MULTI-COLOUR AND DIRECTIONAL GUIDES AS PREDICTORS OF STUDENTS' UTILIZATION OF INFORMATION RESOURCES IN UNIVERSITIES OF UYO AND CALABAR LIBRARIES

By

Dr Henry I. OKON
Department of Educational Technology and Library Science
Faculty of Education, University of Uyo, Uyo, Akwa Ibom State

&

Mr. Emmanuel OKWU
Library Department, Ignatius Ajuru University of Education
Rumuolumeni, Port Harcourt, Rivers state

ABSTRACT

The study examined multi-colour and directional guides as predictors of students' utilization of information resources in Universities of Uyo and Calabar libraries. Two specific objectives, two research questions were raised and two null hypotheses formulated to guide the study. Analytical survey research design was used for the study. The population of the study was 4220 registered undergraduate students in faculty of education, University of Uyo and Calabar libraries. The sample of the study was 422 registered undergraduate students in faculty of education, University of Uyo and Calabar libraries. The sampling technique was simple random sampling. The researcher developed instrument entitled "Library Signage Questionnaire" (LSQ) and "Students' Utilization of Information Resources Questionnaire" (SUIRQ) was used in collecting data for the study. The instrument was given to three research experts for face validation. Two assessors were from the Department of Education Foundations, Guidance and Counseling and one from Library Science Unit of the Department of Educational Technology and Library Science, all in the University of Uyo. Cronbach's Alpha technique was used in determining the reliability of the instrument and a reliability coefficient of .86 was obtained. The Regression Coefficient Analysis was used to answer research questions (i.e. R and R^2 – value of Simple Linear Regression Analysis). Hypotheses were tested at .05 level of significance using F-Value of simple linear regression. The findings of the study revealed that multi-colour guide and directional guide predict student's utilization of information resources in the universities of Uyo and Calabar libraries. It was concluded that library signage ensures coordination in any university libraries. Therefore, it was recommended among others that Federal government of Nigeria should increase budgetary allocation to universities to ensure adequate fund for provision of library signage in academic libraries. This will contribute to effective wayfinding and utilization of information resources by students and other library users.

Key words: multi-colour guide, directional guide, students, utilization, information resources, libraries, Universities, Uyo, Calabar,

INTRODUCTION

The university library is an important element in supporting learning process. It plays a key role as a place for access to information, knowledge building, and problem solving. The nature and quality of the environment in the university library also influences how and what students learn. A good university library is characterized by well-designed, sufficient, and flexible space, and is equipped with an appropriate collection to support curriculum goals. Such library has a design that is based on consideration of the unique and diverse needs of the learners it serves, and utilises a good management system to ensure optimum utilization by the university community. Johnston and Bishop (2011) noted that the academic library should be a place where children can find things easily and learn to be independent library users. This requires that the university library should be designed so that students are directed to the materials they need as well as navigate easily and independently, especially to find information they need for learning and pleasure.

Signage is seen as a comprehensive system of signs, arrows and directional guide that assist visitors in self-navigating through an environment. It is a powerful communication medium that encompasses visual, auditory and textual cues that help users navigate their way around a building or space. Ahn (2011) identified library signage to include; multi-colour guide, directional guide, instructional guide, regulatory guide and informational guide etc. Multi-colour is a type of signage that makes access to resources with different colours, making it easy and fun to search for and retrieve information resources in the library. Colour is an important element to consider, because it has a significant effect on students' wayfinding and spatial orientation abilities in university environment (Jansen-Osmann and Wiedenbauer, 2004). Library users need library environment to be interesting, and they make associations with colours and shapes rather than form. Parvathamma and Reddy (2009) advocate that academic library need to take proactive approach in motivating users to use their resources, provide access to the internet and offer community-based services including literacy programs. Perhaps this is possible if our local university libraries apply appropriate signage or adopt signage system to provide the necessary guide or information required to aid utilization of library information by students and other library users. This can be achieved through systematic evaluation of the library's services.

Statement of the Problem

As research on user way finding in all library types is beginning to emerge, university library manuals seem to pay little or no attention to library signage and support that students need to increase usability of their services. It seems in university libraries; signage content conveys little or no spatial information to students. Researcher's observation shows that students are often confused when trying to locate specific areas of the facility, which may hinder utilisation of the information service in the library. This problem may be attributed to poor library signage in the university libraries. Further observation shows that shy and timid students would often turn around and leave without even taking up a question to a librarian if they find the library too confusing and difficult to navigate. Helvacioglu and Olgunturk (2011) observed that when students are not given adequate directional cues in university libraries, disorientation will hinder way finding performance hence, the need to examine multi-colour and directional guides as predictors of students' utilization of information resources in University of Uyo and Calabar libraries.

Purpose of the Study

The main objective of this study is to examine multi-colour and directional guides as predictors of students' utilization of information resources in the universities of Uyo and Calabar libraries. The specific objectives are as follows;

1. To determine the extent to which multi-colour guide predict students' utilization of information resources in universities of Uyo and Calabar libraries.
2. To determine the extent to which directional guide predict students' utilization of information resources in universities of Uyo and Calabar libraries.

Research questions

The following research questions were raised to be answered.

1. What is the extent to which multi-colour guide predict students' utilization of information resources in universities of Uyo and Calabar libraries?
2. What is the extent to which directional guide predict students' utilization of information resources in universities of Uyo and Calabar libraries?

Research Hypotheses

The following hypotheses were formulated and tested at .05 level of significance.

Ho_1. The extent to which multi-colour guide predict students' utilization of information resources in universities of Uyo and Calabar libraries is not significant.
Ho_2. The extent to which directional guide predict students' utilization of information resources in universities of Uyo and Calabar libraries is not significant.

Literature Review
Concept of Library Signage

Library signage is one of the many touch points which a library user needs to navigate through the library confidently and independently. Lack of signage however, can trigger library anxiety, a term coined by Mellon (2015) to describe the feelings of fear, uncertainty, and worry when visiting the library. Dalton (2014) postulates that whether a university is being built or a street fair is springing up, wayfinding signage is one of the keys to a great visitor experience. The basic guiding principles behind the design and placement of those signs should be the same. Signs deliver information, and in wayfinding signage, only a handful of different types of signs are necessary to deliver information. Knowing what those types of signs are is an integral part to creating a useful system of wayfinding signage. Dwight (2008) makes the most sense when he lists these four: identification, directional, informational and regulatory signage. Defining these four types of signs is simple, as is knowing how to use them. When designing the system, librarians should remember, the simpler the wayfinding signage system is made, the better for all involved; from the designers of the wayfinding signage system, to the visitors using it to get around. Dwight maintains that the idea behind designing signs is to convey as much information as necessary in as little space possible. That is why it helps to think of signs in these four different categories.

Multi-Colour Guide and Students' Utilization of Information resources

Color is an important element to consider because it has a significant effect on students' wayfinding and spatial orientation abilities in academic environments. Library users need library environment to be interesting, and they make associations with color and shapes rather than form. Therefore, using colour in signage can provide visual interest, supply information for efficient navigation, and improve students' wayfinding and spatial orientation abilities in academic environment, but color must be considered carefully to ensure there is sufficient contrast between the text and background to allow a sign to be legible (Arthur and Passini, 2012).

Multi-Colour is a useful design element for spatial orientation and space definition for creating environmental information that supports children's wayfinding abilities including helping students orient themselves in a new environment (Jansen-Osmann and Wiedenbauer, 2004), especially for younger children who may have limited reading skills. In academic library, the librarian had the four segments of the library strictly colour coded with all subject heading and Dewey Decimal signage in each section appearing in the designated color. This was a good use of color to create a system. The use of color in signage is an important aspect of wayfinding. The use of color can create a system to assist users in developing their wayfinding scheme (Helvacioğlu and Olgunturk, 2011; Jansen-Osmann and Wiedenbauer, 2004; Read, 2010).

Jalil, Yunus and Said (2012) aver that colour is seen as the easiest material to change the characteristic of the environment and dominantly visible. Despite giving character to space, colour is also useful in influencing human behaviour, decision making, health and much more with or without our realization. In other words, colour as a subtle stimulation with salient impact has been highly affecting human lives physically, psychologically, physiologically and sociologically every day, and has now been widely accepted. Every individual sees colour differently depending on how one perceived the phenomenon. According to Fehrman and Fehrman (2004), colour is people's illusion where the world is believed to be colourless. The authors explain that light is an important factor to colour appearance. Colour is visible to human eyes only when there is a light on the substance. It is an energy vibration of vast electromagnetic band that produce wavelengths of electromagnetic spectrum such as X-rays, gamma rays, radio frequencies, visible light, infrared rays and ultraviolet rays.

Colour is only a small part of a vast electromagnetic spectrum that can be perceived by human eyes from about 400-nanometers to 700-nanometer measurement. Visible light is measure in nanometer and a nanometer is equal to 1 millionth of a millimeter. Interestingly, the energy of colour wave can also be sensed through skin (Jin, Yu, Kim, Kim, and Chung, 2005) probably used by people with visual impairment to recognize colour. Colour is divided into cool and warm colour, where it is differentiating by characteristic of its wavelengths. Blue, green and purple are regarded as cool colour range that has shorter wavelength compared to red, orange and yellow. Red, orange and yellow are categorized as warm colours with red as the longest wavelength perceived by our eyes.

Directional Signage and Students' Utilization of Information resources

Directional signage is one of the key services provided in the academic libraries. Dwight (2008) avers that when it comes to pointing the way, the directional or way finding signs are the sign for the job. When using directional signage, the best rule to follow is to keep it simple. When planning a way-finding system, try to plan it as early in the overall planning stage as possible. Unfortunately, way-finding plans often get left to the end, and don't receive the attention they deserve. Directional signs don't appear at the location, they appear around the location and on the way to the location. Directional signs need to be hidden in plain sight. They should appear at junctions, or anywhere a person on a way to a location might look to see which way to get to that location. Directional signs are also what turn a group of many individuals into

a singular crowd. Airports, for instance, aren't made for standing around; they're made for transit. Directional signs keep people moving where they shouldn't be standing still. So, someone follows the directional signs until they find the identification sign. When they find that, they'll need an informational sign to know a little more.

For many years, academic libraries have taken for granted that their client (students) know where everything is located in the facility (Hahn and Zitron, 2011). Now with increased students' turnover and visits from lecturers and other new comers, libraries want their facilities to look like airports. Their goals are to allow someone who has never entered their facility to be able to navigate to any department or section and retrieve information without asking a single question (visual work place). These processes can only be achieved by placing a clear and concise directional guide in the library. Directional guide is a signage that provide information to help library users find their way around the library. These include holidays, closing signs, rest room, copier signs and many others signage at the library (San Jose Public Library, 2009).

Helvacioğlu and Olgunturk (2011) observe that when not given adequate directional cues, disorientation will hinder wayfinding performance. The use of signage is an important strategy that can be utilized to improve students' wayfinding and therefore develop spatial orientation abilities in academic libraries. Directional guide enables new and frequent students navigate quickly to their destination, clearly organized with a very little text. Directional signage is to identify and direct a user to their desired destination. This should take place easily and effectively so that the signage does not generate confusion, frustration, or cause pedestrian traffic problems, the signs should be easily recognizable from its background, text should be easily read with good colour contrast and size in relation to its intended viewing distances, provide clear, concise and easy to understand information. Minimal text with the use of graphic symbols to convey the message efficiently.

Similarly, San Jose Public Library (2009) contends that directional signs help to guide students and visitors to their final destination by indicating the route to that destination. Directional signage is usually located at the key decision-making areas. However, Jansen-Osmann and Wiedenbauer (2004) assert that directional signs can be overhead signs or wall-mounted signs. Overhead directional signs may use upper- and lower-case letters/ characters with a minimum 3"cap height. Minimum 80" clearance below the bottom of the sign. Usually mounted to the ceiling within hallway at key decision points. Directional signs must be installed where they can be approached closely enough to be read by a visually impaired person.

Methods
Design of the Study
This study adopted survey research design. Analytical survey is used when collecting first-hand information from people in their natural settings for the purpose of getting detailed descriptions.
Area of the Study
The study was conducted in Universities of Uyo and Calabar libraries.
Population of the Study
The population of the study was 4220 registered undergraduate students in faculty of education, University of Uyo and Calabar libraries.

Sample and Sampling Technique

The sample of the study was 422 registered undergraduate students in faculty of education, University of Uyo and Calabar libraries made up 260 females and 162 males. The percentage of 10% was used in line with Nwana (1981) who stated that when the population is a hundred, 40% or more can be used, if many hundreds are involved, a sample size of 20% can be used, if few thousands are involved 10% can be used and if several thousands are involved, 11% or less can be used. Hence, 10% was considered because the population involved few thousands. The simple random sampling technique was used in the study.

Instrumentation

The researcher developed instrument entitled "Library Signage Questionnaire" (LSQ) and "Students Utilization of Information Resources Questionnaire" (SUIRQ) was used in collecting data for the study. The instrument was divided into two parts (A and B).

Validation of the Instrument

The instrument was given to three research experts for face validation. Two assessors were from the Department of Education Foundations, Guidance and Counselling and one from Library Science Unit of the Department of Educational Technology and Library Science, all in the University of Uyo.

Reliability of the Instrument

A trial testing of the instrument was carried out using 30 registered students who did not take part in the actual study. Thereafter, the internal consistency of the instrument was determined using Cronbach's Alpha method. The reliability coefficient index of .86 was obtained.

Method of Data Analysis

The Regression Coefficient Analysis was used to answer research questions (i.e. R and R^2 - value) of Simple Linear Regression Analysis. While the F-value of the Simple Linear Regression Analysis was used to test null hypotheses at .05 alpha level.

Data Analysis

Research Question One

What is the extent to which multi-colour guide predict students' utilization of information resources in the university of Uyo and Calabar libraries?

Table 1: Simple linear regression analysis of the extent to which multi-colour guide predicts students' utilization of information resources in the University of Uyo and Calabar libraries.

Variable	R	R Square	Extent of prediction	Remark
Multi-colour Guide				
	.325	.106	10.6%	Low Extent
Students Utilization of Info. Resources				

Result in Table 1 shows the R for the strength of the relationship and R^2 for the determination of the extent to which multi-colour guide predict or determine student's utilization of information service in the university of Uyo and Calabar. The R-Value of .325 indicates a low extent of relationship between the two variables. The calculated R^2 of .106 which is the coefficient of determinant indicates that only 10.6% of student's utilization of information service is predicted by multi-colour guide. This implies that multi-colour guide to a low extent predicts students' utilization and information service in the university of Uyo and Calabar libraries.

Research Question Two
What is the extent to which directional guide predict students' utilization of information resources in the university of Uyo and Calabar libraries?

Table 2: Simple linear regression analysis of the extent to which directional guide predicts students' utilization of information resources in the university of Uyo and Calabar libraries.

Variable	R	R Square	Extent of prediction	Remark
Directional Guide				
	.414	.172	17.2%	Low Extent
Students' Utilisation of Info. Resources				

The entries in Table 2 indicate the R for the strength of the relationship and R^2 for the determination of the extent to which directional guide and students' utilization and information service in the university of Uyo and Calabar. The R- Value of .414 indicates a low extent of relationship between the two variables. The calculated R^2 of .172 which is the coefficient of determinant indicates that only 17.2% of students' utilization of information service is predicted by directional guide. This implies that directional guide to a low extent predicts students' utilization and information service in the university of Uyo and Calabar libraries.

Test of Null hypotheses

Hypothesis one

Multi-colour guide significantly predicts students' utilization of information service in the University of Uyo and Calabar libraries.

Table 3: Simple linear regression analysis of multi-colour guide prediction of students' utilization of information service in University of Uyo and Calabar libraries.

Variables	Source Variation	Sum of Squares	Df	Mean Square	F-Cal	F-Crit	Decision @ $p < .05$
Multi-colour Guide							
	Regression	98.202	1	98.202	46.743	3.89	*
Students utilization	Residual	56.632	396	21.355			
Info. Service	Total						
		54.834	397				

*Significant at $p < .05$

The result in Table 3 shows that the calculated F-value of 46.743 is greater than the critical-F value of 3.89 at .05 level of significant with 1 and 397- degrees of freedom. With this result therefore, the null hypothesis which states that the extent to which multi-colour guide predict student's utilization of information service in the University of Uyo and Calabar libraries is not significant is rejected. The result means that multi-colour guide significantly predict student utilization of information resources in University of Uyo, and Calabar libraries.

Hypothesis Two

Directional guide significantly predicts students' utilization of information service in the University of Uyo and Calabar libraries.

Table 4. Simple linear regression analysis of directional guide prediction of students' utilization of information service in University of Uyo and Calabar libraries.

Variables	Source Variation	Sum of Squares	df	Mean Square	F-Cal	F-Crit	Decision @ p< .05
Directional Guide	Regression	22.167	1	22.167	82.01	3.89	*
Students Utilization Information Service	Residual	32.667	396	19.779			
	Total	54.834	397				

*Significant at p< .05

The outcome in Table 4 shows that the calculated F-value of 82.013 is greater than the critical-F value of 3.89 at .05 level of significant with 1 and 397 degrees of freedom. The result is significant; therefore, the null hypothesis which states that the extent to which directional guide predicts student's utilization of information service in the University of Uyo and Calabar libraries is not significant is rejected. The result claims that directional guide significantly predict students' utilization of information resources in University of Uyo, and Calabar libraries.

Discussion of Findings

The result of findings in Table 1 showed that all the identified items on multi-colour guide predict students' utilization of information resources in the universities of Uyo and Calabar libraries. The reason is because multi-colour guide is a useful design element for spatial orientation and space definition for creating environmental information that supports students' way-finding abilities. This is in line with Arthur and Passini (2012) who asserted that colour in signage can provide visual interest, supply information for efficient navigation, and improve students' wayfinding and spatial orientation abilities in academic environment, but color must be considered carefully to ensure there is sufficient contrast between the text and background to allow a sign to be legible. Similarly, the result of the data presented in Table 3 showed that the extent to which multi-colour guide predicts students' utilization of information resources in the universities of Uyo and Calabar libraries is significant. This result is supported by Helvacioğlu and Olgunturk (2011) who maintained that the use of color in signage is an important aspect of way-finding.

The result of findings in Table 2 showed that all the identified items on directional guide predict students' utilization of information resources in the universities of Uyo and Calabar libraries. The reason for the result is because directional signage is a sign that provides information to help library users find their way around the library. The result is in agreement with San Jose Public Library (2009) who contended that directional signs help to guide students

and visitors to their final destination by indicating the route to that destination. Similarly, the result of the data presented in Table 4 showed the extent to which directional guide predict students' utilization of information resources in the universities of Uyo and Calabar libraries is significant. The result is in line with Hahn and Zitron (2011) who postulated that the presence of directional guide in academic library help to reduce noise and traffic at the pedestrian, creating free movement from one section to the other.

Conclusion

The following conclusions were drawn based on the findings of this study:

Multi-colour guide, directional guide foster independent and critical thinking. It solves way-finding problem in unfamiliar environment, it helps library user to use the appropriate data, tools and facilities of the library, bringing about coordination in academic libraries and aid students in way finding and effective retrieval of the needed information. Hence, library signage has great influence on students' utilization of information resources in the universities of Uyo and Calabar libraries.

Recommendations

Based on the findings and conclusion of this study, it was recommended that:

1. Federal government of Nigeria should increase budgetary allocation to universities to ensure adequate fund for provision of library signage in academic libraries. This will contribute to effective way finding and utilization of information resources by students and other library users.

2. Management of universities should ensure that library signage constitutes orientation content for freshmen. This will aid the young students to be acquainted with information, directional, instructional and regulatory signs in academic libraries

REFERENCES

Ahn, I. J. (2011). Contents development of library signage manual in Korea. *International Journal of Knowledge Content Development & Technology*, 1(2): 15-27.

Arthur, P. and Passini, R. (2012) *Wayfinding: People, Signs, and Architecture*. New York: McGraw-Hill.

Dalton, T. (2014). The four types of way-finding signage. Available at: http://www.blog.signsdirect.com/the-four-types-of-wayfinding-signage/ Retrieved on December 24, 2017.

Dwight, E. (2008). Signs of the times. *American School & University*, 80(12), 38-40.

Fehrman, K. R. and Fehrman, C. (2004). *Color: The Secret Influence* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Hahn, J. and Zitron, L. (2011). How first-year students navigate the stacks: Implications for improving wayfinding. *Reference & User Services Quarterly*, 51(1), 28-35.

Jansen-Osmann, P. and Wiedenbauer, G. (2004). The representation of landmarks and routes in children and adults: A study in a virtual environment. *Journal of Environmental Psychology*, 24(2): 347-357.

Jalil, N. A., Yunus, R. M. and Said, N. S. (2012). Environmental colour impact upon human behaviour: A review. *Procedia - Social and Behavioral Sciences*, 35(2012): 54 – 62.

Jin, H. R., Yu, M., Kim, D. W., Kim, N. G., and Chung, S. W. (2005). Study on Psychological Responses to Color Stimulation. Focused on User Centered Design Sensibility Engineering Design of Color, *Journal of College Student, 38*(3), 396-405.

Johnston, M. P. and Mandel, L. H. (2014). Are we leaving them lost in the woods with no breadcrumbs to follow? Assessing signage systems in school libraries. *School Libraries World wide,* 20(2): 38-53.

Parvathamma, N. and Reddy, S. (2009). Use of information resources and services in public libraries. A case of Bidar District, Karnataka State, India. *Annals of library and information studies,* 56(2), 249-254