Graphic Design Occupational Hazards: A Case Study of Ilorin Metropolis, Kwara State, Nigeria

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ABSTRACT

This study explores the occupational hazards faced by freelance graphic designers in Ilorin metropolis, Nigeria. The research identifies commonly practiced areas of graphic design, assesses awareness of occupational hazards, and evaluates perceived importance of safety measures. A survey and interview were conducted among freelance graphic designers and lecturers of visual arts/graphic design. The findings reveal varying levels of awareness regarding occupational hazards, with opportunities for improvement in areas such as eye strain, chemical exposure, and ergonomic risks. The study highlights the importance of prioritizing safety in graphic design studios and adopting best practices to minimize risks. The research contributes to the development of training programs and policies aimed at enhancing awareness and preparedness among freelance graphic designers

Background of the study

The profession of graphic design, among other vocations in Ilorin metropolis, Kwara State, Nigeria has been influenced by significant growth and transformation in recent years. The vocation is driven by increasing demand for visual communication for political and commercial purposes; this is evident in Shagaya (2023), as a result of advances in modern technology in the areas of materials and equipment used in graphic design production. In addition, Schramm (1964) (as cited in Salawu 2004) noted that since the development of desktop publishing, the print media have become tools of political and social change. Lupto (2017), affirms that visual communication is a powerful tool for and the preferred medium for information delivery because of its expediency and brevity.

Graphic designers play a crucial role in creating visual content that communicate messages, express idea and capture audiences' attention through the use of appropriate materials and equipment. Many graphic designers must have handled and worked with some of the traditional and modern materials and equipment during the pre-digital and digital era since childhood in production and reproduction of graphic design, and it may be difficult to believe that these materials and equipment could be risky and hazardous to health.

However, this noble profession of graphic design is not without occupational hazards and risks; although some efforts have been made in the past on the documentation of health and risks faced by workers in the creative industries (Hesmondhalgh & Baker 2010), it appears graphic design in particular has not been focused on. This paper delves into filling the research gap by exploring the hazard, risks and challenges faced by the graphic designers in studios, create awareness and identify possible and effective precaution and solutions.

Aim of the study

The aim of this study is to identify the hazard associated with areas in graphic design commonly practiced in Ilorin metropolis and to identify strategics for mitigating the risks.

Objectives of the study

The objectives of the study are as follows:

1. Identity the areas of practice of graphic design in Ilorin metropolis.

2. Determine the level of awareness of graphic designers regarding occupational hazard result from the use of materials and equipment.

3. Identify possible precaution/solution in the occupational hazard resulting from equipment and materials used in graphic design production and reproduction.

Question of the study

1. What are the commonly practiced areas of graphic design in Ilorin metropolis?

2. What are the levels of awareness of graphic designers regarding occupational hazard resulting from the use graphic design materials and equipment.

3. What are the possible precautions/solutions to the occupational hazard resulting from the use of materials and equipment used in graphic design production and reproduction.

Justification of the study

Hence the importance of health and safety in graphic design studios cannot be overemphasized, it becomes desirable for graphic designers to be adequately informed about on health and safety procedures associated in their area of practice.

Significant

This study is of high significance to the field of graphic design as it addresses the challenges hazard, and risks and possible precision/solution in the field. The paper also contributes to the heathier and safer work environment in the graphic design studios for effectiveness and maximum output in the profession. This also paper serves as a reference point for researchers working in the similar area of study.

Scope of the study

The main focus of this study is on selected areas of graphic design commonly practiced as vocation in Ilorin metropolis. For the purpose of effective collection of data for the study, the researcher delimited the scope to Ilorin. Ilorin, aside being the state capital of kwara state, its heterogeneity in nature, the hub of commercial activities and it as well host institutes of higher learning that teach graphic design.

Literature review

In order to achieve the intention of this study, it became necessary to examine relevant literature in tandem with the objective of the study. The literature review explores the different branches of graphic design mostly practiced in Ilorin metropolis, Nigeria, the materials and equipment used, as well as occupational hazards and their possible precaution solutions.

1. Visual Identity Design

Graphic design for visual identity is a branch of graphic design that deals with visual elements of brands, services, products or identity as the face to communicate through photographs, typography, color and shapes. In addition, Cann, (2018) states that visual identity is a kind of preview of brands, products, each part of created design has a clue that tells the target audience what they can expect. Branding design focuses on creating logos, typography, and visual elements that establish a company's identity. Research by Wheeler, (2017) emphasizes the role of color psychology and typography in effective branding. To achieve this, designers rely on various equipment and materials.

1. a Materials/ Equipment

Computer and monitor with high color accuracy and different categories graphic design software for speed and effective design. The computer must be a powerful device with high processing speed, good Random Access Memory (RAM), and a high-resolution display (e.g., MacBook Pro, Dell XPS, iMac). The designers in this area require graphics tablet for digital sketching and precise illustrations (e.g., Wacom, Huion, iPad Pro with Apple Pencil) and also Printer and Scanner. The hazard that may result from the usage of the equipment and materials associated this area of practice are explained below.

1. b Potential Occupational Hazards

The occupational hazards in this area of specialization include; Digital eyes strain due to prolong exposure to blue light from screens. Another important occupational hazard is sedentary lifestyle of spending most workday sitting, which can contribute to musculoskeletal disorder as well as repetitive strain injuries.

1.c Solutions

Taking regular break to rest eyes, Sheppard, & Wolffsohn, (2018) advises to follow 20-20-20 rule for eye strain, that is every twenty minutes, look away from your screen and focus on something to decreases risk of computer vision syndrome and alleviates symptoms like dry eyes, headaches, and blurred vision.

Ergonomics furniture is recommended to minimize stress and discomfort, and take regular break. The graphic designers working in this area are advised to practiced proper typing and mouse technique to reduce the risk of injury, fatigue, improve efficiency and promote comfort while working on computers.

2. Web and UI/UX Design

Web design, User interface (UI) and User Experience (UX) design focus on creating visually appealing and functional digital interfaces. Krug (2014) discusses the principles of usability and intuitive navigation as key aspects of UX design.

User interfaces (UI) interact with application or electronic device. Fred (2020) explains that user interface (UI) includes all the components the graphic designers use to interacts with the computer or mobile phone screen, keyboard and mouse; the author further states that in graphic design, user interface (UI) design is basically on the user's visual proficiency and the design of on-screen graphic features such as micro-interactions, buttons, menus, and many more. The job of the interface (UI) user is to balance aesthetic appeal with technical effectiveness.

User interface (UI) graphic designers specialize in desktop applications, mobile applications, webs applications and games. User interface (UI) designers work in tandem with user experience (UX) designers that determine how the application works and (UI) developers that write code to make it function. Below are the examples of user interface (UI) graphic design. Application design, Game interfaces, Theme design such as Shopify, WordPress, Web page design. In addition to graphics applications, the designers must possess knowledge on language programme languages like CSS, HTML and JavaScript as advised by (Fred, 2020).

2.a Materials/Equipment

Graphic designers specializing in this area of graphic design make use of computer and monitor with high color accuracy and different categories graphic design software such as Sketch, Figma, Adobe XD for speed and effective design

2.b Potential Occupational Hazards

Eye strain, MSDs, RSI, stress, anxiety

2.c Solutions

Prioritize tasks and manage workload, establish clear communication channels with team members and stakeholders in the studios as well as taking regular breaks and practice stress-reducing techniques. Always adopt the idea of using eye care software to remind you to take breaks and invest in an ergonomic chair and desk as explained earlier above

3. Environmental graphic design

Environmental graphic design involves of strategic landmarks, signage, and visual signs as means of identification of where people are and further directions (Artur, 2018). Through this area of graphic design, people get connected to places and the visual impressions such the listed below improve people's experience by

making places and spaces more, informative, memorable, interesting. Environmental graphic design is a broad type of design, here are some examples:

Signage such as directional signs/ street tagging, wall decoration/ murals painting, exhibitions in museum, branding of office, navigation for public transportation, interiors for retail store, branding of stadium as well as event and conference spa

3.a Materials/Equipment

Computers, software (Adobe Creative Cloud), printers, paper, ink, paint pigments/chalk dust

3.b Potential Occupational Hazards

Materials like ink, paint pigments/chalk dust may be toxic by ingestion or inhalation, if mixing dry powder, sanding paint, or using pastels. Many inorganic pigments contain highly toxic metal and some organic pigments may cause long-term effect such as cancer. Eye strain, MSDs, RSI, chemical exposure.

3.c Solutions

Use protective gear when handling chemicals. Wherever possible, substitute less toxic materials for powdered pigments lead, cadmium, or mercury. Invest in an ergonomic chair and desk and take regular breaks and practice stress-reducing techniques. Occupational Safety and Health Administration, (2022) advises to properly handle and store inks to prevent accidents and exposure to hazardous chemicals; provide adequate ventilation to prevent inhalation of ink fumes and solvents; adopt and Personal protective equipment (PPE) by wearing PPE, such as gloves and masks to protect against skin contact and inhalation of hazardous substances.

4. Print and Publication Design

This is another aspect of graphic design that deals in publications that communicate with target audience. Publication design is basically communication of information through a certain medium such as books, newspapers, magazines, brochures and catalogs. Therefore, publication graphic designers must be effectively skilled in the area communication regarding the signs or codes understood by the consumers, organizational and layout of design elements such typography, photography (Shagaya, 2011).

4. a Materials/Equipment

Computers, printers, paper, ink, solvents for mixing printing ink, graphic design software such as (Adobe InDesign, Adobe Illustrator

4. b Potential Occupational Hazards

Eye strain, Musculoskeletal Disorders (MSDs), Repetitive Strain Injury (RSI), stress, anxiety, chemical exposure are irritant or moderately toxic.

4. c Solutions

Prioritize tasks and manage workload, establish clear communication channels with team members and stakeholders and develop the habit of taking regular breaks and practice stress-reducing and adopt the system of using protective gear when handling chemicals. If possible, it is advisable to use tube or pre-mixed paint and commercially available inks to avoid mixing your own. Allow ventilation hood. Use water-based products instead of solvent –based ones where possible. Chemical containers should be kept closed when they are not in use. Graphic designers could invest in an ergonomic chair and desk. Lupton, (2017) encourages graphic designers possess adequate training and support that can help to avoid errors and troubleshoot issues.

5. Motion Graphics and Animation

Motion graphics integrate video, animation, and text to create engaging content. According to Shilo (2018), this branch has grown with the rise of digital marketing and social media.

5. a Materials/Equipment

Computers, software (Adobe After Effects, Blender) and furniture

5. b Potential Occupational Hazards

Eye strain, Musculoskeletal Disorders (MSDs), Repetitive Strain Injury (RSI) could occur as when graphic designers perform repetitive tasks often with poor posture or inadequate technique, leading to strain and injury to muscles, tendons, and nerves. Stress and anxiety

5. c Solutions

Use eye care software to remind you to take breaks, invest in an ergonomic chair and desk. Take regular breaks and practice stress-reducing techniques as advised by Sheppard, & Wolffsohn, (2018) and Occupational Safety and Health Administration (2022).

6. Packaging Design

Packaging design combines aesthetics with functionality to create product packages. Studies by Ambrose and Harris (2016) indicate that effective packaging design influences consumer purchasing behavior.

6. a Materials/Equipment

The materials used in packaging design depend on the product type, durability needs, and environmental concerns. Common materials include: **Paper & Cardboard** are used for boxes, cartons, and eco-friendly packaging such as **plastics and** bottles containers. **Glass** is used for premium product packaging like cosmetics and beverages. **Metals (Aluminum, Tin, Steel)** – Used for cans, foil, and food containers. And other **biodegradable and recyclable Materials** – Includes compostable films, molded pulp, and bioplastics

6. b Potential Occupational Hazards

Different packaging materials present various hazards:

Chemical Hazards, some plastic packaging may leach harmful chemicals into food or beverages (e.g., BPA in plastics), **Physical Hazards,** during and after production, sharp edges from cut materials, glass breakage, or poorly sealed packaging can cause injury.

Environmental Hazards on non-biodegradable materials contribute to pollution and landfill waste. Dust and fumes from printing inks, adhesives, and coatings may cause respiratory issues and some packaging materials (paper, certain plastics) are highly flammable.

6. c Solutions

To ensure safety in packaging design and production, consider these precautions:

Use food-safe, non-toxic, and recyclable materials whenever possible. **Proper handling and storage** for packaging materials. The materials should be kept in dry, cool areas away from direct sunlight or heat. Workers handling cutting tools, adhesives, or chemicals should use gloves, masks, and goggles. In case of fire **prevention**, implement fire-resistant treatments for paper and plastic packaging. **Environmental Responsibility**, packaging materials should be eco-friendly materials and ensure compliance with sustainability regulations. Packaging materials should be under **Quality Control** for defects that could lead to hazards. By following safety practices and guidelines, packaging designers and professionals can minimize risks and ensure a safe working environment, (Occupational Safety and Health Administration 2022)

Methodology

The methodology employed in this paper integrates comprehensive review of existing literature on occupational health and safety in graphic design studios, coupled with empirical observations gathered from graphic design

studios and discussion the researcher had with the selected freelance practicing and lecturers of graphic design through survey, and conducted a statistical study on a sample population to form opinion about the research topic.

Population of the Study

Selection of the population sample was done by purposive sampling method. This type of sampling ensures that only those elements that are relevant to the research were included. The population are 28 lecturers Visual Arts/Graphic Design and 48 freelance practicing graphic designers.

Sample Size and Sampling Technique

The researcher used the entire members of the population of this study. This is called census population. The entire members of the population were used as the sample because the population was small and also to avoid under coverage of the population (Stat, 2016). Bernard (2012) opined that if the population of the study in research is less than two hundred (200), the entire members of that population can be used. However, Ilorin, the state capital, was identified as the chief host of the population of the study because of the hub of graphic design activities.

Instrument for Data Collection

The Likert techniques assigned a five-scale value to each item on the structured practicing graphic designer questionnaire and lecturers of graphic design questionnaire. The reason for structuring the questionnaire into two (2) different part was due to the fact that, most freelance graphic designers in Ilorin metropolis do not have formal graphic design training (Shagaya 2023); therefore, they might not have adequate knowledge on the occupational hazard; and this might hinder effective data collection on the topic.

In this study, a closed-ended type with five-point scale questionnaire to source information as in table one (1) and two (2). The response obtained were assigned numerical values, and by summing up individuals' response to all the statements, a total score helped to determine the respondent's view on the variable being measured. This was done by stating clearly SA: Strongly Agreed (Score- Five); A: Agreed (Score- Four), D; Disagreed (Score- Three) SD; Strongly Disagreed (Score- Two), U; Undecided (Score- One). The Likert techniques assigned a five-scale value to each item on the structured lectures of Visual Arts/Graphic Design and the freelance graphic designers' Questionnaire to indicate respondents' judgment for the value of each item as follows:

SA: Strongly Agreed (Score- Five), A: Agreed (Score- Four), D: Disagreed (Score- Three) SD: Strongly Disagreed (Score- Two), U: Undecided (Score- One).

Freelance graphic designer questionnaire

This set of questionnaires addressed research question two (2) with close-ended statements (in items 1-9) it sourced required information on the level of awareness among graphic designers regarding occupational hazards associated with different branches of graphic design as in table 1

Lecturers of visual arts/graphic design questionnaire

This set of questionnaires addressed research question three (3) with close-ended statements (in items 1-6) it sourced required information on the possible precaution/solution to the occupational hazard resulting from the use of materials and equipment in graphic design production and reproduction.

Interview schedule

The research question one (1) was responded to by the researcher through survey and interview as it dealt with identification of the commonly practiced areas of graphic design in Ilorin metropolis, and identification the freelance graphic designers and their areas of specialization

Validity and Reliability of Instrument

To ascertain the validity of the instrument used, content validity was done by checking the structured questionnaire items in tandem with the objectives of the study and research questions This was in order to determine the extent to which the instrument relates to the stated objectives and ensure that the instruments convey the same meaning to all respondents and measures accurately what it intends to measure

Procedure for Data Collection
The collection of data was personally conducted by the researcher. The distribution and collection of questionnaires was done at the same time. This was done to avoid any obstacle that might affect the administration of the questionnaire. The researcher followed the respondents to their various locations during data collection. Two weeks were used to distribute and collect back the instruments.

Procedure for Data Analysis
Analysis and simple percentage were used to analyze the data collected via survey and questionnaires. This method of data analysis was considered suitable because the result is represented and distributed in tables using percentages.

Data Analysis
The results of the study were observed from mean of the respondents on the research questions based on decision rule that a statement is considered positive if the calculated mean is equal or above 3. That is any response with a mean of 3.00 or and above (+or =3.00) would be regarded as high awareness and agreed while below 3.00 would be regarded as low awareness and disagreed respectively.

Research question one
What are the commonly practiced areas of graphic design in Ilorin metropolis?

Research question two

What are the levels of awareness of graphic designers regarding occupational hazard resulting from the use graphic design materials and equipment?

The research question required information on the level of awareness of graphic designers regarding occupational hazard resulting from the use graphic design materials and equipment. Therefore, nine (9) close-ended statements contained in the questionnaire was provided to indicate appropriately their level to which they agreed regarding awareness on the questionnaire items. Table 1 presented the statements and the observed mean scores as explained the data analysis.

Table 1: **The level of awareness among graphic designers regarding occupational hazards associated with different branches of graphic design (N=48)**

S/N	ITEMS	SA	A	U	D	SD	MEAN	REMARK
1	I am knowledgeable about the eye strain and vision problems that can result from extended computer use.	6	2	0	4	36	1.71	Low awareness
2	I am aware about the potential respiratory risks of exposure to harmful chemicals such as screen printing, spray painting off-set printing ink and solvents.	5	10	0	30	3	2.69	Low awareness
3	I understand the ergonomic risks associated with prolonged computer use such as musculoskeletal disorders, carpal tunnel syndrome and back pain linked to long hours of digital design work.	10	3	0	25	10	2.54	Low awareness
4	I have received formal training or education on occupational hazards specific to the field of graphic design	5	4	0	32	7	2.33	Low awareness
5	As a professional in packaging design, I am aware of potential hazards related to handling sharp tools and materials.	24	20	0	4	0	4.33	High awareness
6	I understand the importance of regular breaks to reduce fatigue and burnout.	4	10	0	30	4	2.58	Low awareness
7	As a User interface (UI) and User Experience (UX) designers, I am aware of the potential strain injuries from repetitive mouse and keyboard use.	32	6	0	10	0	4.25	High Awareness

8	I have sustained injury from handling material/equipment	20	2	0	10	16	3.00	High Awareness
9	I take necessary precaution measure before handling material/equipment and during work	19	3	0	20	6	3.19	High awareness
	Grand Total						**2.96**	**Low Awareness**

Source: Field work, 2025

The above table shows the responses on the level of awareness among graphic designers regarding occupational hazards associated with different branches of graphic design. From the table, item five (5), seven (7), eight (8) and nine (9) are of high awareness while item one (1), two (2), three (3), four (4) and six (6) are of low awareness

Research question three

What are the possible precautions/solutions to the occupational hazard resulting from the use of materials and equipment used in graphic design production and reproduction?

This sought the possible precautions/solutions to the occupational hazard resulting from the use of materials and equipment used in graphic design production and reproduction. Six (6) items were formulated to be addressed by lecturers of visual arts/graphic design. Table 2 shows the items, information, and the mean scores.

Table 2: Information on the possible precautions that can effectively mitigate hazards in graphic design studios (N=28)

S/N	ITEMS	SA	A	U	D	SD	MEAN	REMAK
1	Ergonomic chairs and desks should be provided to prevent musculoskeletal disorders among graphic designers	26	1	0	1	0	4.86	Agreed
2	Designers should be required to take regular breaks to improve body movement, reduce fatigue and potential dizziness	22	4	0	0	2	4.57	Agreed
3	Personal protective equipment, such as gloves and masks, should be available for handling hazardous materials	15	12	0	0	1	4.43	Agreed
4	Graphic design studios should conduct regular safety training sessions to educate employees on workplace hazards and emergency procedures	18	8	0	0	2	4.43	Agreed
5	Regular breaks should be mandatory to reduce eye strain and fatigue from prolonged screen exposure	24	1	0	0	3	4.54	Agreed
6	Proper cable management should be enforced to prevent tripping hazards in design workspaces for graphic designers such as the User interface (UI) and User Experience (UX) designers	20	7	0	0	1	4.61	Agreed
	Grand Total						**4.57**	Agreed

Source: Field work, 2025

Table 2 shows the responses on the possible precautions that can effectively mitigate hazards in graphic design studios. From the table, all the items from questionnaire were accepted depicting the highest priority on

Ergonomic Furniture with mean 4.86, this indicates that is the most strongly supported measure. The Strong Practical Measures was Cable Management with mean 4.61 and Mandatory breaks (4.57 and 4.54) are also high favored. The lower but still Positive are personal protective equipment (PPE) and Safety training with mean 4.43 each have slightly less strong agreement, possibly due to perceived relevance.

Finding

1, From the data collected through survey and interview, the commonly practiced areas of graphic design in Ilorin metropolis, the freelance graphic designers and their areas of specialization were identified

2. From the result of the value of the weighted mean average of 2.96 (59.2%) recorded on the table 1, it is evident that freelance graphic designers have varying levels of awareness regarding occupational hazards. While they demonstrate high awareness in item five (5), seven (7), eight (8) and nine (9); there are opportunities for improvement in item one (1), two (2), three (3), four (4), and six (6).

3. Based on the value of the weighted mean average of 4.57 (91.47%) recorded on the table 3, the result revealed a clear hierarchy in perceived importance of safety measures in graphic design studios, as the respondents shows high level of recommendation on effective safety measure on the six (6) questionnaire items.

Discussion of the finding and recommendation

This study aimed to explore the commonly practiced areas of graphic design, awareness of occupational hazards, and perceived importance of safety measures among freelance graphic designers in Ilorin metropolis. The findings provide valuable insights into the graphic design industry in the metropolis.

Commonly practiced areas of graphic design among freelance graphic designers in Ilorin metropolis were identified and it highlights the diversity of graphic design applications in kwara state where Ilorin is the state capital, including visual identity design, print and publication, environmental graphic, motion graphic, branding, and digital illustration. The identification of these areas can inform the development of targeted training programs and resources on occupational hazard in graphic design for freelance graphic designers.

The research revealed that freelance graphic designers in Ilorin metropolis have varying levels of awareness regarding occupational hazards. While they demonstrated high awareness in certain areas, there are opportunities for improvement in others. Therefore, suggests that targeted interventions and training programs may be necessary to enhance the awareness and preparedness of freelance graphic designers in managing occupational hazards

The data collected showed a clear hierarchy in perceived importance of safety measures in graphic design studios, with respondents demonstrating a high level of recommendation for effective safety measures. The finding as well highlights the importance of prioritizing safety in graphic design studios and the need for freelance graphic designers to adopt best practices in managing occupational hazards.

Conclusion

The study's findings have implications for the development of training programs, resources, and policies aimed at enhancing the awareness and preparedness of freelance graphic designers in managing occupational hazards. By prioritizing safety and adopting best practices, freelance graphic designers in Ilorin metropolis can minimize the risks associated with their profession and maintain a healthy and productive work environment.

References

Ambrose, G., & Harris, P. (2016). The fundamentals of graphic design. AVA Publishing, Chapter 5

Artur, P (2018) Environmental Graphic Design. Lawrence King Publishing
        (Online) Available: http://www.design.com (June 17, 2024)

Bernard, H.R. (2012). Research Method in Anthropology. Qualitative and Quantitative   Methods. 3rd Edition. altaMirs Press,walnut Greek, California, p. 112-113

Cann, M. J. (2018)   8 types of graphic design.99designs Vistaprint. (Online) Available: http://en.99designs.nl/blog/tips/types-of-graphic-design/ (August 3, 2023)

Fred, C. (2021) Types of Graphic design (Online) Available: http://99design.com (July 14, 2023)

Hesmondhalgh, D., & Baker, S. (2010). Creative labour: Media work in three cultural industries. Routledge, (Chapter 5)

Kosslyn, S. M. (2006). Graph design for the eye and mind. Oxford University Press, (Chapter 2)

Lupton, E. (2017). Design is storytelling. Cooper Hewitt. (Chapter 1)

Occupational Safety and Health Administration (OSHA). (2021). *Workplace Safety for Packaging and Printing*. (Online) Available: https://www.osha.gov (January 1, 2025)

Salawu, (2015). Indigenous Languages: Key for Conveying information.
    (Online) Available: http://www.pressoffice.mg.co.za/   northwestuniversity/pressrelease (June 9, 2019)

Shagaya, M. O (2023): Investigation of the Font Composition in Billboard Design in Ilorin Metropolis. International Journal of Arts and Design Studies. 105: 01-12, (https://www.iistel.org)
        2025

Shagaya, M.O. (2011). Assessing the problems of typographic usage in selected posters designed and printed in
        Zaria unpublished M.A thesis department of industrial design   ABU Zaria

Sheppard, A. L., & Wolffsohn, J. S. (2018): Digital device use and eye health in children. Journal of Clinical Ophthalmology, 12(2), 151-156.

Stat, T. (2016). Bias in Survey Sampling: (Online) Available: http:/stattrek.com/survey-research/survey-bias
        (February 3, 2025)