmission. An imaginary flow into two bigger symbols complicates the interpretation because they are not part of the frames but have a separate classification and identity. The initial consideration of classification is blurred by the symbol of the hepatitis virus and the liver. In between is what seems like an overt classification taxonomy found in a taxonomy; where the components of the frames, as subordinates, horizontally connect to the two symbols which are the superordinates. It has been demonstrated that classificational diagrams can be rotated through ninety degrees such that they flow along a 'horizontal axis' (Kress and van Leeuwen, 2006). This mode of representation can do for other classificational structures. The frames serve as Possessive Attributes (like an assemblage) of the poster which is the Carrier. However, this contradicts the vertical hierarchy found in Kress and van Leeuwen's (2006) tree-structure-ranking of superordinate and subordinates. The layout of the superordinate items (healthwatch, hepatitis, liver), which should be above the frame, occupies the right side. A classificational relationship exists within the healthwatch (head agency logo), symbol (hepatitis) and liver (map). Contained in the heading is an identifying process where the image of the eye is identified by the text 'HEALTHWATCH'. Circumstance is also retrievable by the locative in the text 'NIGERIA' which is the temporal attributive. Another process is represented in the symbol of hepatitis: found in the way the text 'hepatitis' identifies the symbol by reiteration. In this case, the text identifies the image by restating what the latter is from a possibility of choices. The symbol of hepatitis is a process which can be confused for an inclusive analytical process having the white dots and thread as Possessive Attributes of the hepatitis virus which stands for the Carrier. But this is not analytical but a symbolic representation of the components within the bigger structure of the virus—though the components are the Possessive Attributes of the Virus. Similarly, the white graphic world map superimposed on a red liver presents a complex reading. It is represented as a topological map scaled down along an adjacent co-locative pattern. Its analytical structure is seen in the global map which depicts the Possessive Attributes of the liver (the Carrier). The map is within the liver as suggested by the inclusive analytical process and the carrier is symbolic of the disease of the liver 'hepatitis'. However, it gives room for interpretation: that is, hepatitis affects a global population. Hence, it forms a discrete representational process which overlaps between the inclusive analytical and the symbolic suggestive. The three major images (eye, virus and liver) attain a visual communicative value that can be read this way: 'HealthWatch observes the global spread of hepatitis, the disease of the liver'.

Several levels of modality are represented in the poster. The frames have low modality since they are captured in black against a neutral white background. Nonetheless, the heading 'HOW IS HEPATITIS TRANSMITTED?' Depicted in red, the health agency logo is in green and the graphic liver is in red (interspersed by the white background). The colour variation serves as attention drawing devices in terms of subject matter, effects and spread of disease, and sponsors of message. The absence of details and use of one-dimensional images gives the poster a decontextualized form but this is remedied by the compositional value of the images. The relative sizes of the frames as against the bigger images spaced from centre to margin makes the information exclusive. The ideograms in the borderless frames on the left are taken as given while the bigger images on the left are considered as New. Functionally, also, the information layout adopts a convoluted argument pattern of disease transmission—information source—disease identification—pandemic spread. Explicitly, disease transmission becomes the given and the rest serve as New. Likewise, the imaginary lines that separate the frames prove the 'individuality' and 'differentiation' of the modes of transmission and other embedded processes(). The logo of the sponsors of the health poster gives credibility to the message; the embedded ideograms reveal modes of transmission as the liver and map image specify the type of organ affected and the global spread of the disease. These text and image processes answer the question prompted by the heading 'HOW IS HEPATITIS TRANSMITTED?' Its communicative relevance is to raise public health awareness on the transmission of hepatitis as a highly infectious disease globally.

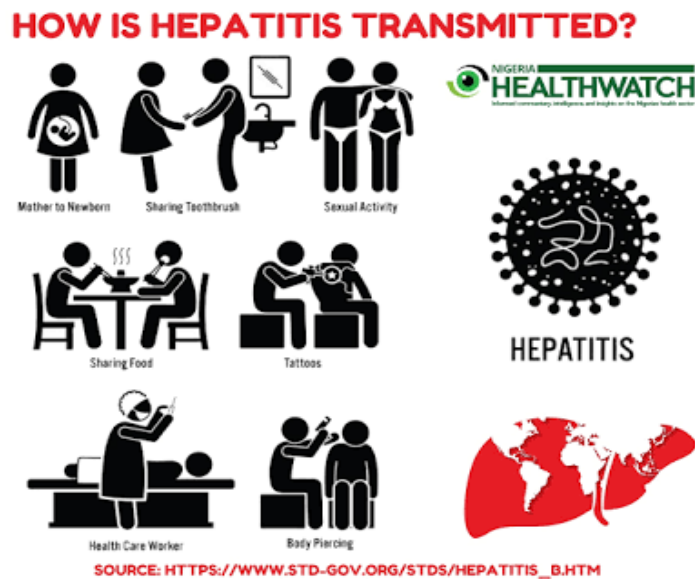


Figure 4: How is hepatitis transmitted? Nigeria HealthWatch <<https://www.STD_Gov.ORG/STDS/HEPATITIS-B:HFM medium.com, July 31, 2019

Information Flow Pattern

Of the four posters analysed, the narrative and conceptual representations occurred as major and minor processes. Their convergence as syntagm serves the communicative intentions of the posters as healthcare messages. Both image and text combine to form levels of meaning.

For example, the narrative representation in the poster on malaria functions mainly as a unidirectional action and circumstance processes emphasized by the action-goal (Woman taking preventive therapy) and the locative (health facilities) patterns respectively. Colour variation and graphological style (capital and small fonts) of backgrounded and foregrounded elements form an action-setting synthesis. Thus, the conspicuous saturation and contrast of colours as well as framing and salience underpins the high modality scale and compositional value of the poster. Nonetheless, the analysis differs on the ‘offer’ or ‘demand’ gaze perspective. In line with African cultural semiotics, it is lack of modesty especially among the female gender to look straight into another’s gaze. Here, the hand gesture displaces the sideways glance (offer) and transforms the action to ‘demand’. Image and text coherence form an argument pattern identified as volition—exemplification in the malaria poster. Consequently, it makes the message more personal. Its purpose is also to spread awareness towards eradication (*Zero malaria starts with me*) of and prevention (*A pregnant woman takes preventive malaria therapy*) of the disease. Moreso, its use of photograph gives a more realistic approach to the message which allows easy interpretation on the part of the viewer. Representations could likewise be conceptual as seen in the other four posters.

An instance is the infographic poster on Fistula which has a spatio-temporal structure realized through a number of processes: classificational process via covert taxonomy (major), quasi-narrative process of circumstance (minor), analytical process through the quantitative and symbolic structures (minor). Each of the frames is embedded with a different process concretized by verbal descriptions that accompany them. The placement of the bordered frames on the poster depicts covert taxonomy, individual frames carry processes of circumstance (place and temporal markers found in the cause, condition and situation of disease) and the symbolic (seen in the result). This gives the poster its informative characteristic of a cause—condition—situation—result pattern. Its significance is tied to maternal and reproductive health awareness. Its high modality and composition is hinged on the colour variations that mark off the ideograms from the text for easy identification just as the verbal text is capitalized for strong informative emphasis. This point is also demonstrated in the subordination of the image to the text. However, its abstract appeal takes the form of an infographic meant for more to an educated and academic audience.

Another conceptual illustration is the poster on Anaemia, realized through a symbolic suggestive process (major) and circumstance (minor), its argument follows a caution—information—advice pattern. Its communicative value concerns public awareness of hereditary health conditions. The symbolic is captured in the icons that are made lucid by the rhetorical question (*Is your love COMPATIBLE?*). Capitalization of fonts and manipulation of colours in different shade provide the needed contrast that make the work a high modality symbolic suggestive process; though it is highly abstract and makes interpretation burdensome to the unschooled viewer.

Yet another conceptual example is realized through different processes: classificational (major), symbolic suggestive (minor) and inclusive analytical (minor) processes. The covert and overt taxonomies are in the form of ideograms or silhouette of equal size spaced symmetrically at equal distance; though they occupy borderless frames. Turned over, on a horizontal plane, they give an overt hierarchy of ranking (of superordinates and subordinates). The symbolic suggestive process is found in the ideographic Carrier (Hepatitis virus) while the inclusive analytical process is depicted in the global map embedded in the liver. As the major process displays the modes of transmission of the disease, the minor processes reveal the cause and global spread of the disease as well as affected organ. Hence, the argument process that results is transmission mode—virus identification—disease spread. In other words, the poster informs the public on the mode of transmission and spread of hepatitis in the world. Albeit the low modality found in the black and white colour scale of the ideograms, the high modality of the heading and global map provides the needed balance. Capitalization is used in the heading and logo as attention drawing device too. Although the poster is loaded with ideograms, they form easy- to-read meaning making units constrained by the verbal text.

Parts of the semiotic resources employed in the posters are the logos of the sponsors. The dissemination and discussion of health messages is the exclusive role of only health professionals. So the issue of credibility becomes essential. Sponsors, therefore, give credibility to the messages captured in the posters.

CONCLUSION

The discussion on the four selected online posters emphasizes the relevance of structure as a communicative potential in multimodal healthcare messages. An effective meaning potential is a result of apt use of semiotic modes in the posters. The effectiveness of multimodal features contribute to meaning-making varies. So also, cultural semiotics affects the interpretation of a text. Image and text cohere to form major and minor processes embedded in narrative and conceptual representations which in turn perform persuasive and informative functions. Consequently, health posters can be classified in terms of several expository features: awareness about prevention, treatment, transmission, symptoms, cause, spread and hereditary-condition. Combination of processes makes reading more complex as the syntagm between varied images and textual elements become convoluted in form; thus, deciphering becomes an academic task. However, they can serve as specialized text or information materials. This study equally concludes that properties of modality and composition occupy the attention-drawing aspect of the multimodal text where message effectiveness is pertinent to viewer's impression and understanding.

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