NIGER DELTA UNIVERSITY
WILBERFORCE ISLAND, BAYELSA STATE.

50th Inaugural Lecture

BUT FOR GRAPHICS, NO SUSTAINABLE DEVELOPMENT

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Motto

Creativity, Excellence, Service

Vision

To be a centre of excellence defined by well articulated programme that will produce creative and innovative minds

Mission

To strive to maintain an international reputation for high quality scholarship, research and academic excellence for the promotion of thesocio-cultural and economic well-being of mankind

NIGER DELTA UNIVERSITY ANTHEM (THE BRIGHTEST STAR)

Like the brightest star we are, to lead the way
To good education that is all our due,
The dream of our fathers like the seed has grown;
Niger Delta University if here to stay.

Let us build on this noble foundation
And with love, let our dedication increase,
To rise and uphold this noble vision
Ev'ry passing moment let our zeal never decrease.

In all that we do, let us bring to mind
Our duty as staff and students of N.D.U
Ev'rywhere to promote peace towards mankind.
Creativity, Excellence and Service

CHORUS
Rejoice, great people old and new, rejoice
For the good fruit through us is shown;
Be glad in our worthy contribution
To the growth of humanity (x2)

Dedication

This inaugural lecture is dedicated to my supervisor, Ejembi, Edward Agbo, (Ph.D.); who is now in Elysium.

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The Vice-Chancellor
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Members of the Press
Ladies and Gentlemen

Introduction

Cruciality of Graphic Media for Sustainable Development

Today, every country across the universe embarks on human development initiatives to develop, and succeed. For these initiatives to achieve their desired aim, communication campaigns are often launched. These campaigns, usually employ graphic media - language, design, and communication for advocacy and sensitization to educate, persuade, and mobilize target audience for support. This can easily be observed in the production/utilization of Information, Education, and Communication (IEC) materials such as billboards, posters, pamphlets, stickers, and radio/television idents, among others. Examples include, the Masagana '99,onagriculture in the Philippines; the Oral Rehydration Therapy, on health in Egypt; and the 6-3-3-4 policy, one ducationin Nigeria, to mention a few.

These communication campaigns, usually aim at getting target audience ready to support, adopt and adapt development ideas for progress. Readiness is an impellent for adoption and adaptation of ideas to existing local conditions that engenders sustainable development. This is exemplified in China, Singapore, and Japan, to mention a few. For instance, Japan was transformed from a poor, primitive, and

developing nation into a wealthy, industrialized, and developed one through readiness of its citizenry to positively appropriate development ideas (Philips, 2009). The situation in Japan, a heterogeneous nation, is comparable to most developing nations, such as Nigeria; where the consequences of corruption: poverty, unemployment, youth restiveness, and insecurity, etcetera, militate against sustainable development.

Were most leaders in Nigeria sincere about sustainable progress, they would have launched communication campaigns to get the minds of the populace ready to adopt and adapt development ideas endogenously as in Japan. Solutions that researchers, including me, have proffered toward effective graphic communication would have been appropriated to surmount most of the development challenges that seem to have overwhelmed us The production/utilization of effective graphic media for development initiative usually produces salutary effect. An example, is the "Make we talk" campaign, which was carried out by the Society of Family Health (SFH) in Nigeria, whereby the receivers rapidly adopted development ideas that resulted in a desired lifestyle (SFH Corporate Presentation, 2006).

The potentialities of graphic language for sensitization and advocacy, are anchored on its feature -coalesce of iconic (pictorial) and digital (typographic or verbal) signs and symbols. This integration of pictures and words to share messages is superior to using either pictures or words alone - "Picture Superiority Effect" (Lidwel et al., 2003). The combination of pictures and words to express development ideas promote accessibility that facilitates accurate perception, correct grasp, creates awareness, attracts attention, arouses interest, fosters memory, catalyzes recall, elicits response, and spurs proselytization. So, graphics is a vitalful crum for progress that sustains human development in equilibrium.

The above assertion seems cursorily hyperbolic but scrupulously true. For a moment, imagine what the world would have become today, had there not been graphic language, design and communication that share messages to inform, identify and promote goods and services. Imagine a world, where there are no labels and logos, no books and record covers, no sign posts on roads, businesses and institutions; and no billboards, posters, pamphlets, banners on events, products, and ideas as well as no still/animated cartoons on newspapers, magazines, television, phones and computers to educate, persuade, and entertain. Surely, it

would have been a herculean task to inform, identify and promote products, navigate our ways through vast oceans, sophisticated network of roads, streets, towns and cities; and distinguish between deadly and healthy substances displayed on shelves. Also, it would have been laborious to operate, assemble, and utilize domestic/industrial materials, tools and equipment. Certainly, the world would have been suicidally anchored on uncertainties and ruinations, bereft of development but for graphics.

Equally indispensable, is the production of graphic media because the way it is produced, affects its form, content attributes and perception. The media is a crucial variable in the course of communication, which has five basics: source, message, channel, receiver and feedback, sequenced in query format "Who, says what, in what channel, to whom, with what effect?" (Ebigbagha, 2020a, p. 96; citing Lasswell, 1948). The channel is where hindrances could occur that truncate and distort messages with unpleasant consequences. Thus, it is vital to create impediment/noise-free graphic media for messages to be received as purported (Shannon & Weaver, 1949;Watt, 1979; Baran, 2009).

The production of effective graphic media requires collaboration of the Sender, media team that includes the

graphic encoder, and receivers. This minimizes the often insufficient time available for the graphic encoder to adequately grasp development issues and themes at stake as well as address design tasks because of the urgency associated with campaign situations in developing countries. This is due to the need to advance the standards of living to meet up with universal levels.

Also, the collaboration is vital for effective graphic media production because it bridges the communication gaps from prevalence ignorance of the points at which the graphic encoder's involvement decisively result in satisfactory outcomes. Examples include, the production process of the ORT campaign in Egypt (World Health Organization, 1987), as well as the Make we talk campaign in Nigeria (Ebigbagha, 2012a).Conversely, inadequate collaboration often creates communication gap that results in reckless resolution and unimpressive graphic media with unpleasant consequences. This is exemplified by the Dress Code campaign in Ahmadu Bello University, Zaria that led to crisis and closure of the institution on 18 March 2006; and the Use Condom Campaign, in Nigeria, whereby target audience rejected the Female Condom for inaccessibility (Ebigbagha, 2010; 2012b).

Therefore, the production/utilization ofgraphic language, design, and communicationthat is accessible to every target

audiencefor development is fundamental. For this reason,I have devoted the past 19years as an academic, gleaned from 32years of my career as a practicing artist, illustrator and graphic designer to ruminate on issues, resolve challenges and provide insights to problem-solving in art/design.As a result, this inaugural lecture, hereby legally, *de jure*, indicates what I have been professing in reality, *de facto,* through the years as a scholar. It focuses on the production/utilization of accessible graphic language, designing accessible graphic media and production/utilization of accessible graphic communication for sustainable development.

Production/Utilization of Accessible Graphic Language for Sustainable Development

Universally, language is a vehicle to share ideas at personal and non-personal levels. Its role as a means for entertainment, information, and persuasion of receivers to participate in development programmes is crucial to existence and growth of individuals and societies. However, language (body, sign, spoken, written, verbal, and pictorial, to mention a few), is a broad expression of the use of codes, signs, signals or sound to convey and share messages. This is structured for communication differently from one field of study and another. For example, while the linguistic scientist organizes language in terms of spoken and written, the graphic designer configures it in terms of verbal and pictorial (Ejembi, 1989). This distinction is salient for a basic understanding of graphic language as a mode messages appear for communication.

Nevertheless, there is wide spread creation and utilization of ineffectual graphic language in communication to foster human progress, particularly in Nigeria, and generally in Africa that often result in failure of communication and development programmes. This has become worrisome and occasioned seminars with the hope of finding a solution. Examples include, Central Disease Control on Avian Influenza, Bauchi, August 2008; and Mid World International Conference on Global Review on Avian Influenza 'Way Forward" Abuja, November 2008 (Ebigbagha, 2010, 2016a). In addition, many researchers and organizations have attempted to resolve the problem of producing/utilizing ineffective graphic language for development purpose, these include Neurath, Cook, Freire, Zimmerman and Perkin; UNESCO, and UNICEF, among others.

The configuration of effective graphic language is complex and incongruous. It involves the processes of general/graphic communication, perception, creativity, problem-solving, form-generation, and media production, to mention a few. The graphic encoder's participation in these processes often provide insights that guide his/her thoughts, give clarifications and shed light on generating accessible graphic language to communicate with intended receivers. Therefore, in considering the creation of accessible graphic language, the conditions of intended receivers and difficulty

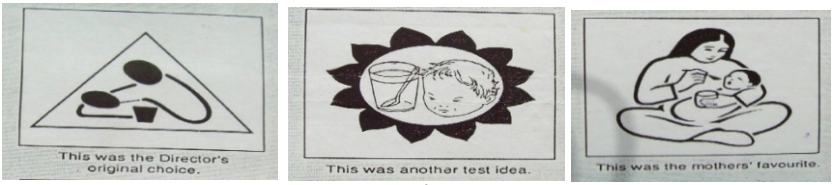
confronted in communication using standard lingo or simplified language of graphics to communicate with intended audience for the purpose of human development would be scrutinized.

Creation of Accessible Graphic Language for Development

An accurate perception and understanding of graphic language by target audience is paramount for successful development communication. To this end, it is key to consider the stimulus and target audience conditions. The appearance of the graphic and typographic elements (size, intensity, colour, contrast, etcetera), constitutes the stimulus and the socio-cultural environment, knowledge, aptitude and practices are the target audience conditions (Aaker & Myers, 1982). So, when the stimulus conditions are configured to afford target audience situations, accessible graphic media is produced. A typical example is in the development of the ORT Campaign logo in Egypt (Ebigbagha, 2021a).

The first Director of the ORT campaign was to choose an official emblem for the project. After critically observing many of the symbols delivered by various artists and designers, an arbitrary or abstract and stylized design with few lines that slightly suggest a mommy administering the ORT solution to her kid was most preferred by him. This style of appearance in design is the predominant characteristic of

alien standard graphic language, which usually interests a more visually literate individual that could grasp and deduce meaning from them. Obviously, the most preferred option was to be implemented but the Director restrained himself and tested all logos with sample of the intended audience - mothers (see Figure 1a, b, cum c).



a b c

Figure 1a, b, cum c: Showing the ORT campaign emblem pretest (Culled from WHO, 1987).

The result of the pretest with the mothers showed that the most preferred symbol of the Director was the least desired by the intended receivers. Their choice was a realistic, simplified style of graphic language that lucidly depicted the appearance of a mom, who is actively administering the ORT treatment to her kid. The spoon, cup, clothing, mother and kid are properly depicted in a way the mothers are used to. In addition, revision on colour modification and inclusion of a ring, on the finger of the woman figured in the emblem were made.

Nonetheless, the symbol chosen by the pretested sample was employed for the project. The knowledge created an indelible

impression on the Director, which here counted again and again to reiterate the necessity for media draft to be pretested with sample of the intended audience to occasion effective communication for human development.

Contrarily, if the director had implemented the symbol he preferred most for the project by neglecting the intervention of the targeted receivers in the course of the media production through pre-test, the logo would have lost the fundamental enhancements it received. The wedding ring included on the phalanges of the mother figure in the emblem is vital and enlightening. It emphasizes the basic influence of the social cum cultural environment on explanation as well as approval of graphic communication in development.

Shrewdly, the above infers that maternity is a phenomenon of legalized wedding signified by an adornment with a ring. Furthermore, it reveals that important idea could be absent in a media draft at its preparatory stage, which could be identified and added in the course of pre-test with sample of the intended receivers. The oversights, if not revised could negatively impact on receivers' reactions. This demonstrates the necessity for pretesting graphic media with intended audience as a basis for informed decision-making for accessible graphic language because the conditions of target audience are discovered at this stage.

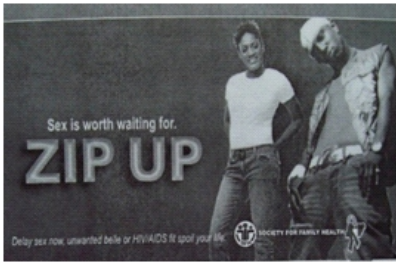
Another key to produce accessible graphic language is to integrate the encoder of the graphic message in the entire media production procedures; which indicates the real participation of the encoder during the course of formulating the graphic media. It begins with the Media requesting agency, Clarification of the aim and target audience of the media requesting agency/source, Topic-study, Media draft, Pretest, Revision, Production, Final production, Distribution, and ends with Evaluation (Bowers, 1973).

However, collaboration of the Source and the media team (subject specialists, including the encoder, assigned to change development notions into efficacious graphic media), and the target audience is essential to create stimulus conditions that effectively achieve the Sender's aim of communication and intended receivers need for information. Ebigbagha (2012a), affirms that this often produces salutary effect as exemplified by the graphic media for campaign on the need for sexual deferral(see figure 2a, b, c, and d).

a

b

c



d

Figure 2 (a, and b): Billboards in Hausa, cum English/Pidgin versions for North, and South correspondingly; (c and d): TVspots in Hausa, and English/Pidgin versions for North and South respectively, by the SFH (Culled from Ebigbagha, 2016a).

In 2004, the campaign, 'Make we talk', phrased 'Zip Up', was inaugurated; premised on necessity to curtail the increasing degree of mortality ensuing from AIDS, venereal infections, and teen pregnancy. In addition, it was the general target to inspire deferral of sexual debut until prepared. The initiative: Promoting Sexual and Reproductive Health for HIV/AIDS Reduction, PSRHH. The British Department for International Development (DFID) and United States Agency for International Development, (USAID) sponsored the initiative.

The collaboration in the course of the graphic media development was proper as all stakeholders and the graphic encoder was embedded entirely. It acquainted the LTC-JWT Advertising Limited that encoded the graphic language with needed information about the aim and intended receiver information need, which are lucidly written in the creative

brief manual. This enabled the encoder to create media drafts that are accessible to receivers based on pre-test with sample of the receivers. The result was pleasant; conditions of the intended audience, aptitude and common lingos in north/south was effectively depicted. The billboard posters and television spots combined trendiness/decency without obscenity.

The campaign, characterized by the participation of all stakeholders in the course of the media development was an immense triumph. The slogan 'Zip Up' -'let us delay sex for now' became a popular response among youths as a formidable gambit to protect themselves and delay conjugation (SFH, Corporate Presentation, 2006).

Conditions of Target Audience Affecting Graphic Language

Illiteracy, cross-cultural delineations, and encoding uncertainties are key factors affecting the creation of accessible graphic language for development communication. The satisfactory examination of the level, magnitudes and inferences of these are vital to encode information of development ideas into accessible graphic language. The high level of illiteracy in developing world, makes it imperative to adapt thoughts for progress into easily grasped graphic language. This is crucial in developing

regions, where unawareness, misconception, and illiteracy prevail and are worsened by dearth of teaching to think scientifically, and perceive visually (Ejembi, 1989).

While, the level of literacy in most developing nations has ascended beyond 20% in1970 to 70% today, many African nations' literacy levels do not exceed 50%. So, much work still need to be done although there is improved access to education, it is not matched with improved quality that would have developed the much needed capacities on critical and creative thinking, networking, information, communication, computer, and media in order to meet 21st century demands(Tasamba, 2019; Shiunde, 2018; UNDPHuman Development Report, 2016; UNESCO Fact sheet No. 45, September, 2017). This is a major reason for many target audiences still having challenge to grasp graphic communication in developing nations.

In addition, to combine appropriate images and words for intended audience, whose skills to perceive visuals are uncertain is relatively difficult(Zimmerman and Perkin 1982). Consequently, it is necessitating to assess the value cum efficacy of graphic language contextually by ascertaining the dissimilarity among components, configurations and roles of verbal and pictorial signs as well asin what way these affect the sharing of messages in a

particular socio-cultural environment. Furthermore, it is vital to understand the environment where the graphic messages would be used, and the instructional incidents, which constitutes sharing messages for the purpose of development. It is necessary to circumvent the wide spread flop of communication resulting from certain parts of graphic messages handled with flippancy because they are recognized traditions in the Western society (Ejembi, 1989). This is epitomized by the ORT Campaign, already mentioned (see pp.3-4).

However, nations, organizations and researchers as in Nigeria basic 6,3,3,4 education policy, UNESCO functional literacy through skill acquisition, and Freire's functional literacy through conscientization, respectively, are few examples of endeavors aimed at minimization of illiteracy at primary, expertise, developed, or usable categories. Despite the fact that Elementary literacy aids the non-literate with acceptable reading, calculation and writing abilities, solving problem and thinking critically are furnished by functional literacy. This delivers abilities to inadequately employed workforce through discipline, coordinated gathering and enlightening to be more effective and valuable as an individual and the community (Ebigbagha, 2021a, citing Ejembi, 1989, making reference to Freire, 1970).

Functional literacy takes on two tactics, which have great clues to utilizing iconic lingo to communicate for development. The first is Extension tactic that UNESCO employed, in this strategy, a develop source teaches skills to intended receivers in consideration of the socio-cultural situation with foreign ideas using hierarchical strategy of communication. Second, the approach used by Paulo Freire, the principle of 'Conscientization' employed graphic language to motivate receivers to examine their bastardized state of affairs, to make efforts for its alteration. This embraces the development concept of Multiplicity, whereby ideas emanate from among the receivers and bottom-upstrategies of communication where all stakeholders in the course of development are actively involved.

From the above, visual literacy and perception studies, are two areas, where indispensable information has been generated to definitively use the combination of words and pictures to promote human development initiatives. Pictorial literacy deals with competence of understanding as well as deducing meanings from iconic signs, whereas perception, is concerned about ability to distinguish, choose, arrange, as well as make sense of ideas depicted in visual form. There are two explanations for awareness of visual materials, these are: (i) sharing messages with pictures is best with non-literate audience in multicultural situation; and (ii) sharing messages

with pictures is salient for showing and clarifying intricate concepts, which are problematic to convey using words only – a corroboration of the maxim that a picture exceeds the worth of a thousand words. Nevertheless, words and pictures are of little use to target audience who are unable to access them. For this reason, making graphics accessible to everyone, is the thrust of this presentation.

The Cross-Cultural Factor.

Efforts to share development messages happen in a socio-cultural milieu that consists of diverse proficiency, behavior, aptitudes, dialects, and backgrounds that support distinction, creation, and understanding of language in alike manner. Hence, when messages intended for a specific society is used in a different one, difficulties in comprehension are sure to occur. Likewise, the difficult of understanding visual portrayal exist when diverse cultures, as in Nigeria, communicate in English. This preponderance of lingoes spoken through cultural frontiers, makes it problematic for homogeneous understanding of messages expressed in a certain graphic language. So, making IEC materials using Western traditions to mobilize, instruct and educate non-western intended receivers without appropriate assessment is inadequate. This is worsened by the haste, which usually follows campaigns for development and explains the high proportion of failure experienced in visual communication.

Moreover, the objective as well as subjective features of pictorial components in multi-cultural setting is an aspect that poses a formidable task. The connotations given to words in various languages are usually obvious, while that offered to iconic signs, frequently convey implied interpretations, which are diverse among cultures. Ebigbagha, (2021a), citing Ejembi (1989),succinctly elucidated this in (Figure 3).

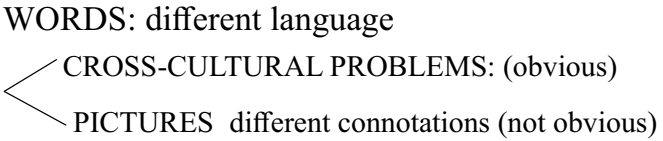


Figure 3: Depicting obvious and non-obvious features of graphic language components in a cross-cultural setting (Culled from Ejembi, 1989, p.108).

Thus, diverse cultures generate varied pictorial images and recognize pictorial languages in a different way. For example, earlier Egyptian illustrations are confronted with the challenge of understanding depth cues coming after western conventions. Obviously, insights on pictorial representations are influenced by knowledge and experience. So, examination of the understanding, skills, and practices of the intended receivers is vital for accessible pictorial stimuli.

In addition, the appearance of the graphic language affects the reaction produced in a particular socio-cultural setting. This consists of the way and manner the elements of design are organized into a whole; which is largely determined by

the degree of collaboration of stakeholders the sender allows in the media production process that often result in standard or simplified graphic language. Standard graphic language could be imported for sharing messages without necessary and sufficient participation of the target audience; as in the Modernization/Dependency concepts about development, whereby the Sender entirely leads the media production process (see pp.11-13 as in the Use Condom campaign).

Conversely, the source could collaborate with all stakeholders in the development process to produce graphic media, instead of sole reliance on experts; as is obtained in Multiplicity concept of progress. In this paradigm, the Source employs a two-way approach of communication that fosters the participation of receivers, which usually enable the creation of appropriately simplified graphic language.

Therefore, achieving anticipated reaction from receivers requires the creation of graphic media, which is in consonance with the conditions of the receivers. So, pictorial images ought to be structured in representational manner that possesses likeness to what it describes as in illustrations/ photographs. It ought to portray common topics and symbols that are simply described with essential details. This affords analogous pictorial configuration, whereby an outline broadly describes the surface of an object that allows

identification as in silhouette of an object/person. Besides, the background of pictorial images has to sufficiently contrast with object\figure on it and photographs need be employed where drawings are inappropriate. Moreover, pictorial and typographical elements ought to be balanced and sequence of pictures need be organized in chronological order. Conversely, graphic language ought not to be formed in abstract style, whereby no sameness to the object described as in non-objectiveillustration but charts, graphs, or maps could be used expediently. As a final point, graphic media draft ought to be pretested, so that intended receivers are involved in the shaping of its content, appearance and sequencing. Also, the distribution of graphic media through the nation, must consider the diverse understanding of pictorial expressions across cultural borders (Ebigbagha, 2021a; citing Cook, 1981;Zimmerman and Perkin, 1982).

The above are valuable heuristics but not laws to organize the elements and shape the appearance of pictorial arrangement to realize wanted feedback from intended audience for persuasive/informative purposes. In generating the feature of accessible graphic media, the graphic design specialist (trained in graphic design) need utilize his/her skills and knowledge of form-generation principles and theories to resolve communication challenges and generate accessible graphic language. This often occurs when the graphic

encoder is entirely entrenched in the course of the media development, whereby he/she is placed for efficacious mediation of the Sender's notions as well as the receivers' info desires. This minimizes uncertainties, which is inevitable during the course of encoding notions about development into graphic language that fundamentally affects the way and manner target audience respond.

Uncertainties in Encoding Graphic Language

There are numerous types of uncertainty that can be identified, in using graphic communication to convey development messages to the receiver but we are going to consider five of these: technical, semantic, syntactic, arousal/ aesthetic response. Firstly, technical uncertainty, is a problem concerning the message sent. This problem is usually reflected in, (a) The receiver's error rate, which is his/her misreading; and (b) the decoding time that is his/her reading speed(Shannon & Weaver, 1949).

Secondly, the uncertainty of semantic, is a difficulty about the meaning of the graphic language sent. The code was accepted almost as much as it was conveyed, nevertheless, the problem is that of decoding; matching the symbols with some referent system (Shannon & Weaver, 1949). This highlights two crucial elements: (a) Connotative similarity or congruence, which the graphic encoder should be concerned about

because the content and handling of the graphic messages itself oftentimes suggests certain meanings or understandings; and (b) The graphic encoder's choices in the course of transforming information about development into graphic signs and codes could impact on meanings in one of the following ways: (i), Provide a reinforcement of these connotations. (ii), Provide new and independent connotations. (iii), Provide neutral or at least minimal connotations; and (iv), Provide conflicting connotations, which seem a poor encoding choice but might be selected to provide counter-point in order to heighten some desired effect. However, a direct conflict usually would be expected to produce confusion and would most likely dilute the original connotation of the content and treatment.

Thirdly, syntactic uncertainty, is a problem that arises in intricate messages, which allow more than one interpretation order. It is uncertainty about organization of symbols. For instance, it involves questions such as, “what do I look for first?” What is most important? If I am skimming, what can I skip? In general, how do I get from the beginning to the ending? Print is a linear code. Following Western culture, as is the case in Nigeria, one usually starts at the upper left, scan across, then drop a line, and so on. However, in any multifaceted arrangement, one can employ typography to lead the way, emphasize and organize the way to make sense of the graphic message.

Fourthly, arousal/aesthetic reaction indecision, is another difficulty. Excitement could be stirred by configurations, which are novel, intricate, contradictory, and multicolored as well as concentrated (Ebigbagha, 2011 citing Watt, 1979). However, moderate rates of arousal in turn, can be linked to satisfying occurrences, which may be at the heart of the beautiful reaction 'I like it.' Typically, the aesthetic response is thought to be a task of connotations, that is, enjoyable links from previous experiences and perhaps congruence – a particularly appropriate organization of elements; and

Fifthly, response uncertainty, which is about what could be the appropriate response. Given the knowledge of what was sent, what it meant, how to decode it, and our immediate pleasure or displeasure in it, then what is the proper reaction? In a sense, the question is at the borders of the course of interpreting and tends to be not as much of in discretion of the person's emotional state and socio-cultural milieu. However, via meta-communication, the source can tell the receiver just how to understand the information, and by implication, the way to react. Also, a message may comprise obvious instructions. For example, 'turn to page 32', 'tick the appropriate box', and 'write surname in capital letters', and so on. In a more delicate perception, a magazine could utilize precise typographic usage for a t particular feature, to lure target audience to 'turn in' to it next time`. Also, an advertiser

may invest great meaning in a logo, so that the reader will 'turn in' at the sign of it.

The issues discussed requires necessary and sufficient collaboration in the media development process. This will have the salutary effect of helping media team members to make informed choices/decisions about those areas of uncertainty that are bound to arise when encoding graphic messages in any development communication campaign. Also, it would foster satisfactory resolution of the issues that pertain illiteracy, and multicultural factors on sharing prime messages and supporting information with target audience about development programmes. This brings us to the challenges in the production/utilization of graphic language employed to communicate messages for development.

Challenges in the Generation/Utilization of Graphic Language

There are many challenges in the production/utilization of graphic language in development communication. These include Source's development paradigm, decision-making to utilize standard lingo or simplified dialect of graphic communication to share messages with intended receivers, and pretest with target audience, among others. These have already been mentioned in discussing cross-cultural factors (see p.18). Here, focus would be on how the Source's lead of the entire production process (as in the development

paradigm of Modernization and Dependency that use hierarchical, one-way communication practice),impact on graphic messages.

The Source's Development Paradigm

The development paradigm of Modernization/Dependency, which use hierarchical, one-way communication practice, afford lead of the entire process of developing the media by the Sender. This affects the graphic encoder, message and reaction of the intended receiver in the following ways:

(i), It usually weakens the graphic encoder's functions that include (a), to provide shape to subject matter by arranging information to be visually appealing, accessible and communicate ideas effectively. (b), to participate in the process of policymaking by deliberating suggestion with the Sender that are usually amended at some stages sequel to the final reproduction of media draft. (c), to arrange for machine-driven production and small/large-scaledistribution; and (d), to enlighten the media team about the process to sharing messages with coalesce of words and pictures in development communication (Ebigbagha, 2016a; 2016b; citing Hollis, 1994; Ejembi, 1989;Wright, 1981).

(ii), It typically results to the generation of ineffectual visual messages ensuing from: (a), attention is exclusively on the

Source's notions instead of the info necessities of intended receivers. This usually result in the appropriation of graphic and typographic choices that generate meh standard form (Servaes & Malikhao, 1994; Chandler, 1994; Garland, 2005; Wallschlaeger & Busic-Snyder, 1992). Thus, form generated, are often abstract or arbitrary to receivers as prominence placed on information of the sender is frequently not the felt need or primary interest of the target audience as receivers, typically do not participate in the course of decision-making and their interest may largely be unknown for lack of 'Bottom-up' communication. (b), the dictates of the Sender, when borne out of what constitutes effective sharing of message with target audience oftentimes (i), impedes the creativity of the graphic encoder that is aggravated by the act of been omitted from decision-making process, and inadequate time to accomplish design tasks (except a leap of insight occurs). (ii), ends in utilization of mediocre that are bereft of comprehension of the procedure of communicating with graphics. This provides explanation for the impoverished integrity of pictorial and typographical elements often perceived in IEC materials employed to support programmes for development. Graphic language for human progress, ought to be addressed by specialists in graphics that should collaborate with other subject experts (Ebigbagha, 2016a; citing Ejembi, 1989; Nelson, 1994); and (iii), it recurrently misses the mark to produce the expected

reactions from the receiver because their participation is ignored in the course of the media production. This is a major cause for a change in the prominence given to the hierarchical practice of communication in the Modernization and Dependency concepts of development to that of the Multiplicity concept that engages the participatory practices of communication.

Conversely, the Source's adoption of the participatory approach of development, allows cohesive organization, contribution and participation of the receiver, graphics formulation team as well as sender, during decision-making process. This provides ample opportunity to grasp the magnitudes of the subject matter of interest and attention is given to a more inclusive stance in relation to the receiver's necessities and participation. The benefits are many, it bridges the gap that exist among the media team as a result of ignorance of where the graphic encoder should intervene for effective graphic media production (see p. 56). Also, it presents enormous opportunities for the person engaged to encode the graphic message to grasp progression of the entire course to create IEC materials that excellently share ideas for progress with the intended receiver.

The communication dilemma of utilizing standard or simplified graphic lingo

The decision to either employ standard graphic lingo or to utilize simplified graphic dialect as well as typographic elements to share ideas with intended receivers is often a communication challenge. Most development programmes are originated and funded by advanced nations, e.g. USAID, and DFID. Ebigbagha, (2021a) citing Ejembi, (1989), states that a package of instructional messages often follow these sponsored programmes, which requires simplification to afford receivers' conditions in the recipient countries. Thus, the major bearing of information about advancement are external, nonrepresentational, and standard that mostly require modification into a simplified form of graphic language, which is accessible to intended receivers in the beneficiary nations. Simplifying ideas based on the receiver socio-cultural necessities and mental capabilities is vital for diverse cultures generate and interpret iconic signs differently. In addition, knowledge about the traditions that direct the making of a particular kind of picture impacts on its perception. However, despite the difficulty for adopting decisively accessible pictures for receivers, whose perceptual skills of pictures are anonymous, IEC materials should be formed to lodge receiver's understanding, beliefs, and habits.

The dilemma of whether standard pictorial lingo (graphics provided for communication with receivers, on the basis of

its suitability determined by the sender)or simplified pictorial language (graphic representation utilized on the basis of its appropriateness determined by the receiver's participation) should be used, is a communication difficulty that need be resolved(Ebigbagha, 2021a). This is crucial to achieving success in development communication because it concerns decision-making from informed stand point toutilize graphic and typographic elements suitable for the receiver to process and react as expected. This involves the contribution of all the sender, media team and receivers to play their parts in this cooperation, which allows appropriate deliberation of the receiver's state of affairs, which guides the formulation of the stimulus conditions/graphic media.

The impact of the aforementioned challenges of the conclusion to employ standard or simplified graphic and typographic elements, Source's paradigm of advancement and pretest on graphic communication are succinctly clarified in the course of configuring the emblem for the Oral rehydration therapy, the Make we talk/Delayed sexual debut and Use condom campaigns. Two of these campaigns already discussed (see p. 4 and p. 6 respectively),used simplified graphic language and affirmed the positive responses to stimulus conditions based on target audience consideration. The third, which we would discuss, the campaign for the utilization of condom, typifies the prevailing formulation and

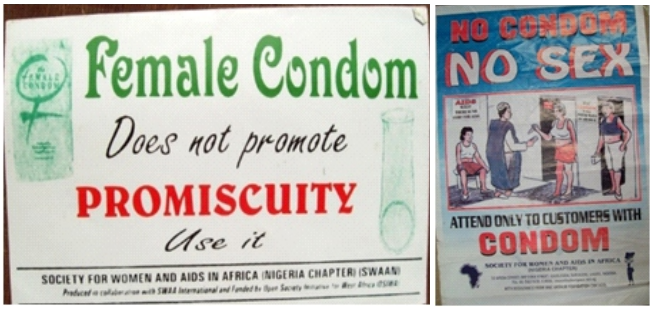
utilization of Standard IEC materials to communicate ideas for initiatives about development.

In 2004, the Campaign to utilize condom in the nation, was launched by the Society for Women and Aids in Africa Nigeria (SWAAN), which WHO, DFID as well as USAID financed. It typically represents the prevalent use of Standard configuration of graphic and typographic elements for sharing information about progress without adequate involvement of the intended receiver in the course of the graphic media formation. Despite the fact that the IEC materials utilized underwent several stages, comprising preparatory workshops where by participants collaborated, elucidation or the aim as well as the receiver of the source, subject of the campaign to be studied, pre-testing of draft of the graphic media as well as assessment. Entirely, the media production course was controlled by the sender. Even the testing conducted at the preliminary stage, whereby the draft of the graphic media that ought to have been carried out among the receivers, was done in the country of the sponsors by specialists (Ebigbagha, 2021a).

Excluding the receiver's contribution as well as the appropriate intervention of the person who encodes the graphic message to coalesce notions of the sender as well as receivers' info necessities, produced standard graphic and

typographic configurations, which were unfathomable to the target audience. The IEC materials were encumbered with appealing, urging, logical, meaning, sequencing and procedural uncertainties (Figure 4a and b).

In the sticky label, emphasis is placed on 'Promiscuity', it is bold, capitalized and in red hue. The word, 'Female Condom' is boldly written in green colour, with upper and lowercase alphabets. The secondary message 'Does not promote' as well as 'use it' are expressed in slender cursive writing and more deemphasized with achromatic black. The graphic appearance of female condom, and its container, are positioned at the bottom right and top left respectively in half toned green. Also, the source's identity or signature 'Society for women and aids in Africa Nigeria chapter (SWAAN)' is written in black at the bottom of the sticker. Every group of words is conveyed in four unalike typefaces. In general, the jumbled arrangement of copy and art flout standing approved layouts for accessible IEC materials. From far off, this words 'Female Condom Promiscuity' are distinctive. The observable words appear to inspire the state of being promiscuous that is contrary to the aim of the sender.



a b

Figure 4a and b: Showing a sticky label on Female Condom, cum a Poster on No Condom, No Sex; by SWAAN (Culled from Ebigbagha, 2016b, 2021a).

The IEC materials resulted in failed communication; these graphic media were bizarre and inaccessible as receiver could "neither understand it nor identify what it was" (Ebigbagha, 2016b). Also, it countered its desired communication goal. The iconic images were unattractive, uninteresting, pale, unimpressive, and inaccessible. It is bereft of the characteristics of been organized by graphics expert. This would have gotten abetter-quality were it pre-tested with target audience as was in ORT campaign.

Similarly, the poster formation (figure 4b), was a misrepresentative per version. Its key objective was to sound a cautionary note that advises against vulnerable copulation, and encourage the utilization of protective glove (condom) as strategy for curtailing the virus that ruin the human immune system "HIV/AIDS". It portrayed an adult male in outfit that is typical of westerners and northerners in Nigeria, relating

with one of three commercial sex workers in front of an entrance in a brothel. The pictorial images are reasonable but comprise features that are disagreeing with the intentions of the campaign for reservations on logical meaning. Ebigbagha (2021b), highlighted various explanations that could be deduced from the illustrations in the poster thus: (i) lapunar visitors are solely those that need utilize condom to prevent having HIV/AIDS. (ii) It is solely those that patronize whores require condom to prevent contracting the infectious disease.(iii) Solely, those from the west and north parts of the country needed condom to keep clear from contracting the disease; as well as (iv) Condom is solely, for whoever desires to steer clear of the deadly disease.

These semantic ambiguities would have been fixed were the poster subjected top re-test with sample of the receivers at the draft stage. Modification on clothing of the man would have been reviewed in lieu of its socio-cultural inference. In addition, the scrutiny of prostitutes in brothels may well have been revised; for the highest susceptible age grade, 15 - 20years, are predominantly at educational institutions as well as on the roads rather than lupanars. Also, the inability of receivers to ascertain, distinguish and properly understand the female condom in the sticky label and requested for living demonstration was enlightening. It underlines the necessity to utilize objects the receiver is exclusively conversant with

but where impossible, IEC materials that could describe three-dimensional, and fourth-dimensional: space/time range capabilities should be well thought-out. This is necessary to overcoming the intrinsic constraints of pictorial arrangements that is able to solely depict understandings in two-dimensional style utilizing plane indications.

The flop of the Use condom campaign is hinged on rash decision-making on the suitability of the IEC materials for the intended receiver sequel to final production and dissemination. Consequently, the production of effective graphic language that is understood by each and all targeted audience, ensues from teamwork that embed all actors of communication. This often leads to informed decision-making that results in stimulus conditions, which match target audience understanding, ability, exercises and socio-cultural setting.

Moreover, when media draft is pre-testedwith the intended receivers, it avails media team with vital clues with which informed decisions are made on whether to produce and employ standard or simplified IEC materials to share ideas with receivers. This occurs once the sender, the graphic encoder and the receivers discharge their responsibilities and actions appropriately in the course of production of the graphic media in the preliminaryand advance steps of a

campaign. Pretest, hinged on the intended receiver, immensely resolves limitations ensuing from an alphabetism and perceptual dissimilarities from multicultural borders rampant in developing countries. It allows conversion of the sender's ideas about progress into graphic signs, symbols and codes, which supports the receiver's conditions with satisfactory outcome. However, pretesting with target audience is a challenge prevalent in communication development process in Third world countries.

Designing Accessible Graphic Media for Sustainable Development

The generation of accessible graphic design for development is hinged on effective organization of typographic and graphic elements, signs and symbols in accord with target audience knowledge, aptitude, practice and socio-cultural environment(see pp. 6-14). However, configuring the stimulus conditions or media draft to be necessarily and sufficiently informative/persuasive is prime because the media is the message (Baran, 2009). Towards this end, I have clarified some grey, unwieldy, and problematic areas that usually perplex artists/designers.This has resulted in the development of verbal, graphical and mathematical models that served diagnostic, descriptive, prescriptive, heuristic, and predictive functions for form-generation, with particular attention to three areas that are fundamental –creativity, colour, and composition.

(a) Composition for Accessibility of Design

Arrangement is indispensable for pictorial and plastic expression. A grasp of its fundamental principles is crucial to resolving uncertainties, which often result in incompetent graphic message and failure with severe consequences for human development. In Nigeria today, the development in art/designrequiresappropriate comprehension of the essential principles of composition. A key aspect of this development is the change of purpose, practitioners, mode of representation, media and techniques employed in traditional and modern art. Examples include, a change of purpose from solely religion to secular life. A change of practitioners from priests/priestesses to men/women with no religious position.

A change from mode of expression that was analogous/ abstract, mystical, and understood by few to representational/ analogous that is understood by many; and a change of media from wall of houses/shrines using traditional techniques to board, canvas and paper using modern methods. Thus, arts/design objects were restricted to religious context, and not considered for its aesthetic qualities in traditional art (Ebigbagh,2012c; citing Oyelola, 1982). However, modern art/design combines aesthetics and function to enlighten, encourage and assemble receivers to support development programmes.

The above shows a paradigm shift from a single purpose driven traditional art to a multi-purpose driven modern art that requires grasp of organizational principles to meet the needs of modern society and effectively communication with target audience. The lack of knowledge of these principles of organization is the reason for some artists/ designers to have nurtured ostentatious and bizarre styles that obscure their messages. Also, some works of art/design displayed in galleries across the country indicate that art/design students are coerced in a way that provide only a part of what should be an all-inclusive and undogmatic training that result in inconsequential learning (Maurice, 1976; Oyelola, 1982). So, at a glance, one can tell where the artist or designer trained, for example, whether at Auchi, Benin, Ife, Nsukka, Osogbo, Yaba, or Zaria. Therefore, an expository presentation of these principles and techniques of design are essential.

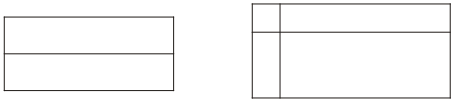
Composition is a general term for a well-arranged configuration of the elements of art/design in a given space. It is the whole appearance of the combination of value, texture, line, form, and colour using art materials/tools following Harmony, comprising replication of rhythm or Variety, having amplification of dissimilarities, in addition to impression of stability and motion, proportion, dominance, and economy within an existing space. So,the arrangement of

a visual expression is a significant reflection of its uniqueness and originality. This requires scrutiny of form, orientation, and spatial relationship of a subject matter, which are vital to generate accessible visual expression.

The surface on which ideas are depicted influences the attributes of form and content that impact on target audience responses. So, the shape of the surface and how to divide it into harmonious proportions are among the first challenges that confront the artist/designer.The shape of the surface commonly used is rectangle (horizontal or vertical), and square. The use of these shapes is often determined by the nature of the subject matter and direction of the target audience eyes as intended. In deciding the choice of shape, there is need to answer some of the following questions: what is the nature of my subject matter- is it tall, wide, or neutral? In which direction should the eye of the viewer travel as the composition is perceived- would it go from one edge to the other horizontally, or up and down vertically, or would it hover around the center? This requires horizontal, vertical or square shape respectively.

These shapes require a grasp of surface division into proportions that stimulate and sustain interest.
Division of the surface into harmonious proportions is critical for effective visual expression. A surface can be

divided with either a horizontal line or a combination of horizontal and vertical lines in symmetric and asymmetric order (Figure 5a, b).



a. Symmetric Division b. Asymmetric Division

Figure 5 a, and b: Showing Symmetric and Asymmetric division of the surface.

The Symmetric division of the surface is the utilization of horizontal or both horizontal and vertical lines to divide a shape across the center (figure 5a). The shape been divided into equal parts result in equal proportion of shapes within the overall shape. This does not often allow for variety and emphasis since the rectangles are equal, so, it is less interesting. Conversely, the Asymmetric division results in unequal and interesting parts within the total surface (Figure 5b). This allows for the focal point to be interestingly organized within the larger areas and balanced with elements of secondary interest in the smaller areas.

Furthermore, dividing the surface in a way that size and quantity of parts relate between themselves and with the whole in harmony is indispensable for establishing visual order, balance and accessibility. Harmonious proportions could be established using geometric, arithmetic, and harmonious systems such as numbers, golden mean, and rule of thirds. Simple numbers such as 3:2, 4:5, and 5:8, etc. often

results in static rectangles, while irrational numbers, such as $\sqrt{2}$ $\sqrt{3}$ $\sqrt{4}$ and $\sqrt{5}$, produce dynamic ones for forms.

Irrational numbers are based on the relationship of squares and rectangles. And sequence numbers, e.g. Fibonacci sequence, is used to establish harmony of proportions. It is a sequence whereby, every number, is the addition of the two before it. For example, 0, 1,1, 2, 3, 5, 8, 13, 21, 34, 55, etcetera. This sequence is prevalent in nature and indispensable to creating aesthetically and functionally satisfying art/design.

The golden ratio is a relation in the features of a shape or object, whereby the tallness in relation to the breadth comes close to 0.618.This mathematical proportion is found in nature, and a key to formal beauty. Simply, it is dividing a line in such a way that the shorter part is to the longer part as the longer part is to the whole.

The rule of the third or golden grid, is a key principle of surface division and the establishment of relationships between the quantity of parts and its whole. It is a division of the surface into nine orthogonal grids, using both horizontal and vertical lines, which intersect one another at four points as shown in (Figure 6a).

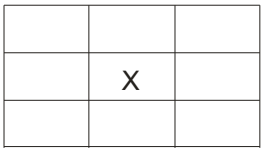


Figure 6: (a) Showing Surface Division using the Rule of Third

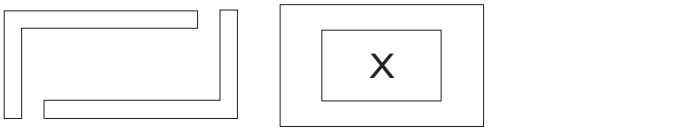
Objects of primary interest are to be positioned in a way that one of the vertical and horizontal lines cut across its main features. This would usually result in a pleasing design. However, the middle point marked "X" should be avoided when placing the center of interest because it arrests and inhibits the eyes to scan through the surface.

Although, the aforementioned principles could be employed to good effect; composition is more than just the rightness of relationships between elements, shapes, and quantity of parts and its whole. So, designs should not be contrived to create these organizational principles at the expense of human and narrative aspects, which attract attention and stimulate interest. Therefore, the technique to compose the human narrative aspects by consideration of the organization of elements within the surface is expedient.

Moreover, the treatment given to elements within a shape, greatly impact on the response of the viewer. For example, directional lines that flow in horizontal manner produce the feeling of peace and calm, while strongly opposed lines not

parallel to the edges produce tense feelings. So, utilize directional linesappropriately towards achieving desired outcomes; and elements, shapes and forms treated with graphic details, high intensity of hues, strong contrast and vivid directional lines should not be positioned at the edges of the surface. This often leads the eyes out of the picture. Therefore, caution must be exercised to avoid this except explosion effect is purported. The edges of the surface should be neutralized to keep the eye within the surface.

Finally, the subject matter should be expressed definitely. It is better to communicate an idea effectively than many ideas ineffectively. In order to achieve this, cropping is indispensable. To crop a scene/reference material, which could be a drawing or photograph, use Proving Mounts, and Viewing Frames (Figure 7a, and b respectively).



a. Proving Mounts b. Viewing frame: cut out inner rectangle

Figure 7: Showing (a) Proving Mounts; and (b) Viewing Frame for Composition

Equally important are salutary measures, which are compositional principles/techniques for better grasp of the state of being and position of elements in a surface with desired effects. These include three dimensional projections, balance, and movement, to mention a few.

Depth cues give the impression of activities operating beyond the flat surface. This is achieved through planar orientation, positioning forms between one and another, proportions (size), raised position relative to the horizon (elevation), linear and atmospheric/aerialperspective, and gradual change in texture (gradient) and value or shading. For example, depth is created by interposition, when two objects overlap, the partly covered piece is observed to be behind the object that partly covers it(Figure 8).

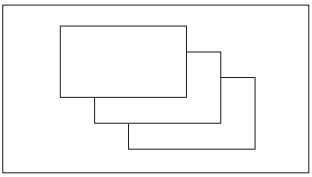


Figure 8: Showing interposition of shapes

Balance is a crucial principle of organization that provides salutary effect. This involves balancing smaller masses versus larger ones, lighter values versus darker ones, denser textured areas versus less dense textured areas, neutralized colour versus high intensity colour.

In addition to the above, movement in a composition produces satisfaction than the lack of it. To achieve this, use curvilinear shapes, which enhances movement than rectilinear ones. Also, the eye associates similar shapes, tones, and colours with one another, so, when these are

repeated with slight modification at different portions within the surface, the eye is encouraged to move from one point of the surface to another. This is particularly useful in a composition with inanimate subject. However, with inanimate subjects the use of loss and found edges are salient. Also important is the *sfumato* technique that blurs edges and areas to create mystery, that attract attention and arrest interest.

The aforementioned strategies of composition afford aesthetics in architecture, arts and design. Nevertheless, in graphic design and communication, Ebigbagha (2012c), citing Nelson (1993)ten compositional layouts are "Mondrian, Picture window, Copy heavy, Frame, Circus, Multi panel, Silhouette, Big type, Rebus, and Alphabet-inspired" (Figure 9a, b, c, d, e, f, g, h, i, j).

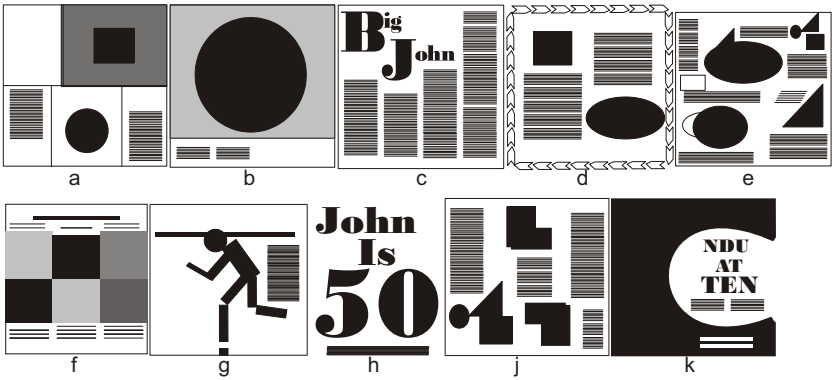


Figure 9: Depicting layout formats (a) Mondrian (b) Picturewindow (c) Copyheavy (d) Frame (e) Circus (f) Multipanel (g) Silhouette(h) Bigtype (i) Rebus; and (j) Alphabetinspired (Ebigbagha, 2012c)

The graphic encoder could use any of the above basic layout formats for functional purpose in combination with the aesthetic strategies to divide the surface and arrange elements within it harmoniously. A key element to be organized that is often unwieldy, confusing and problematic in art/design is colour. Therefore, a critical and analytic examination of colour is indispensable for designing accessible graphic media for communication.

(b) Colour for Accessible Graphic Media Design

Daily, we behold and respond to colour in natural and artificial entities. It provides about 80%of the knowledge we acquire from our environment and influences our thoughts, emotions, appetites, visions, consumption, recognition and choices, among other behaviors (Khouw 1995; Milton, 2011). Thus, it performs a crucial function in how we survive and associate with each other and our surroundings.

The importance of colour has rendered it an object of interest in psycho physics, psychology, physics, philosophy, chemistry, and art. Research in these areas has occasioned a deluge of colour supplies, notation schemes, concepts; and relations that now exist, which could be used to advance the work of art/design.

Nevertheless, the above advancements from colour studies have produced dilemmas. It has provoked complications in visual communication pedagogy, especially among learners as a result of the complexity of issues in the subject, the negligence of the learner to discriminate what is of specific interest, and the varied and vast extent of colour ideas advanced that are not kept discrete, distinctive, specific and vivid. These are aggravated by incongruities entrenched in the meaning of words used for colour, the artist's dependence on non-iconic art, and the absence of agreement on the right basic hues. Thus, the learner in visual communication is repeatedly confused by several concerns about colour amid an incredibly enormous assortment of theories and materials(Ebigbagha, 2015a; citing Willard, 1998).

So, to clarify the misunderstanding about colour is crucial for pedagogy in visual communication. To accomplish this, consideration is given to clarification of paradigms and notation sensuing from physical, physiological and psychological areas of colour studies that are relevant to the artist/designer.Anda mathematical proposition hinged on alphanumeric modification of the wheel to realize harmonious colour combination with certainty.

© Elucidation of Colour Paradigms and Notions

Quite a lot of researches have been carried out on colour in

different areas that provided ideas and principles, which are salient for realizing diverse objectives but might perhaps be irrelevant to everyone in similar fashion. This is exemplified by Newton's colour notation system that is vital to combining colours additively, whereby a mix of the light basic colour: red, blue and green produces white but different for the artist/designer, where combination of colour are subtractive, as a mix of the pigment basic hues: red, yellow, and blue produces almost black. Thus, despite the fact that the Newton's scheme is crucial for physicists, it is only partially so to the artist/designer.

Nevertheless, despite the different interests and orientations of researchers, these different concepts provide useful knowledge that supports the production of art/design objects with salutary outcomes. For examples, as a subject specialist in physics, Isaac Newton articulated colour in relation to light rays, which is salient for expression of the effects of light on surrounding objects. Likewise, as a psychologist, Ewald Hering, considered the observation and reaction towards colour in relation to figurative meanings that are personal, which is salient to depict moods, meanings, and desired psychological effects. Moreover, as a specialist in chemistry, Wilhem Ostwald, concentrated on the chemical component of colour as an essential material for the designer to employ to achieve desired tactile/textural possibilities; and to the artist,

Johannes Itten, focused on the practical and communicative utilization of colour by way of lacquer. These concepts are relevant to art/design particularly, those that have relationship with the physical features of colour and the circumstances, which affect it – the physical, psychophysical and psychological spheres.

The physical approach of colour studies, derived from the field of physics, concerns observation of the corporal features of colour. Our physiological responsiveness to colour functioning in particular situations is the psychophysical interest in the area of physiology. And those that concern our subjective reaction towards colour in relation to personal imagery and meanings are emotional and in the field of psychology. Therefore, we would consider colour notions that have relevance to art/design, gathered from physics, physiology, and psychology.

The notion of colour as a property of light from physics, is confusion for the artist/designer. This emanates from the struggle in correlating colour as an intangible electromagnetic vibration of different wavelengths with colour as a tangible liquid, paste or solid pigment. The physicist sees colour as a function of light rays an object transmits, reflects or absorbs. For example, a red object soaks up every light ray apart from the red it beams. When every

light ray is conveyed, returned or soaked up, colour is not generated, what is produced is achromatic grey, white, or black respectively. The relevance of this in art/design is that form has no colour and only assimilate, return or spread existing wavelengths of light. So, forms should reflect surrounding light conditions.

Another source of confusion is the variation in the true set of primaries, and achieving purity of colour through admixture. The basic colours of light and medial are at variance with that of pigment for art/design.For example, the basic colours of light are (blue, green and red), while that of the medial are (yellow, red, green, red as well as blue), whereas that of colorant are (yellow, blue, and red).Furthermore, the admixture of the fundamental colours in light is additive but that of pigment is subtractive. The further disparate colours of light are in an admixture, the cleaner it becomes. A coalesce of unalike proportion of light hues or complements e.g. yellow and blue, result in white. Conversely, the more pigment colours are mixed, the further white light is taken away. This is because a pigment colour soaks in a fraction of white light to reveal itself. Thus, the lesser the amount of pigment colours blended the better the outcome in terms of vividness. Consequently, a wide-range of unmixed colours should be possessed by the artist/designer because when unmixed colours are juxtaposed, e.g. red and yellow, they get

optically combined at a distance to produce orange effect. Therefore, artists/designers should avoid coalesce of many pigment hues for vibrancy. Also, admixture with light hues is different from working with pigments. For example, in light colour mixture, violet and green result in blue, and green and red produce yellow but in pigment colour mixture, red/yellow are primary colours that cannot be gotten from admixture of any other colour pigment, rather a combination of any two of yellow, blue, and red produces green, orange, and violet respectively.

Moreover, the quantity of colour to utilize in an admixture, and for a product of art/design is usually, a source of confusion. The amount of hue employed to execute a piece of work ought not to go beyond five. This is hinged on limitation of the human ability to efficaciously deal with the relationship of components, which reduces as the element multiplies. Thus, colour ought to be employed frugally in a manner that afford it to be processed at a peek for the reason that some people have some degree of colour illusion. Also, the same quantity of colour in an admixture do not always generate salutary effect. To illustrate, an almost equivalent quantity of cool and warm hues result in conflict. Therefore, unequal amount of pigments in an admixture, with a dominant colour, is the key to pleasant result. This uneven combination, the interaction of big and small quantity of colour, is the key to engender pictorial excitement.

Furthermore, the bias of a colour is another formidable source for confusion. All colours have predisposition or tinge that impacts on the admixture of colour. This could be exemplified utilizing oil pigments that the Newton and Winsor company mass-produced. Blue colour has either red tinge base (e.g. French Ultramarine) or is green biased (e.g. Cerulean). Also, red pigment has either blue tinge (e.g. Alizarin crimson) or is yellow biased (e.g. Cadmium Red). Likewise, yellow colour is either red-based (e.g. Cadmium Yellow Deep) or green-based (e.g. Lemon Yellow).

Thus, a twosome of the basic hues with unlike undertones provide an extensive platform for mixing colour. A mixture with the basic colours that have corresponding tinges produces vivid outcome. For illustration, a vivid green results when a green-base bias yellow and a green-base bias blue are coalesced, nevertheless, an admixture with complementary undertone as in red that is an undertone of yellow and red that is an undertone of blue, produces unpleasant green. Consequently, a six colour structure should be used (ColArt Fine Art & Graphics Limited, 1997).

The efficacy of maintaining vibrant admixture by juxtaposing pigment colours is missed when colours are overly greyed. Nevertheless, neutralized hues, for the most part, chromatic neutrals from uneven combination of the three basic hues or

complementary ones, and achromatic greys from admixture of black and white need be used for balancing as well as integrate light impact cum other elements to create an aesthetic and functional whole. While white is utilized to tint or lightening hues, black is employed to shade or darken hues, and complementary hues/grey are used to tone for brightness/dullness or saturation of hue, for which grey is preferred to black that often creates unpleasant hollow.

Equally, the tactile features that make up an object, which the artist or designer portrays by utilizing pigment colour to generate points, lines and shapes as well as application techniques such as impasto, scumbling and glazes, etcetera, are usually confused with the physicist's concept of texture. The specialist in physics grasps texture in terms of the amount of diffused light the surface of an object reflects or transmits. When the surface of an object transmits maximum amount of diffused light it becomes translucent, otherwise, a transparent appearance is observed. Likewise, when the surface of an object reflects maximum quantity of diffused light, a mat appearance is experienced, otherwise, a glossy surface is seen. Nonetheless, the awareness and portrayal of these characteristics of appearance observed on the surface of objects, employing pigment colours that are intrinsically subtractive gives salutary effect. This brings us to how colour is experienced by our physiological being.

The way we respond toward colour as well as light is an issue that is crucial for artists and designers, so, they need acquaint and appropriate its use purposefully. The expert in physiology is enthusiastic about the way and manner colour is dealt with by our physiological being as in the body part of sight, the visual passageways, and process of the brain as well as notions on visibility of colour. However, this lecture focuses on the stimulus condition and non-objective reaction to visual occurrence because these are necessary to comprehend colour within the setting of the arts and design (Ebigbagha, 2015a; citing Osborne, 1970).

A colour impacts on another and influences how objects are viewed within the same locale. When colour is juxtaposed, it creates fugitive sensation because the perception of colour is modified by the major colour within the setting it occurs. This fugitive sensation operates in two behavioral patterns of contrast -simultaneous and successive. The former is concerned with the way and manner hue, saturation and value of colour become heightened or lowered once put side by side with one another in a setting. When high level and low level of brightness are juxtaposed, the brightness and darkness are respectively strengthened than when seen separately. Moreover, intensity is largely influenced by the background/ juxtaposed areas. Areas of hues that are close to one another in the colour wheel when placed side by side, seem to be

further unrelated than as observed separately. Also, entities with complementary hues, appear more saturated when placed side by side than when seen separately.

Moreover, the background of a colour influences the hue, saturation, value, size and brilliance of the colour an entity portrays. A square in white, for instance, which is positioned on a background that is black would seem bigger and brilliant but putting a black square of similar dimension on a white background, do not elicit the same experience. This sensation is termed irradiation. The glow and brightness of a colour is immensely impacted upon by the background it functions. As an instance, the glow of a colour diminishes in a white context but increases in intensity. Whereas on a setting that is black, bright colours seem to possess more saturation while dark colours that are dark seem to possess lesser saturation and higher degree of glow. These affect perceptions of how the viewer experience the dimensions and deepness of objects in a given context. With arrangement of objects on a black setting, the light coloured entities seem bigger and advancing towards the viewer, contrarily, on a setting that is white, dark colours of the same size, seem smaller and recede from the observer. Moreover, the features of colour are altered by the factor of space.

The size of the space a colour occupies, makes it more saturated and brighter when it is bigger than when it is

smaller. Nonetheless, an area of light colour that is small in a big dark background seems more saturated and brighter than when it is in a background that is not contrasted. In addition, a varied space composed of complicated form in lines, the sensation of acclimatization overturns the earlier consequence of simultaneous contrast. Besides, brilliance and intensity are improved by well-defined form. Also, an environment viewed as a sole conformation or form appears homogeneous regardless of the discrepancies in the backgrounds of various parts of its entirety.

Successive contrast is the second type of 'fugitive sensation', a phenomenon, where an afterimage assumes the opposite colour of a subject, when gaze is shifted toa different greyed field. For a case in point, a sustained look for a few minutes at a yellow circle in a rectangle of purple on a white field, when shifted to a different greyed field, would result in an experience of a purple circle on a yellow rectangle in a black field. This occurs because the cones in the retina of the eye adapts to a colour gazed at for a minute or more, and when the gaze is shifted to a neutral field or the eyes are closed, the complement of the original colour is perceived.

A different subject is the inclination to behold the colour of things in the manner they look like in sunlight (local colour) rather than the real light, which is reflected on the retina. Also,

there is the predisposition to counterbalance differences in brightness and viewing circumstance. These inclinations constitute the event of changelessness. For instance, a yellow textile material brightened by sunlight beneath a red rooftop would give the impression of orange but its local colour is yellow. It is possible to portray colour indicated on one's sight when fascinated by lights, moods and colours instead of the entity. The result is that objects portrayed are usually disassembled and assimilated into unaccustomed parts of colour. A large amount of objects gets lit through a major light avenue as well as illumination by neighboring forms, which either reflect or produce incidental rays that alters the local one - as in its colour in daylight. Heretofore, colour pigments in nature, lack the light radiance, however, it could simulate hues, value as well as saturation, thus, it is needful to subject every disparity of brightness into a lowered level that afford the communicative capabilities of colour pigment. Concession, contortion, adaptation and the use of the outcome that adequately communicate the event portrayed should be made to produce definite pictorial configuration. Inventive maneuvers, informed choices, hyperbole and colour conformity with a restricted array of colour should be pursued rather than mindless replication of referents.

A crucial area for graphic language is psychological sensitivity and response to pigment and light colour. A variety

of modes and facets are observed in colour with offshoot characteristics, which impact on our response in relation with likings cum independent representation. There are three ways colour shows up, these are film, volume and surface colour. In film colour, the onlooker sees it from afar and his/her eyes can see through it to some level, just as it appears in grey sky. Volume is a different way colour is seen; it is observed through the space it occupies as in a see-through bottle of groundnut oil, whereby objects are visible through it. While the third mode, surface colour, is characterized by opacity, whereby nothing can be noticed through it.

The behaviour of light on the surface of objects and invariably its light colour generated three descriptions: lustre, luminosity and glow gotten from the previous modes. A brilliance, which surpasses and disrupt the outward surface, is termed lustre; whereas the illumination, which surpasses the immediate pictorial field and produce brightness is termed luminous; and glow, is when the entire object is shining throughout its mass. These modes of appearance and degree of brightness an object emits are indispensable to be replicated in art/design for its salutary effects. This is occasioned by utilizing pigment colour in low cuebe cause of its restricted illumination capabilities when matched with real life condition. Temperature is an important consideration in the psychological domain. It is offered to colour

established on real-life occurrences. Examples are hot red peppers, embers and blood; cool Blue Ocean and sky; fascinating yellow sunflowers; and raw green leaf. However, a reasonable act is to assess colour condition as illustrative of its location on the wheel. Other clarifications ought to be overlooked for their unalike deduced interpretations in diverse situations. Furthermore, colour is altered and influenced by the modifications of the light situations in a setting.

From the above, colour temperature is defined by its surroundings, brightness and dullness, lightness and darkness, size and shape and texture. For illustration, the orange hue seems warmer in a surrounding of cool colours than warm ones. It is reasonable to sweepingly state that often, cool colours recede and shrink; whereas, warm ones are up-and-coming and spread-out. Likewise, more peaceful are cool colours than warm ones. Besides, darker hues are weightier than lighter ones, which seem bigger than similar darker ones. The relevance of this in art/designcannot be reiterated, it enables emotionally comprehensible configurations.

The use of colour hinged on personal likings to create the sense of space is another crucial matter. This feeling could be realized by emphasizing the disparity between the element of

value, intensity, temperature, complementary hues, proportion, shape and texture of colour areas. The more the disparity among these rudiments the more seemingly space is created. This is the reason for prescribing the utilization of complementary hues to express the intensity of focal points as it is a matching of two opposite colours that foster the vigor and clarity of each other (Ebigbagha, 2015a; citing Maurice, 1976; and Kreutz, 1997; and Raybould, 2011).

Again, the spatial relationship of colour is influenced by the size, shape and position in an area. The smaller an area of colour becomes the more vigor it seems to wield(principle of compensation). Likewise, shapes such as circles and triangles function differently within a colour space. And the placement of colour and objects at the bottom of a particular space make them weightier and closer than in the upper region. So, where a colour is located in the picture plane affects its spatial mannerism. Also, the full intensity of the hue and neutrals impact colour space. Greyed colour increases in intensity whereas fully saturated hue diminishes when collocated.

Mixing pigment colours to achieve pleasant relations for pictorial communication is indispensable. This needs diligent study of the wheel to be conversant with it and understanding of the principles of colour usage (Ebigbagha, 2015b; citing

Brown, 2011). This is necessary to overcome the dilemma and widespread obliviousness of the reasonable, productive, communicative and active colour utilization to meet user needs. A key reason for the rampant misuse of colour is consequent upon lack of understanding. A crucial means to solve this problem is deliberately, to get the fundamental colour features balanced, employing the 'hue circle' in diversified manner when mixing colours. This is aptly demonstrated utilizing a mathematical model that is considered next.

Mathematical Models for Harmonious Colour Relationship

Mixing colour is usually cumbersome, perplexing and complicated for artists and designers. This requires dynamic, practice-based, and pedagogical structure, which would guide, organize, explain, identify, recommend, and foretell. Therefore, an expository adaptation of the colour circle is crystallized into a group of alphabetic and numeric cyphers and a mathematical submission,"$AnCH(I^5+V^9) = 1$, where AnC, is an alphanumeric code for a harmony type;H, hue in the colour wheel; I^5, the intensity scale in five (5) nuances; and V^9, the value scale in nine (9) nuances" (Ebigbagha, 2015a; 2015b; 2021b). This model, like other functional, iconic, quantitative, structural or verbal ones, is a basic explanation of a part of actuality, which organizes, explains and shows the major rudiments in an operation and the

connection between them(Ebigbagha, 2015b; citing McQuail & Windahl, 1986). It depicts and stipulates a certain strategy to realizing pleasant relationships between colours cum crucial guide to major areas in the colour circle during decision-making for an interesting and desired mixture. Usually, mathematical formulas consist of fundamental components. This formula is made up of two parts, on one hand, is the basic characteristics of colour: hue, intensity and value H.I.V. expressed in the integer $H(I^5+V^9)$. On the other hand, is the component of the desired type of harmonious colour schemes, labelled "alphanumeric codes (AnC): M(1), A(1,2,3), DC(1,7), SC(1,6,8), TR(1,5,9), B(1,6,10) and TD(1,3,7,9 or 1,4,7,10). The alphabet(s) preceding the number(s)denotemonochromatic, analogous, direct complementary, split complementary, near complementary, triadic, balance, and tetrad/paired complementary schemes respectively, while the numbers, indicate the position of the hue in the colour wheel.

Fundamental Colour Attributes

The Hue is the basic entity, which is often coalesced and altered as desired with saturation and value. It is the feature nonprofessional people talk about as colour, such as blue, red and yellow; and made known in the colour circle (Figure 10).

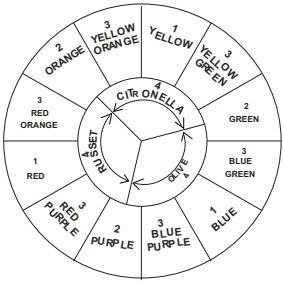


Figure 10: Portraying circle for Pigment Colour: 1 Primary, 2 Secondary, 3 Intermediate and 4 Tertiary hues (Ebigbagha, 2015b)

Usually, hue is altered from its bright state to a dullerone in intensity, chroma or saturation; and to a lighter or darkerone in value. Ebigbagha (2015a; 2021b), citing Quiller (1992), vividly illustrated thesemodifications (Figure 11).

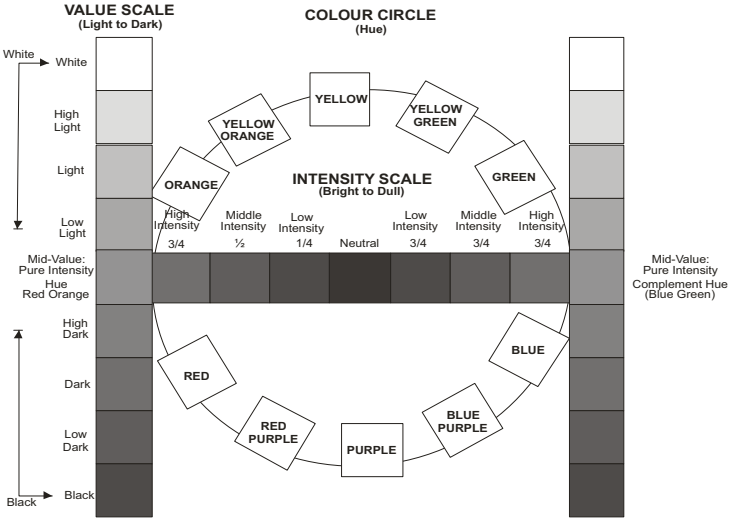


Figure 11: Depicting fundamentalcolour attributes (culled from Quiller, 1992)

The three attributes ought to be balanced to attain a fascinating spectacle; a balance not hinged on the same quantity, which result in an unexciting combination but unequal amount of mixture with relative dominance (Ebigbagha, 2015a; 2021c; citingDobie, 1992;Reid, 1993). This uneven association and interaction of big and small amounts of the attributes are what generate pictorial excitements. Thus, $AnCH(I^5+V^9)=1$, is an integration of these attributes and harmonious schemes for a pleasant whole

The Monochromatic Order

A monochromatic structure (M: 1), utilizes a single hue, which is modified by lightening or tint with white, greyed or toned with complementary hue, and darkened/shaded with black (Figure 12).

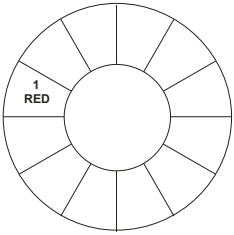


Figure 12: Portraying the monochromatic gambit (culled from Ebigbagha, 2015b)

The first choice of colour from the wheel, denotes number 1; which chroma and value are then modified. To illustrate, if red is chosen; it is number 1. Then red is modified by been toned with green, its complement; and increasingly lightened

or tinted with white as well as decreasingly darkened or shaded with black, which is its value. Practically, the tonal variation is begun by an equal amount of red and green mix, to obtain grey or neutral; thereafter, the saturation is enhanced by an additional quarter amount of red till it becomes full, reaching its untainted state. This generates a five-point continuum of redfull, ¾, ½, ¼, and neutral. In addition, the alteration of the red hue in terms of light and dark, generates a nine value continuum that spans across the white, highlight, light, low-light,mid-value, high-dark, dark, low-dark, and black (see figure 11).

The above, vividly depicts the veracity of the single colour scheme and its immense possibilities incoalesce of the attributes. These possibilities assume a dimension of seeming limitlessness when the attributes are organized according to the principles of design. For instance, creating a pictorial expression whereby every variation in the continuum of value, and saturation is prevalent in accord with the principle of dominance in design, would result in at least, thirteen distinctive pictorial compositions of red. Thus, utilizing the monochromatic structure within the purview of the twelve hues in the colour orbit, following the rule of dominance in design, yields a minimum of distinctive one hundred and fifty-six pictorial essays.

Ebigbagha (2015b; 2021c), demonstrated the salutary effect of monochromatic structure with the interplay of tonal and value divergences. A single achromatic black with its orchestrated attributes visually shared a phenomenon in the riverine area of Niger Delta, Nigeria (Figure 13).

Aro Oge 2012 Charcoal on Paper 20" X 25"
Figure I3: Depicting visual communication hinged on (M: 1) by Ebigbagha S.

The analogous structure

An analogous structure(A: 1, 2, 3), comprises two to three hues, which areneighboring one another in the colour circle (Figure 14).

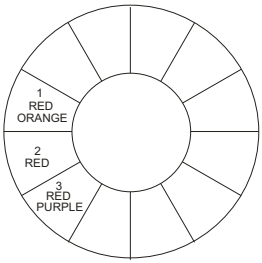


Figure 14: Portraying the analogous colour gambit (culled from Ebigbagha, 2015b)

As already explained, number 1, is the first choice of hue made from the circle, whereas, the two others, 2 and 3 are adjacent to it. Applying the proposition AncH (I^5+V^9)=1, the scheme is conveyed as follows: 1H (I^5+V^9) +2H(I^5+V^9) +3H (I^5+V^9)=1 The amount of pictorial representations that could emanate via this colour structure based on the twelve hues in the circle devoid of duplication, surpasses four hundred and sixty-eight. This holds for all colour strategies utilizing three hues. Ebigbagha (2015b; 2021c),exemplifiesthis harmony type in(Figure 15).

Tonbrapade 2012 Oil on canvas 48" x 60"
Figure 15: Depictingvisual communication on the basis of (A:1,2,3) by Ebigbagha S.Z

The direct complementary system

The strategy that utilizes the two colours that are at opposite points in the colour circle is direct complementary. This is coded in alphanumeric order(DC:1, 7) as elucidated in the circle (Figure 16).

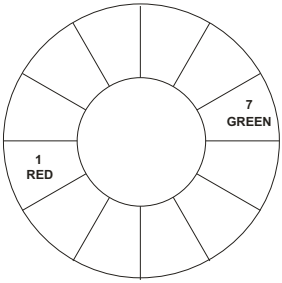


Figure 16: Depicting direct complementary ruse (culled from Ebigbagha, 2015b)

The first chosen colour in the wheel is considered 1, and its complement is the seventh, which is considered 7. Thus, where 1, is red, then 7, is green; employing AncH $(I^5+V^9) = 1$ accordingly $1(I^5+V^9) + 7(I^5+V^9) =1$, practically transforms into $R(I^5+V^9) + G(I^5+V^9)=1$ that will produce a harmonious relationship, as illustrated in a grazing scene in Lokoja, Nigeria (see figure 17).

Ebinamadioweimo Namamo 2014 Oil on canvas 18" x 24"
Figure 17: Depicting pictorial communication anchored on (DC:1,7) by Ebigbagha S.Z.

The Split Complementary Scheme

A structure that employs a selected colour in addition to the two near its opposite(SC: 1, 6, 8), illustrated in graphic form (Figure 18).

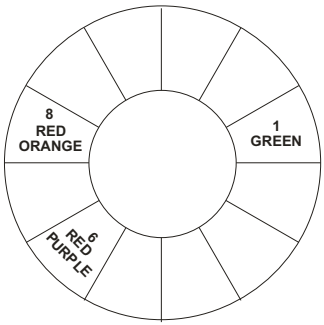


Figure 18: Depicting the split complementary ruse (culled from Ebigbagha, 2015b)

The foregoing, obviously indicates that the first choice of selected hue, 1, is green; its split complements are red purple, 6, and red orange, 8. Red, its complementary hue, 7, was intentionally excluded to accommodate the hues by its sides. Thus, transforming this precisely result in $1H(I^5+V^9) + 6H (I^5+V^9) + 8H(I^5+V^9)=1$ (see figure 19).

Ezon Yerin Buo Oil on canvas 36" x 48" 2009
Figure 19: Portraying pictorial messagehinged on (SC:1,6,8) by Ebigbagha S.Z.

The Near Complementary Strategy

Closely related to the split complementary strategy is the near complementary one. It engages the first selected hue and one of the hues bordering the one directly opposite it; which means that near complementary is (NC: 1, 6 or 8). In a precise format, $1H(I^5+V^9) + 6H(I^5+V^9)=1$ or $1H(I^5+V^9) + 8H(I^5+V^9)=1$ (see figure 20).

Buburu Efie 1 2009 Oil on canvas 40" x 40"
Figure 20: Depicting visual communication anchored on (NC:1,8) by Ebigbagha S.Z.

The Triadic Technique

The code for the triad technique is (TR: 1, 5, 9);this is characterized by the use of the first hue taken and the other two, which are at equal distance to one and another in the circle (Figure 21).

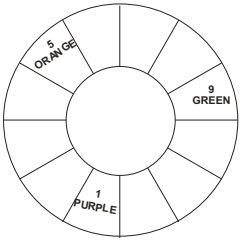


Figure 21: Portraying the triadic gambit (culled from Ebigbagha, 2015b

When precisely ordered is$1H(I^5+V^9)$ + $5H(I^5+V^9)$ + $9H(I^5+V^9)$=1.Ebigbagha (2015b; 2021c), elucidated this in figure 22.

Ayaburu Oge 2005/06 Oil on canvas, 48" X 72"
Figure 22: Depicting pictorial communication hinged on (TR:1,5,9) by Ebigbagha S.Z.

The Balanced Gambit

The balanced gambit is(B: 1, 6, and 10).Like the triad ruse, three hues at various point of the circle is utilizedbut with a diminishing ratio of 4:3 the first hue chosen from the colour circle is 1, then skip four hues, the sixth is taken, thereafter, skip three hues, the tenth is selected as depicted in (Figure 23).

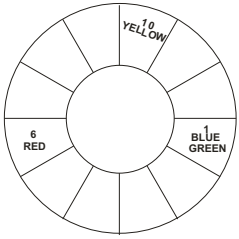


Figure 23: Portraying the balance ruse (culled from Ebigbagha, 2015b)

Precisely, the balance ploy is transformed thus: $1H(I^5+V^9)$ + $6H(I^5+V^9)$ + $10H\ (I^5+V^9)$ =1. Ebigbagha (2015a), demonstrated the charm of the balance gambit in figure 24.

Eta Yepoumene 2012 Oil on canvas 36" x 36"
Figure 24: Depicting visual communicationhinged on (B:1,6,10) by Ebigbagha S.Z.

The Tetrad Ruse

The tetrad gambit(TS:1, 3, 7, 9) or (TS:1, 4, 7, 10), is comprised of a pair of hues that are opposite each other in the circle. This pairs could be structured using two approaches (Figure 25a and b).

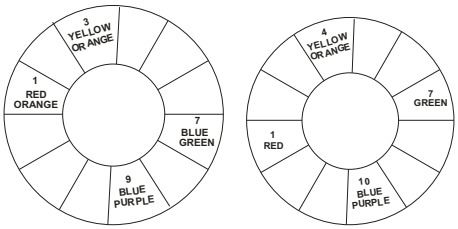


Figure 25a and b: Depicting the tetrad gambit (TS:1, 3,7,9) or (TS:1,4,7,10)
(culled from Ebigbagha, 2015b)

The integers 1, 3, 7, 9 that generate a rectangle bounded in the circle (see figure 25a), and 1, 4, 7, 10, which create a square constrained in the circle (see figure 25b) are the two strategies to obtain the tetrad scheme Concisely expressed- $AnCH(I^5+V^9) = 1$,the first approach, $1H(I^5+V^9) + 3H(I^5+V^9) +$

$7H(I^5+V^9) + 9H(I^5+V^9) = 1$; thus, assuming Red Orange (RO) is 1st, then clockwise, Redpurple (RP) will be 3, Blue Green (BG) 7 and Yellow Green (YG) 9. Ebigbagha (2015b), epitomizesthisin figure 26.

Ogbo Fou 2009 Oil on canvas 48" x 60"
Figure 26: Portraying pictorial representation based on (TD:1,3,7,9) by Ebigbagha S.Z.

Accomplishing pleasant colour compositions could crucially be hinged on a grasp of the aforementioned alphanumerical gambits. Like acronyms or mnemonic that is devised to order ideas for quick recollection at a period it is necessary, this uncomplicated formula of alphabet scum integers are rapidly accessible ruses for dynamic and proper formulation of pleasant colour association hinged on the wheel.

Heuristics for Creativity in Art/Design

Creativity, new ways to provide valuable solution to problems through coalesce, scrutiny or conversion of ideas, facts and objects that are usually in existence, is indispensable for production of tangible materials. It is

impelled under healthy conditions, by motivation and imaginative clue that becomes elusive, not owing to emotional or corporal obstacles but absence of notions to maintain the ingenious outpouring of ideas in the course of form-generation. Although corporal and mental state of affairs such as aches, loss of sight, and mental difficulty could impede inventive outflow of concepts yet, one could be void of ideas under healthy conditions while creating tangible products. Creative block can occur at any phase, more often at the beginning of the process of formulating an object. This is a problem experienced in all spheres of life with puzzling and paralytic effects. It hinders both capability and enthusiasm for the creation of object that invariably frustrate, depress, stagnate, impoverish, retrogress and degenerate the creative professional and society with dire outcomes for physical and human progress (Ebigbagha, 2019; citing Shoor, 2012; Tartakovsky, 2014;McGuiness, 2018). Therefore, it is important to address the problem of creative block and the application of discovery gambits is a key panacea (Ebigbagha, 2019; citing Winterowd, 1981, Sefertzi, 2000).

Detection gambits are utilized for creating a diversity of inventive concepts to make available alternatives for selection to solve a problem.

Even though, the record of strategies to formulate or coalesce ideas in writing, mathematics, philosophy, and psychology are readily evident, it is contrary in visual communication. Thus, an examination and application of the ruses of Brainstorming, Questioning, and Shifting Perspectives to foster creativity and resolve tasks in art/design for human and structural development is herein the thrust.

Creative Process for Designing Accessible Graphic Media

Inventiveness, usually is impeded by deficiency in grasp of the course of creativity(Ebigbagha, 2019; citing Sefertzi, 2000; Gilkey, 2008).There are several records the course of creativity that coalesce some of these steps: inspiration, clarification, evaluation, distillation, incubation, illumination, perspiration, preparation, implementation, identification, visualization intention, intuition, production, construction and utilization (Taylor, 1996;Petty, 1997; Gilkey, 2008). However, a model of the inventive procedure, which is affiliated to art/design, is based on activities in the conscious, preconscious and unconscious levels of the human mind (Ebigbagha, 2016a; 2016c; 2020b, citing Hurlburt 1981; Ejembi, 1989; Allyn & Bacon, 2003). The aspect, which embraces awareness of things that are coherently expressible, is the conscious. Whereas, the preconscious level comprises the standard memory, where things put in storage are willingly retrieved and conveyed to

the first level of the mind. Itactsin the middle of the conscious as well as the unconscious domains, wherethoughtful inventive actions are implemented. And the unconscious level, is inaccessible at will. Thus, as information moves in the midst of the conscious and unconscious, it can probably slide into the unconscious arena. Nevertheless,the unconscious domain, occasionally impacts on experiences inother levels.

Moreover, the intellectual, inductive, intuitive and emotional, as well as the emotional and conscious activitiesare four inventive actions that occur in the mind. Foremost, as information gains entrance into the conscious level, actions to grasp it by critical ponderings are commenced, which make up the intellectual action. Next, collection of interrelateddetails, ideas, and concept comprise the inductive event. Nevertheless, is the intuitive and emotional action, whereactual materials collected are modified by notions that are hinged on emotional state instead of well-knowntruths. This is influenced by the concepts and facts emanating frommemory via the inductive actions, in similar manner as notionmade in this stage might impact on those from memory. Consequently, the ideas from actions at the inductive stage might be impacted upon by new concepts that could suddenly emanate that is not anchored on established truth. This is consequent upon the

preconsciousthat connects the other two levels of consciousness. This pro tem is perhaps the starting point of intuition that isthe rapid as well aspreparedvision, which generates notionsshort of the obviousparticipation of the alertness in the course of thinking(Ebigbagha, 2019; quoting Ejembi, 1989; referring to Hurlburt, 1981). Lastly, thefourth activity, is concerned withtruths, understanding as well asemotions consciously engaged to provide solutionsfor design problems.

Nonetheless, the mind is not an automated device, which is preset to trail a particular array of actions in theutilization of ideas inventively. As ideas come into the mind at the conscious stage, a sudden spring of insightcould emerge intrinsically, which is needed to solve a problem and stirred by outside dynamics, e.g. a high degree of urgency that present in adequate time to comprehend and consult reference materials for ideas and concept development. Also, inventive ideas could emerge from unsolicited objects and serve as the foundationupon which a new tangible product that meets user needs is developed. Likewise, dreamperforms important role in the course of innovation. Numerous products and events invented are impacted on by the unconscious state of dreams as in Surrealism (Ebigbagha, 2019; citing Glover, 1990). Thus, the course of creating objects is impacted on by actions in the three stages of consciousness.

When faced with a problem of design, foremost, the artist/designerdefines it through diligent ponderings. Then reference resources are collected to provide solution-hints, which are often reformed, hinge on sentiments and surge of insight. It is these notions, facts and feelings from the four activities in the mind that make up the reflections, anticipations and visions of the artist/designer in the course of generating tangible form.

The process to creating and developing visual product consists of problem-solving, which involves (i) precise description of the task, (ii) partitioning the whole in portions for thorough scrutiny, (iii) creating concepts from portions diligently considered, (iv) selecting the most appropriate notions, (v) coalescing ideas that are chosen in novel form; and(vi) assessing result;(Wallschlaeger and Busic-Snyder, 1992).Thisrequires inventive gambits to generate multiple alternatives for knowledgeable selections, conclusions and innovations.

Gambits for Innovative Ideas in the Designing Process

The need to competently think on a topic from different angles to analyze, interpret, comprehend, cum explain it cannot be over-emphasized. For this reason, ruses to engender novel ideas for inventive results have attracted attention in administration, business, industry and

mathematics as well as philosophy, psychology cum writing, among others.

Ebigbagha (2019), examining techniques to producing multiplicity of inventive ideational alternatives for production of art/design objects, states that the techniques to explore, coalesce, or convert notions in novel forms are numerous. Instance sen compass to brainstorm, and to query as well as to shift stances of view and knowledge, among others.

The Brainstorming Heuristic for Creative Ideas

Brainstorming is a spontaneous way of creating novel ideas; its nature, rules and stages are unique. It is by nature, a two-person/small assembly technique to quickly produce numerous notions, which are not evaluated while the session is ongoing, to prevent disruptive meddling and probable appearance of desired ingenious notion. Moreover, its rules include, taking notes without evaluation; specific timeline of 15-30 minutes, and editing ideas after the session is over. While its stages comprise: (i) Comprehension and definition of the task that includes objective, information and problem discovery.(ii) production of clues concerning the difficulty; and (iii) Invent, clarify, and work on the most suitable resolutions. (Ebigbagha, 2019; citing Alexander, nd:np; Nichol, nd:np). Thus, brainstorming is a Creative Problem

Solving (CPS) gambit that affords speedy production of notions that are only assessed, analyzed, selected, refined and implemented after the session has ended. Its main resolve is rapid creation of notions, which is significantly useful when the artist/designer need create numerous ideas in a situation of lack or to order notions in surplus, for inventive resolution of pictorial communication challenges.

However, the gambit is suitable to both group and individual utilization for production of numerous concepts. The lessening of numerous notions into a small number for thorough examination is convergent way of thinking; whereas a broad consideration of notions is divergent way of thinking, which are two tactics of inventive routes that both group and individuals often utilize. Ebigbagha (2019) citing Nichol (nd:np) states that: Some of the several tactics employed to brainstorm are Improvisation or impulsive thinking, Algorithms or guidelines, Aleatoricism or random link, Free-writing, Listing, Mapping, Researching and Cubing.

Using the Cubing strategy to generate ideas, for example, involves six points: (i) Description: what constitutes its outlook precisely?(ii) Comparison: what does it resembles or otherwise?(iii) Association: what could it be linked with?(iv) Analysis: how does its components appear and function? (v)

Application: in what ways could it be utilized?(vi) Argue for and/or against it: how could it be backed or objected? A variant of this approach employs three views as follows: (i) depict a subject or notion as well its characteristics, components and difficulties, then assess the similarities and differences in relation to other subjects or notions. (ii) Follow the past/background of asubject, how the course of past events has impacted on it as well as how it has evolved over time.(iii)Chart or relate subject/notion to comparable present-day ones, its effect and the subjects/notions it impacts.

At this juncture, it is pertinent to aptly elucidate some of the aforementioned strategies. Free-writing, is a tactic of being engaged in writing in an unrestricted manner, without break, unconcerned about accuracy, and not cutting out whatever ought to be expunged until a set goal is met, e.g. five hundred words or five pages. Also, listing, entails itemizing notions, verses, expressions, views, realities, queries, constituents, persons, dwellings, possessions, standards, potentials, objectives, problems or a coalesce of some of these short of demarcation, assessing and ordering of point of view. Moreover, Mapping, is a graphic technique of listing – Webbing/Clustering that itemizes a broad array of concepts instinctively on an enormous surface until concepts are drained, then links connecting interrelated subjects matter or

notions are created. Furthermore, Researching, is thorough consideration of reference resources on phenomenon, where notions penned-down might offer the anticipated minutiae when one has superficial notions about how a given task could be accomplished.

Applying the Brainstorming Heuristic in Art/Design

Brainstorming intuitively offers notions vital for organizing pictorial communication. A key way to brainstormin art/design is the utilization of viewing frame, as well as proving mounts (see figure 7a and b). These tools are crucial to rapidly produce satisfying ideas from reference resources to resolve pictorial challenges. The viewing frame allows the handler to rapidly regulate and analyze an encountered scene to sift varied visual information. Moving it around the scene, affords diverse set of fascinating subjects to be captured by the artist/designer, which otherwise might have been oversighted. This offers a wide-range of interesting possibilities and alternatives that present the latitude for selection and implementation to resolve design problems. Likewise, the proving mount is vital to produce notions in visual expression with multiple points of attraction. It permits elimination of the various distracting elements through cropping that focuses on and promotes the focal point of interest, which if not, would have beenvague or ignored. Shifting the view points rapidly offers plurality of

uniquely new notions, configurations and viewpoints as well as more appropriate utilization and observation of form(Ebigbagha, 2012c; citing Ward, 1993).

Even though proving mount and viewing frame are tactics for composition, they are indispensable brainstorming tools that can quickly deliver salvos of worthy notions for real pictorial expression. Ebigbagha (2019, p.12), succinctly illustrated thisin figure 27 a, b, c and d.

a: Source Photo Market-in Rainy Season by Punch Newspaper, (1989).

b: Tonbrapagha I Oil on Canvas, 36ft x 48ft, Ebigbagha S.Z., 2000

c: Tonbrapagha II Oil on Canvas, 36ft x 48ft, Ebigbagha S.Z., 2002

d: Tonbrapagha III Oil on Canvas, 48ft x 60ft, Ebigbagha S.Z., 2009

Figure 27 a, b, c and d: Depicting reference photo and pictorial expressions utilizing proving mount viewing frame for brainstorming. Ebigbagha S. Z.

The source photo (I a), a marketplace, snapped by the Punch Newspaper, portrays buyers and sellers at Oshodi, in Lagos, after the rain. It represents daily subsists in our nation, with various interesting areas in the photo. This includes, the mirror images on the rainy ground, the light, disposition, and full of characters. These were appropriate themes that enthused attentiveness that contended for consideration to be conveyed. This offered a daunting task, which effortlessly throw oneself into creative block.

However, as attention on the photo is being engaged, diverse ruminations and notion began to emanate in reaction to the lone brainstorming session. These notions were galvanized by enquiries, which touched on content and context suitability for effective communication in the course of scrutiny. Examples include, what degree of content modification would adequately depict the purported message? What effect would receivers get if the pictorial message is made up of a cluster of merchants on a particular side of the photo? What component sought to be coalesced to appropriately attain the expected communication target? How operatively appealing and functional is the outcome, if every character in the photo is depicted? What impact would result if only the reflections of individuals are to be portrayed?

The above, reveals how at the beginning, been stuck creatively on a photo reference, which has diverse attractive elements in its picture plane, did overcome the creative block using proving mount and viewing frame to brainstorm. This offered lots of alternatives that afforded selection of the seated musing lady (see figure 27 b, c, and d). It vividly portrays the main resolve of the illustrator, which is to elucidate the assumption that "Life do not always follow our efforts and expectations- 'Tonbrapagha' – in Izon lingo. The core of attentiveness, the quiet but nervous and meditative woman, deserves accolade for her worthy performance to make her merchandises properly available but purchasers have not arrived that exceeds the influence/dictates she could exercise.

Furthermore, the diversity of the arrangement of pictorial components in the background, as in colour, direction of lines, surface appearance, and organizational strategies reveal, the veracity of combining proving mount and viewing frame with the heuristic of brainstorming for barrages of inventive ideas in art/design

The Ruses of Querying for Inventive Notions

Asking questions, is an indispensable means of search, which often offers illuminations that elucidate obscurities with productive results. Thus, probing is the core of

inventive notions and tangible product formulation for human advancement. To this end, several gambit sexist that are developed to arouse organized thoughts and create inventive notions in art/design through interrogation, which consist of: Design checklist, 5W&H, Pentad as well a stagmemics.

The Checklist of Design for Inventive Notions

The flow of creative ideas during form-generation requires questions. While formulating materials for beautification and utilitarian purposes, certain types of questions fire up the inventive energy and dispel inhibitive numbing experiences of the creative flow that supports accomplishment of design tasks. Ebigbagha, (2019, p.11), citing Winterowd (1981, p.51), referencing Osborn (1963), pinpointed these queries hence: What ways a thing could be subjected into other usages? What novel ways could be engaged to utilize an object in its present state; and what new uses can be made if it we realtered? Adjust? What other thing is similar, what can be copied, who can I emulate? Modify? What novel turn, alteration of implication, scent, movement, sound, form, and other variations? Magnify? What could be enhanced, should it be the time, frequency or ingredient; should a thing be lengthened, added to, overstated, proliferated or replicated? Minify? What could be minus, made little or reduced, compressed, shortened, and excluded as well a storn apart?

Substitute? What alternative, person, component, material or ingredient could fittingly serve for replacement? Rearrange? Exchange workings, arrangement, design, speed variation, reorder reason and outcome, oralteration of plan? Reverse? Move around features positively and negatively, consider the other extreme, twirl it back, roll it over/upside down, move poles in the opposite direction, alter shoes, change direction of tables, and turn the orientation of objects? Combine? What admixture, amalgam, variety and collective of separate entities into a whole as well as what coalesce of elements, notions, motives or appeals should one consider?

Consequently, a scrutiny of the functional worth of a product is prime. Thus, enquiries on possibilities to put products to different usages, novel approaches to utilizing them, and extra usages if modified are crucial to developing innovations and notions. Also, an examination of the prospects to adapt objects by analysis of what ought to be revised, made alike to or imitated from a reference resource is fundamental to transformational, exploratory as well as combinatorial ingenuity. In addition, probing into the potentials of modification by looking into what fresh twist need be occasioned on a product, enhances the inventive stream of new notions. For example, what adjustment in the speed, energy consumption rate and form ought to be twisted to enhance the performance of a vehicle or what alteration of odor of an insecticide would satisfy user needs?

Moreover, the scrutiny of the prospect to magnify a product, often presents inventive clues from probes on opportunities to augment, spread out, amplify, proliferate or replicate components in a specified assignment. For instance, in designing a device with audiovisual capabilities, the procedure ought to contain queries on prospects for additional latitude for volume amplification, more frequency/wavelength, extensive playing period and greater storage capacity. These offer a wide-range of ideational alternatives in a manner that fosters the making of a more informed selection and utilization decisions.

Likewise, adopting the contrary by contemplating reduction creates novel concepts. The scrutiny for minifying, ought to consist of probes on what need to be deducted, prepared smaller, compressed, reduced, excluded, or torn apart, which offers hindsight, foresight, and insight to afford accessibility and effective utilization of product. Equally, considering the potentialities of substitution by enquiring, who or what other alternatives efficiently act in its place, what supplementary part could successfully play similar or better role as the reference, these inquiries are vital to create novel ideas that are useful to solving design problems.

Moreover, a set of interrogations that creäte fresh thinking, think through the potentials for rearrangement. Enquiries

ought to be on exchangeable constituents, which allows restructuring, other arrangements that afford stimulate pleasure, choice sexisting that exchange standing pace or move around cause and end product, and what should be reorganized to create an adjustment of a plan fittingly. These are crucial in exploratory inventiveness. Similarly, the probe into the prospects to reverse the structure of objects to satisfy users specifications, are significant to release novel notions for inventive improvement. At this juncture, it is relevant to ponder on the degree to which positive cum negative components in an item for consumption could be rearranged; how contradictory features could be switched, revolved rearward, inverted or overturned. Nonetheless, the concern to scrutinize prospects to coalesce rudiments in forms, consider how dissimilar components and characteristics could be amalgamated, lump together or interfaced; and the odds to merge entities, notions, drives, and demands to create new product. These fact-finding methods typically yield encouraging aftermaths.

The checklist for design, like several heuristics, has its flaws. It depicts the creation of tangible materials as a product that can ensue only from analytic probes, whereas, the human mind, is dynamic where both conscious and unconscious activities as in intellectual, inductive, dreams and sudden surge of insight impact on the formulation of tangible

product. All the same, the framework is suitable for producing strong creative ideas anchored on consideration of users need from inquiries on usages, adaptations, and modifications.

Utilizing the Checklist of Design Gambit in Art/Design

The ruse of design checklist is crucial to formulate notions to invent tangible form. Ebigbagha (2019, p.13), exemplified this in the illustration, 'Namadiotu Egberibo' (Figure 28 a, and b).

a: Photo source by Ben, 2009 b: Namadiotu Egberibo, Oil on Canvas, 48ft x 72ft

Figure 28 a, and b: Depicting photo utilizationto invent image hinged ondesign checklist.

The photo (Figure 28 a), which is the reference material for the form-generation; captures two men on national service in Nigeria, whose friendly rapport, on the field, constitutes the center of interest. This generated stochastic ideational variations of grazing scene hinged on design questioning heuristic that resulted in the selection and implementation of a panorama with two shepherds in tete-a-tete(figure 28b).The illustration, commenced by querying how the photo could be utilized in a novel manner: a pictorial communication useful

for aesthetic reason in solitary acquisitions, and functional purpose as in books in public domain for development communication. The main point of interest in the photograph, the two men, was adapted. The caps were modified to big cane hats. Equally, the shirts were altered to larger ones typical of herders. Also, the environment was modified and magnified. This comprises of canes in the herders' grip, stretch of the savannah with scattered trees, boulder, mountains as well as sunlit setting, which portray the expanses of plains that afford grazing in our nation.

In addition, behind the two main characters, the persons at the background of the photo were expunged and replaced with cattle as well as the other components in the photo were transposed in such a manner, which for attention, situate the focal idea to the left, where the lines intersect; an organizational maneuver that splits the surface for the pictorial illustration into thirds, forming pleasant section (see figure 6a). Rock-strewnfeatures are set to balance one another in both background and foreground. The plan adopted for the illustration is the Picture-window (see figure 9b) that obviously exhibited the central theme.

The 5W&H Questioning Gambit

The 5W&H' (also known as the 'Six honest serving men) probing ruse, is an accolade to an elephant kid, which

inquisitiveness is expressed in Rudyard Kipling's rhyme. It possesses six basic rudiments of querying for inventive notions, which are: What, Why, When, Where, Who, and How. It implies candid probing characteristic that is central for acquiring knowledge and understanding. The gambit, as an analytical device, is vital to producing novel notions.

The relevance of the ruse is wide-ranging and vigorous for scrutiny in the course of producing and using knowledge. Ebigbagha, (2019),citing Sloane (2018), referring to Blog HelpHQ (2017), expressed the veracity of the gambit in diverse fields thus: The ruse is an indispensable method for teaching, instruction, mentoring, coaching and inventing theory as well as practice-basedmodules. It could seamlessly be interfaced with additional ruses, such as the 5Ps (Planning and Preparation Prevents Poor Performance).

Moreover, it is suitable for application in many situations as in scrutinizing matters and formulating potent strategies in diverse settings. To exemplify, in administration, efficacious policy can be invented, hinge on queries hence: Why? – to support reason for an act; Where? – to foster authority; as well as What? – to support aim; Similarly, proper procedures possibly will stem from investigations ensuing from: Who? – to afford individuals; When? – to care for chronology of happenings; and How? – to afford technique.

In addition, the six rudiments of the gambit might be enlarged by investigations round positives and negatives of an idea that produces twelve alternatives. For an illustration, “what is pictorial communication/its contrary; or who is a receiver/its contrary? Again, a grid fashion of the six rudiments of the ruse, produces a more wide-ranging outcome. Here, the queries are positioned horizontally, and duplicated vertically, whereby, the 'why' on the vertical alignment offers possibilities of thought provoking answers to probes from the why, where, what, who when and how on the horizontal axis. This approach, affords plurality of in-depth elucidations that provide deluges of inventive notions.

Using the 5W&H Ruse in Art/Design

The 5W&H gambit is a veritable structure to producing fresh notions that can efficaciously be used in teaching, theorizing and practicing art/design. In pedagogy, for instance, it could be applied to planning an effective delivery of a lesson as in “what is the key target in teaching the lesson? How could elucidation of the key points be made? Who is colour blind? When should application of colour on a surface be discontinued? These queries promotefull creation of concepts that yield interesting and inventive aftermaths in art and design pedagogy.

Again, the theoretical and applied veracity of the heuristic, is typified in the Delayed Sexual Debut Campaign (see p.13).This ruse produced a thorough investigation with outstanding success thus: The general ignorance and misconceptions about abstinence were addressed. Also, whoever desires to postpone sexual intercourse until when prepared are empowered; distribution outlets to address the target audience were examined. In addition, mass and small media to reinforce messages and heighten awareness was diligently probed. The underlying theories for the series of communication operations that sequel formulation of the graphic media, were hinged on questions such as: Why is the word, 'abstinence' less preferred to 'delay'? What issues are considered fundamental? Where would a particular configuration ploy be effective? All these provided ruminations, elucidations and illuminations for creative ideas that resulted in a successful campaign and the production of effective graphic media (Ebigbagha, 2012a).

Furthermore, the graphic media (see figure 2), reiterate the practical value of the gambit in the media production process. Exemplified as follows: What is the key communication? Does the phrase,'Zip-up'necessitates coalescing of pictorial and digital signs? What configuration could afford broader cultural sensitivity? What colour combinations would enhance accessibility? When could juxtaposition of figure

and ground, or headline and copy result in heightened response of pleasure? Where, could the iconic sign of a zip done up, underscore the prime message? Why should the secondary info as in 'Sex is worth waiting for' is reduced in dimension; for impact?

Factually and emblematically, the typographic and pictorial components and principles of arrangement were conscientiously, precisely, fittingly and brilliantly well-ordered for the graphic media to be readily accessible. Thus, the 5W&H/Six honest serving men ruse, is formidable to creating innovative ideas for art/design theory, pedagogy, and practice as well as specifically designing efficacious graphic language, media and communication for commercial and institutional/human development campaign.

The Pentad Querying Gambit for Inventive Notions

The Burke's pentad ruse, is a vital investigative device that describes/prescribesthe examination of five components: Act, Agent, Agency, Scene and Purpose to grasp human actions. Ebigbagha (2019, p.17; 2020b, p.234), citing Winterowd (1981),Moxley (2008), and Nordquist, (2017), who cited Burke, (1945), suggests that, presenting the components of the pentad in a sequence of inquiries yield perceptive notions of human experience thus:“Act: what was done? Agent: who did it and what it entails?Agency: how

was it done – tools, means, and methods? Scene: where and when it happened–context, period, and setting? Purpose: what is the reason for an action - goals, incentives and inspiration.

Nonetheless, this ruse has its drawback by disregarding attitude. Even though Burke later included it in the 'Hexad',it was still an insufficient remedy. Nevertheless, adequate novel notions are produced by subjecting the gambit to a grid/ratio scheme (Ebigbagha, 2019; citing Winterowd, 1981; Moxley, 2008; Nordquist, 2017). This entails scrutinizing a component in view of itself and others - what learning could occur when a query of an issue is made by scrutinizing others? To elucidate, what could be learned, when the act is examined in view of agent, scene, agency and purpose?

Ensuing from this approach, are a group of queries: Act-Scene -what could be exposed about the Action through scrutiny of the place/scene, where an event occurs? Act-Agent: what amount revelation could be experienced about an action/actby examining the person/agent, who carries out the action? Act-Agency: (what could be disclosed about the action/act executed by scrutiny of the instrument/agency utilized? Act-Purpose: what revelation could emerge concerning the actions/act taken in an event by critical examination of the reason/purpose for it? This provides a more penetrating, robust and novel ideas to seemingly meh tasks.

Applying the Pentad Querying Ruse in Art and Design

The gambit of pentad is potent for producing notions in art/design, which is a phenomenon emanating from human drive. The veracity of the pentad ruse in art/design theory, pedagogy and practice, can be illustrated thus: Practically, the Pentad is fruitful at yielding inventive notions for efficacious pictorial configuration and communication. The course of formulating the emblem for the ORT campaign (see p.9, figure 1), is a typical example. The ORT Campaign emphasizes the need for graphic communication to be constructed following thorough examination of the ruse. The Act: what is to be done to accomplish the objectives and intended receivers of the Source as well as the info necessities of the receiver?

In scrutiny of the Scene: (in what place the visual communication affords receivers conditions -understanding, ability and performance? In considering the variable of the Agent: which agency/organization is making request for media to be created; who constitute the team for formulation of the media as well who are the receivers – their existing conditions? For the Agency, considerations might be: which materials cum distribution avenues or channels could suitably share messages as purported? While examination of the Purpose, could entail: Is there a desired overall communication aim?

The pentad heuristic in a ratio scheme is vital to inventively create an array of notions crucial towards satisfying teaching and theorizing goals. This could extensively be exemplified this using a topic: 'Attaining pleasant colour connections in Art and Design' as a class lesson in pedagogy and as a subject matter to be analyzed in theory of art and design respectively thus: First, as a topic to be taught; the Act, what is done to achieve harmony of colours?

The scene was deemed next as follows: where and when could pleasant colour associations be achieved? Majority of art/design problems require pleasant connection of colour to satisfy beauty and utility desires as it is paramount in art and design as well as nature that enormously affect receivers' behavior.

After successfully tackling the scene component of the pentad ruse, attention is to probing the agent thus: who is engaged or what is entailed in inventing satisfying colour affiliations? Principally, it is artists and designers that are engaged in the invention of pleasant orchestration of colour.

Then, focus was shifted from enquiries on agent to investigating the Agency, as follows: what ways, approaches as well as apparat uses artists/designers utilize to attain pleasant connection of colour?

In addition, queries were lastly oriented to investigate the purpose following: what is objective to instruct on attainment of satisfying colour connection in art/design pedagogy? Certainly, the aim is for the artist/designer in training to be able to invent products, which meet aesthetic and functional contentment.

Now, let us turn our attention to employing the pentad gambit to addressing the same topic in a different context, art theory/history;by probing to analyze colour harmony within an era, since 1965, for instance, on the iconic depiction of the 'Zaria Rebels'. This might be embarked upon as follows: the act - what occurred for a group to be tagged 'Rebels'? What characterizes their pictorial communication? How was colour manipulated to effect pleasant association? Etc.

Similarly, the Scene would require inquiries thus: at what place and time did the group utilized colour expressively? In what situation is their colour usage influenced by their upbringing? After examination of the act, analysis on the Agent, ought to be hinged on the queries for inventive ideas that provide satisfactory answers for the task as follows: The Zaria rebels, who are they? What peculiarities characterized their iconic lingos, particularly, colour usage, which tagged them 'Rebels?

Moreover, a scrutiny of the materials they utilized for expressing colour harmony would require probing of the Agency, such as: – what ways, technique and instrument was utilized by the group to resolve pictorial challenges?

Lastly, queries are then focused on investigating the Purpose for colour utilization in the works of the rebels thus: – what were the objectives of the group to communicate pictorially in the manner they exhibited?

These enquiries serve heuristic functions, inspire and order inventive thoughts, clarify and direct actions and conserve efforts and energy aside fostering inventive vigor in the course of intellectual and inductive actions and emotional/ intuitive and conscious events in the mind. This engenders knowledge, produce retrospection, understandings and sagacity for reflections, illuminations and discovery of inventive notions.

Like the other gambits previously discussed, a more comprehensive information would be produced when the rudiments of the pentad are subjected to ratio scheme. To illustrate, how is Act impacted on by Scene–in the 1960s, what were the activities of the group as well as what did they do in the year 2000, and now?

Even though the pentad ruse, is valuable to produce inventive notions, it is not fervidly suited to generate concepts to adequately solve problems of structure and audience; which crucial for product development in art/design. Thus, the gambit of Shifting perspectives or Tagmemics, suitable for creating inventive notions that afford structure, audience, knowledge, and perspectives, is hereafter considered.

The Heuristic of Shifting Perspectives

It is needful to examine an issue from diverse angles to produce notions, take an all-inclusive assessment and possess an in-depthunderstanding; which is fundamental for the invention of art/design products. To this end, Ebigbagha (2019), quoting Winterowd (1981), citing Young, Becker and Pike (1970), states that: to know anything, requires knowledge of its disparity, variance and spread. The manners an item contrasts from the remaining in its group; to what extent can an entity vary, yet remain itself; and which place an item could often be found in its category. This approach is garnered from Tag memics, a linguistic structure to scrutinize dialectal phenomenon, which queries center on disparity, variance, andspread. Also,whatever is known can be viewed as a staticobject with unchanging feature, as a process of changingobjectand as a system with all parts working together and interrelatewith others.

The possession of productive understanding for material advancement, requires knowing and viewing an issue from diverse angles, which imply a merge of the six elements: contrast, variation, distribution; and feature, process, system. Ebigbagha (2019) citing Winterowd (1981, p. 98) put these in queries format thus: how is the object different from the whole lot in its category, to what extent can the object vary, alter or be transformed and yet maintain its nature; as well as places the object is found or dispersed in its category? And, what typical characteristics exist of the object; how does it operate, and alters in the process, and how does it do it; and how does the parts of the item work together and interrelate with others in a systematic order?

Like other gambits examined, placing the components of viewing and knowing in ratio scheme, generates a more detail inventive notions. Ebigbagha (2019, p.20), citing Winterowd (1981) explicated the versatility of the grid scheme thus: The six questions, when split into a grid of contrast, variation and distribution of knowing at a right angle with features, process and system of viewing; a grid of nine, five groups that result in eighteen questions is formed. These are: (1a),Feature-Contrast; (1b), Process-Contrast;and (1c),System-Contrast. (2a), Feature-Variation (2b),Process-Variation; and (2c), System-Variation. (3a),Feature-Distribution, (3b) Process-Distribution, and (3c)System-Distribution. (4a), Process-

Contrast, (4b) Process-Variation, and (4c), Process-Distribution. (5a), System-Contrast, (5b) System-Variation, and (5c), System-Distribution.

These probes are priceless for inventiveness and analytic examination of notions and forms for the formulation of material development in art and design.

Utilizing the Ruse of Tagmemics in Art and Design

The tagmemics gambit is dynamic to formulate notions on practice, teaching, and theory because actions and forms are enormously diverse in feature, procedure and scheme as well as disparity, variance and dispersal. In practice, the use of the gambit, can produce outcome of notions for potent formation of graphic media. This is epitomized by the logo produced for the Oral Rehydration Therapy (ORT) campaign in Egypt (see Figure 1), it is vital for the artist/designer to conduct queries that relate to structure hinged on target audience circumstances in the process of media formulation thus: what is the feature of the product anticipated; or what mix of iconic and digital signs would satisfy the source and receiver needs?

A probe on process is another vital approach to create notions for structural features. For illustration, what course would produce graphic messages, which achieve the anticipated communication objective and accessible to receivers? Scrutiny need to consider side-by-side the appearance of the

graphic message, which is the stimulus situations “intensity, size, message novelty, position, and context”, as well as the receiver circumstances - info desires, outlooks, ideals, concern, assurance, societal background, and reasoning fashion for proper perception (Ebigbagha,2016b; citing Aaker & Myers, 1981 in Ejembi, 1989). This fosters achievement of its expected aim.

Besides, a fundamental determining factor of structure and audience is the system. This could be seen in the relation among the options, when viewed as a whole. It created possibilities for comparative analysis in the course of the pretest and permitted the selection as well as the improvements made on the logo by the target audience.

Equally, the difference, variance and spread of the surface characteristics between the selected as well as the disregarded alternatives by sample of the intended receivers immensely defined the structure of the emblem and reaction of target audience.

The shifting perspective gambit is veritable to inventively generate innovative notions crucial for practice in art/design. Ebigbagha (2019, pp. 21-22), lucidly depicted this in a sequence of illustrations portraying variations in mood and meaning interpretations anchored on queries of viewing:

features, process, system; and knowing: disparity, variance and dispersal (Figure 29 a, b, c, and d). He elucidates thus: the photo (figure 29a)was the reference and spring of stimulus that was inventively modified, using strategies of combination, exploration and transformation. Specific consideration was made to alter the disparity, variance and dispersal of the outlook, procedure and scheme at the back, middle and foreground (see figure 29 b, c and d).

a

Reference Photograph' Before Rwandan Devastation, a nutrition programme stressed using Indigenous food crops (African Farmer, 1995: 2).

b

Kirigboro Otu Egberibo 2002 Oil on canvas 36" x 48"

c

Kirigboro Otu Egberibo 2012 Oil on canvas 48" x 60

d

Kirigboro Otu Egberibo 2009 Oil on canvas 48" x 60"

Figure 29 a, b, c and d: Showing ideational variations based on shifting perspectives heuristic.

Correspondingly vital, is the ruse of Shifting perspective in grid format to creating notions for theorizing and teaching art and design. For exemplification, in utilizing an earlier analogy, 'Attaining pleasant connection of colour in Art/Design' for teaching and theorizing.

Second, the gambit can be used in art and design theory and history to create notions and scrutinize events as well as products of an era. For example, a task in art history, to probe the extent colour is related harmoniously in workings of the group, “Zaria Rebels”.

Thus, the gambit, like the other ruses examined are vital for inventiveness in art and design. They are crucial to create multiple inventive notions for practical, pedagogical and theoretical needs. This is consequent upon been invaluable to query for solutions that meet structural and human development.

Production/Utilization of Accessible Graphic Communication for Sustainable Development

The production and utilization of graphic communication is hinged on accessible graphic media and language, However, some fundamental challenges confronting the media design process include high degree of urgency and prevalent unawareness of the area the graphic encoder need intervene

in the media production process for salutary effect.
The high degree of urgency that is usually associated with campaign situations in development communication does not give the graphic encoder adequate time to grasp the issues of development, so that it could properly be addressed from a well-informed standpoint of view. This is exemplified in 2006, by the 'Kwara is Bird Flu Free' concerted communication effort from the Kwara State government' (Ebigbagha, 2013; 2016b).

In the above campaign, the graphic encoder, was hurriedly made to produce a draft, been instructed by the government through the commissioner of information via the director of information/graphic unit. In addition, the person that encoded the graphic message was not incorporated in any of the phases in the course of the media development sequel to the media draft stage, such as the clarification of aim and target audience with media requesting agency, topic study, and message determination and media production plan. These activities would have prepared the mind of the graphic encoder to be engaged in some levels of intellectual, inductive, emotionally intuitive and conscious activities that would have provided a more comprehensive grasp of Avian Influenza, the subject matter of the campaign. Then been instructed the graphic encoder created graphic messages in less than a seventy-two-hour deadline. Moreover, with

inadequate knowledge of the subject matter and not been a graphic design specialist the graphic encoding choices and media made were encumbered with semantic, syntactic, technical, aesthetic and arousal uncertainties. This resulted in poor and inaccessible graphic messages that led to failure of the graphic communication campaign (Figure 30a, and b).

a b

Figure 30 a, and b: Showing handbill and poster on Bird Flu Campaign Kwara State (Ebigbagha 2010, 2016a)

The handbill (figure 30a) is configured with Ayer No. 1 pictorial plan, suitable for the configuration of poster instead of handbill. The key notion, "Kwara is Bird Flu Free," was inappropriately contrasted with reckless abandon of the principle of chunking, which result in it not been read together as a whole. Likewise, the spacing of the secondary message "eat well cooked chicken and eggs" is crooked in form, which inhibits accessibility of the prime message. Also, the diagonal lines overhead the eggs, from which the broilers peck feeds, leads the eye of viewers away from the central idea in the picture; which is worsened by the vertical lines of

protectors through which the broilers stick out heads to feed. These uncertainties are more or less reflected in the poster, which was excessively worded and noisy (see figure 30b).

The limitation of the urgency in campaign situations is usually aggravated by the prevalent unawareness of where the graphic encoder's intervention and participation at the numerous phases in the course of formulating graphic media is pivotal for achieving success in graphic communication campaign. The unawareness of these crucial points is exhibited by the engagement of the graphic encoder at mostly and only at the stage of the media draft in the communication development process, which is a key reason for the failure of most development communication campaigns. An examples is the "Prevention of Mother-to-Child Transmission of HIV - PMTCT"(Ebigbagha, 2016a).

The World Aids Foundation and the Nigerian National AIDS/STD Control Programme, Federal Ministry of Health, collaborated in 2003, to launched the PMTCT campaign. Workshops on the subject matter of the campaign involving specialists in different but related fields, including graphic communication were held in Abuja and Kaduna.

In the preparatory stage of the campaign, operations research was conducted in several zones of the country. Data was

collected and guidelines for process report writing and varieties of interviews, among others was made available (National Manual for PMTCT Operations Research, 2003). This point of study of the subject matter of the campaign is one of the key areas the person(s) to encode the graphic media ought to have mediated and team up with other stakeholders before the actual creation of the graphic message for the campaign.

The challenges of urgency, and the prevalent ignorance of where the graphic encoder should intervene in the course of formulating the media during campaign, could be ameliorated. It requires development of a yardstick to assess the activities, functions and roles, of communication actors, and framework that pinpoints the crucial areas the graphic encoder need intervene for successful communication campaign that usually yields desired result.

Yardstick for the assessment of graphic communication campaign media development

Ebigbagha (2010, 2016a),describes/prescribes a yardstick for the assessment of activities, functions and roles of communication actors in graphic media production and campaign. It interfaces the crucial points for collaboration in the course of production of the graphic media and concerted efforts of communication. The yardstick has six variables (Figure31).

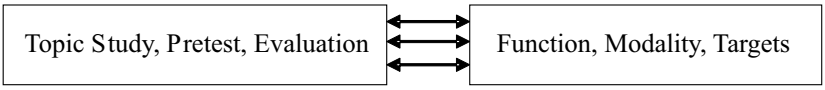


Figure 31: Showing yardstick for graphic campaign media development (Ebigbagha, 2010; 2016a)

The yardstick describes/prescribes six basic variables, crucial in the media production and graphic communication campaign processes, which are: Topic study, Pretest, Evaluation and Function, Modality, Targets.

Topic study, is the set of activities embarked upon to grasp the subject matter of the campaign. Otherwise, the message and channel, which is fundamental to media production would be void of informative and persuasive content. For this reason, the topic study is indispensable and a crucial point for the collaboration of the Source, media team and graphic encoder as well as he intended receivers in the course of communication progression. This collaborative effort is needful to generate adequate information and grasp of the development communication topic, theme and issues at stake and comprehend target audience information needs that would assist the graphic encoder to make informed choices/decisions based on knowledge from action research on the topic study.

The pretest, is a crucial stage in the course of making the graphic media that requires alliance of every communication player comprising the receiver. It involves trying the draft of

the graphic media with sample of the receivers at its formative stage to know whether or not the media draft elicit response from receivers as purported. This aims at making adjustments where necessary for improved graphic media draft and to ensure the draft matches the communication skills of target audience.

Evaluation is an indispensable, it involves a range of activities to assess the total communication campaign process from its inception to when it breaks to ensure that weaknesses are noted and prevented in future. Likewise, areas of strengths are reinforced for subsequent engagements. Areas evaluated include target audience reaction, reach and achievement of communication goals.

Function is important in graphic communication campaign, where subject specialists perform specific roles and activities afforded by specialized training and skill acquisition. The Source, performs the role to encode, interpret and decode messages, whereas, the target audience, carries out the function to decode and interpret information as reaction from the receiver reaches the Source via response.

The information about the roles carried out by the source and receiver, plus the alterations on that of the messages at the preliminary and developed phases of the campaign is vital,

especially, for the person that encodes messages into graphic form and broadly, for other communication actors. This is necessary so that roles would be played appropriately without obtrusive intrusions that could negatively affect the entire course of creating media for the graphic message.

Modality, is set of activities to ensure that messages are encoded to be as informative or persuasive as possible at the preparatory stage. This is realized through the activities to ensure that the quality and handling of the graphic communication is useful practically, aesthetically, semantically, syntactically, and stylistically to achieve communication targets. Whereas, activities that operate on the graphic message at the advance stage include: consultation, revision, encoding, pre-testing, evaluation and recoding, using the modality for distribution to receivers via communication, advertisement and fanfare.

Targets, is attainment of exact/overall goals of the whole concerted communication enterprise. This is indispensable because it is the essence of all the communication efforts.

These variables afforded the construct of valid and reliable instrument for data collection. This yardstick, when engaged to examine the functions and actions of team members concerned with making effective IEC materials in the graphic

campaigns mentioned in this lecture, produced measurable results. This is in relation to identifying the appropriate points for the encoder of the graphic media to get involved with specialists in other areas that constitutes a squad in the course of media fabrication, which is pivotal for success.

Effective Graphics Communication for Development

Effective graphic communication for the purpose of human development is a product of collaborative efforts among communication actors. It is important for the encoder of the graphic message to mediate and cooperate with other subject specialists in all stages during the course of creating the media. There are eleven phases in the course of producing media, of which ten stages, except the Source - Media requesting agency that begins the process, are important points the graphic encoder should intervene for the successful outcome of graphic communication for development. The ten stages in the media production process are depicted (Figure 32) and described as follows.

(I) Clarification with requesting media, is an indispensable area for the Graphic Encoder's Intervention. The intervention begins at a point where clearing up is made with the source. Here, the aims and target audience of the source are clarified with the graphic encoder. This is essential for the encoder of the graphic message to effectively perform his/her mediation role amid the source notions and intended receiver's

information requirements. A high level of collaboration is important for the effective intervention of the graphic encoder at this stage. For an instance is the Delayed Sexual Debut Campaign by SFH, (Ebigbagha, 2016b).

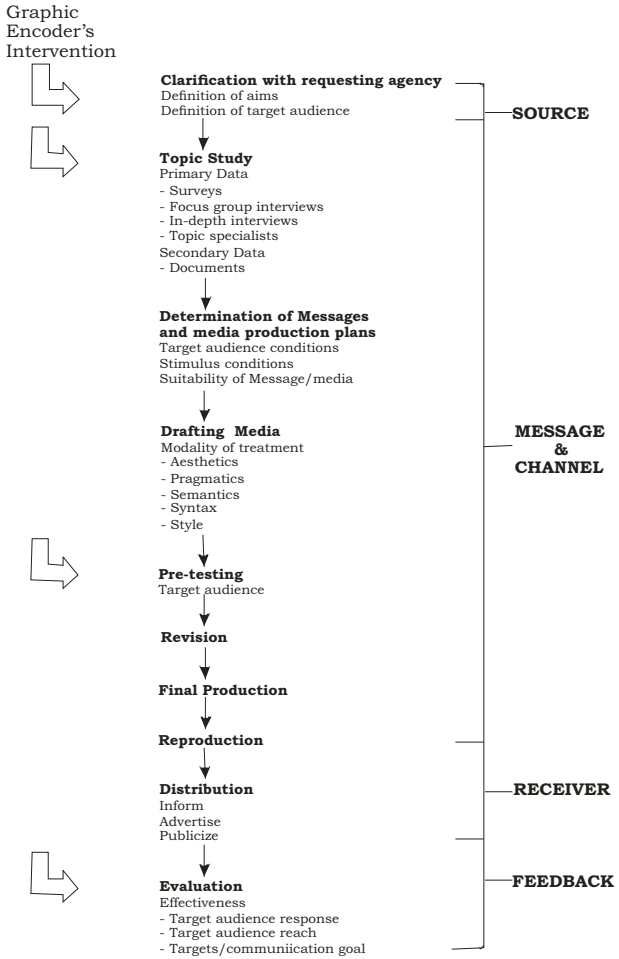


Figure 32: Showing areas where the involvement of the graphic encoder is key for effective communication media production (Ebigbagha, 2010; 2016a).

This results in effective graphic media and communication. Conversely, the Use Condom and Bird Flu Campaigns did not have sufficiently and necessarily collaboration, which resulted in rash encoding choices/decision-making, ineffective graphic media and communication failure.

(ii) Topic study, is an indispensable area for the Graphic Encoder's Intervention. This stage of the media development process involves activities of knowledge production on the campaign's theme. Primary data from target audience, topic specialists through surveys, discussions and interviews, etcetera; and secondary data from documents are collected. This provides needed information that enables the graphic encoder to think and make informed decisions about design strategies essential to create effective graphic media.

(iii) Determination of messages and media production plans stage involves understanding of the target audience conditions and stimulus conditions. It is vital that the encoder of the graphic message be a part of the process in mapping out plans for media production. At this stage, important decisions are taken on the campaign strategy, the specific/general targets, tonality, personality, delivery pattern, creative considerations, mandatory inclusions, advertising requirements on television, radio, print, deadline, project timeline, and evaluation; as spelt out in the Creative brief for the Delayed Sexual Debut campaign.

(iv) Drafting the Media, is a stage that involves the graphic encoder, who transforms development ideas into graphic messages. using graphic and typographic elements that match target audience knowledge, aptitude, practices, communication skills and socio-cultural environment.

(v) Pre-testing is an indispensable area for the graphic encoder's intervention. Testing of media draft with target audience at its formative stage is conducted to know whether or not the media draft communicates with target audience as intended and make improvements where necessary. While the decision might be taken by the media team/graphic encoder that the draft matches target audience skills of communication, a preliminary test in the field might prove otherwise; for example, the ORT Campaign in Egypt (see figure. 1). The media drafts for the Delayed Sexual Debut were subjected to initial evaluation with the intended receivers by the SFH research unit. using focus group discussion, on the basis of which corrections were made. Radio and television spots were produced to rough cut stage for pre-testing. The result was effective graphic communication. On the contrary, were the campaigns on Use Condom by SWAAN, and Bird Flu by the Kwara State Government.

(vi) Revision of the Draft is a stage the media draft is reviewed if the pretest outcome indicates such actions. Necessary adjustments are made to ensure that the messages bring about the anticipated reaction from the receivers.

(vii) Final Production of Revised Draft is the stage where necessary corrections have been made. At this point, the media team concludes that they have the best information and materials required to communicate decisively with the target audience.

(viii) Reproduction of the Final Draft is the making of replica copies of the final production through mechanical or electronic means. For example, in the Delayed Sexual Debut Campaign, Mass dubbing was done for broadcast on radio and television. 55" scripts in Pidgin and Hausa were produced for the radio, four television spots of two each in English/Pidgin and Hausa and one for each gender for the television, and billboard, posters, and stickers for the print.

(ix) Distribution of Reproduced Draft is the stage where messages are disseminated through electronic or print media outlets. The aim is to inform, advertise, or publicize development messages to target audience, which is essential for its adoption/utilization. In the campaign of the Delayed sexual debut, the need to address both widespread lack of

knowledge and misconception about self-restraint and enabling those who desire deferral to sexual action pending when they are prepared, made all mass media to be employed for the dissemination to address specific and general targets. The broadcast was complemented with billboards, posters, pamphlets, "idents", and sticky labels to strengthen messages and increase consciousness. 56 radio stations and 54 television stations across the country were used to disseminate the primary messages and secondary information in English and Pidgin as well as Hausa lingos. Billboards were mounted by specialists in outdoor advertising on scheduled locations across the country. The result was excellent.

(x) Evaluation is an indispensable area for the Graphic Encoder's Intervention. It involves an overall assessment of the development process to know how effective the communication campaign has been. This is necessary to note where errors occur and make adjustments in subsequent campaigns. It involves the assessment of target audience response, reach and achievement of communication goals.

From the foregoing, the graphic encoder's participation in the development communication process is crucial in all the stages for proper mediation concerning the source goals and intended receivers' information necessities. However, where

it is impossible to embed the encoder of the graphic message in all the phases because of logistical reasons, these four areas: “Clarification with Source, Topic study, Pretest, and Evaluation are indispensable for effective graphic communication. The observance or transgression of the graphic encoder's intervention in these areas, determines the success or failure of graphic communication for sustainable human development (Ebigbagha 2016a, p.170).

Conclusion

Graphic media impel sustainable human advancement. This is hinged on its indispensability for target audience readiness to adopt and adapt development ideas to existing local conditions for sustainable growth and progress in our society. Crucial in this process, is accessible graphic language that elicits desired target audience response. Invariably, designing accessible graphic media is indispensable. This involves pleasant composition/layout formats, harmonious colour utilization, and exploratory, combinatorial and transformational inventive gambits in the light of existing target audience conditions. Accessible graphic communication is engendered when the encoder of the graphic message is entrenched at minimum, in the course of creating the media at the phases of clarifying the aim and receivers of the source, studying the topic, pretesting the draft of graphic media, and overall assessment of the campaign. This is a fundamental solution to the prevalent creation and utilization of inefficacious graphic media for sustainable human development.

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NDU 50TH INAUGURAL LECTURER

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A PROFILE OF EBIGBAGHA ZIFEGHA SYLVESTER

Ebigbagha Zifegha Sylvester (Ph.D., MSNA, FSERD),is a Professor of graphic design and communication. His focus is on the production/utilization of effective visual communication for prevalent non-literate target audience. Towards this end, he has 27 publications in literary language and 154 in graphic language that elucidate and illuminate gray areas in art/design, which include composition, colour and creativity. Also, he developed materials and techniques that comprise thermoplastic acrylic sheet - a panacea for fallouts and discolorations, which plagued the technique of collage with paper and other materials. Furthermore, he advanced mathematical, verbal, and graphical gambits to the science world in art/design. These consist of: (i) A mathematical model (AnCH $\{V^9 + I^5\} = 1$, where AnCH, is the alphanumeric code for a desired harmonious scheme(Monochrome-M: 1; Analogous-A: 1, 2, 3; Direct Complement-DC: 1, 7; Split Complement-SC:1, 6, 8; Near Complement-NC: 1, 6 or 8; Triadic-TR: 1, 5 ,9; Tetrad-TD: 1, 3, 7, 9 or 1, 4, 7, 10; and Balance-B: 1,6, 10)showing number of the hue; V^9 value scale of nine gradation and I^5 intensity scheme of five nuance of the hue carefully chosen from the wheel), for harmonious colour relationship. (ii) A set of verbal heuristics (Brainstorming,

Design checklist, 5W&H, Pentad, and Tagmemics), are advanced through expository adaptation to overcome been stuck creatively and generate inventive notions to problem-solving in pedagogy, practice and theory of art and design. (iii) A yardstick (topic study, pretest, evaluation; and function, modality, targets), to evaluate the roles/activities in the course of developing media for graphic communication campaigns; and (iv) A graphical framework that pinpoints vital areas (clarification of source's goal/receiver, topic study, pretest, and evaluation), for graphic encoder's intervention to produce effective media for development. Nevertheless, his illustrations are in prestigious collections, few of these include, five African presidents (Jerry Rawlings and John Kufo of Ghana, and Abdusalami Abubakar, Jonathan Goodluck and Buhari Muhammadu of Nigeria); as well as the Nobel laureate, Wole Soyinka.

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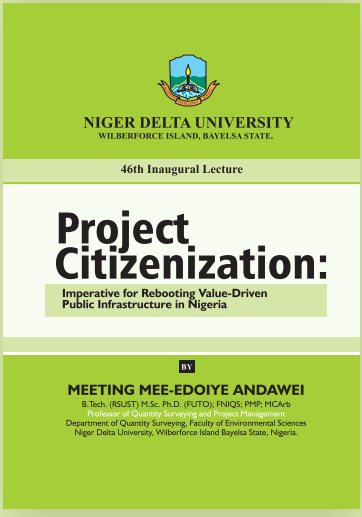

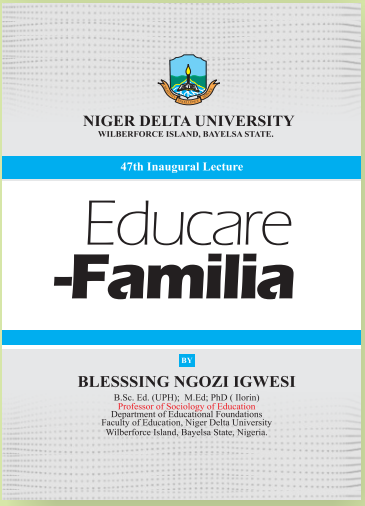

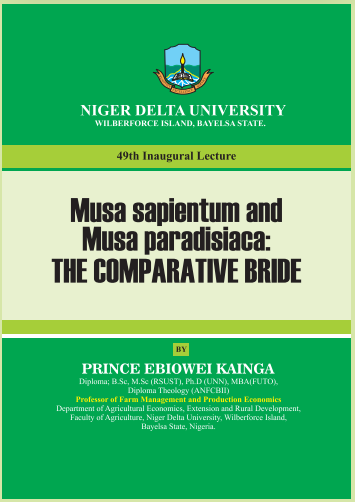

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