Perception of Staff and Students on the Effects of a Faculty-based Ceramic Wall Mural

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Abstract

The study surveyed staff and students' perception of a ceramic wall mural, mounted more than eight years ago on Faculty wall at the Abubakar Tafawa Balewa University (ATBU) Bauchi. Employing structured questionnaire and a 5-point rating scale, it elicited opinion on the effectiveness of the mural's objectives of: (i) conveying the concept of self-employment/ entrepreneurship; (ii) advertising academic programmes of the School of Environmental Technology (SET); (iii) enhancing the exterior aesthetics of the host building and the environment. Data from 62 stakeholder-respondents comprising 28 staff and 34 students were analyzed with descriptive statistics which include frequencies and means; two hypotheses formulated were tested with chi-square inferential statistics. The mural was aggregately perceived effective in achieving above three objectives; however, extent of accomplishing objective (i) in Estate Management was undecided. There was a significant ($p = 0.05$) difference in the students' and the staff's perception. It is concluded that post-installation critique and evaluation of mural-type public art would enrich the body of knowledge and inspire further public art installation. Pre-design evaluation of proposed public arts is recommended to ensure that such works achieve their desired objectives; and, it is imperative that opinions of all the community groups are factored into such evaluation.

Key words: Ceramic mural, Effectiveness, Perception, Stakeholders, Visual communication.

Introduction

Murals are created images or symbols employed as tools of communication, instruction and persuasion (Maimon, et al. 2007). Communication, according to Byars and Byars (1982), is the transfer of meaningful information between two or more sources, and plays a key role in the functions of all activities. Studies have shown that communication by picture could have a huge impact on people, 'learned' or 'unlearned'. Fussell and Haaland (1976), for instance, revealed that every community population comprised different kinds of people and that each benefits from pictorial images as effective means of communication. Gukas (2011) observed, in agreement, that an art work is made purposely to serve a particular audience in a particular environment and at a particular time; and stressed that African art work had in the past communicated very well to its people. Hanks and Belliston (2006) submitted that visuals can be a great aid to learning, understanding, and remembering; it is easier to see and understand than to hear and process information. They further argued that visuals create a "big picture" to simplify complex concepts. This argument aligns with the concept of 'picture superiority effect' illustrated by Lidwell, Holden and Butler (2003). They explained that pictures are generally easier to recall than words long after their exposure to both.

Gifford (1995) argued that advertising uses communication media to promote the sale of goods and services, and to project a company's image. Belch and Belch (2001) and Arens, Weigold and Arens (2011) viewed advertising as a non-personal communication about an organization, product, service or idea by an advertiser. Even though visual communication media have witnessed a substantial development from the conventional modes such as print, paint, ceramics, cement, and metal, to the electronic modes, available technology may yet pose limitation to the use of the nouveau media (Belch and Belch, 2001; Ryan, Conover, 2004; and Osamudiamen and Daniel 2011).

Ceramic murals are executed to serve different purposes viz: information, representation or decoration. Nelson (1984) stressed that "ceramic mural can be the focal point for an interior design or part of continuous wall decoration". By on-site wall installations, Levin (1988); and Daniel and Sadiq (2009) demonstrated the integration of ceramic wall murals with architectural surfaces. Cooke (1983) had earlier reported the application of carved and coloured bricks to depict some Assyrian historic activities at the palace of Nebuchadnezzar, thus revealing the

brilliance and permanence of brick or brick-tile materials and colours, such as characterising the wall mural being evaluated in this study. The problem of the study, however, is that post-installation evaluation of public art such as wall mural is seldom done, denying knowledge and improvement derivable from such endeavour,

The wall mural under study titled: 'Teach Fishing…' (Plate I) was, in the spirit of the foregoing reviews of literature, conceived and executed (by the 1st & 3rd authors of this survey, in 2004) to:

- Sensitize the concept of "teaching the skill of fishing…" thereby encouraging self-employment, entrepreneurship or professional practice;
- Advertise courses taught in School of Environmental Technology (SET), Abubakar Tafawa Balewa University (ATBU), Bauchi;
- Highlight and promote interdisciplinary synergy devoid of unhealthy competition among the various departments in the School;
- Enhance exterior aesthetics of SET;
- Demonstrate the durable nature and use of clay and 'waste' products of clay; as well as stimulate research interest in material recycling'.

"Teach fishing…"/ Advertising the Faculty's Departments

"Teach Fishing …" measuring 2200mm x 1200mm x 25mm was mounted on the wall of the School of Environmental Technology, towards the approach-drive into (phase I building of) the School. Aside from echoing the Chinese (cautionary) proverb of "…teaching a man how to fish and not giving him fish", the mural was conceived to communicate the activities and advertise the eight (8) departments of the School of Environmental Technology, ATBU, Bauchi; and to showcase entrepreneurship (ATBU Endowment Brochure, 2002) as one of the mandates of the school's academic departments which are: Architecture, Building Technology, Estate Management, Environmental Management Technology, Industrial Design, Surveying/ Geoinformatics, Quantity surveying, and Urban and Regional Planning.

The philosophy of the departments is akin to Ewere's (2011) reference to 'vocational and technical' education being an aspect of learning which leads to the acquisition of practical/ applied skills; as well as, scientific, technological and engineering knowledge. This is encapsulated in ATBU's philosophy as a university of technology, part of which is to:

- Encourage the advancement of learning and enhance the

opportunity of acquiring a higher education in technology;

- Develop and offer academic and professional endeavours which emphasize planning, adaptive, technical, maintenance, development and productive skills in the engineering, scientific, agricultural, and allied professional disciplines with the aim of producing socially mature men and women with capability not only to understand, use and adopt existing technology but also improve on it and develop new ones;
- Act as agent and catalyst for the effective and economic utilization, exploitation and conservation of the country's natural, economic and human resources;
- Provide and promote sound basic scientific training as a foundation for the development of technology and applied science, taking into account indigenous culture and the need to enhance national unity.

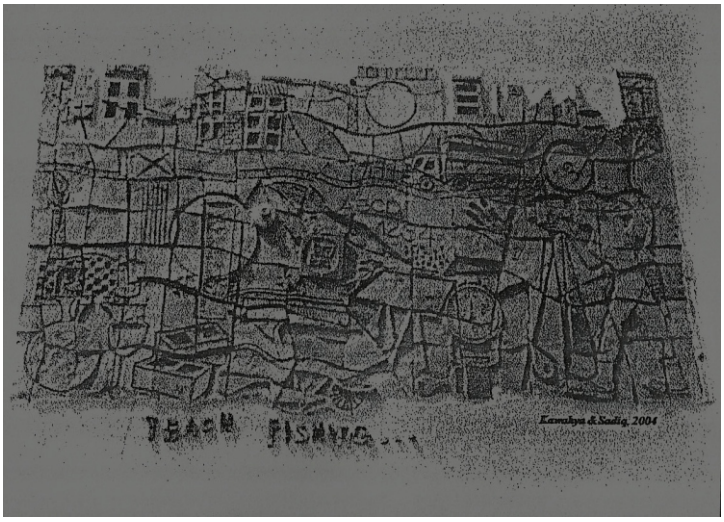

Plate I: "Teach Fishing…" (2200mm x 1200mm x 25mm)

The sketched content of 'Teach Fishing' is highlighted by the mural artists, as composing:

…abstracted iconographic forms, images and elements considered relevant to the disciplines taught in SET (Daniel and Sadiq, 2009). Thus, two large hollow bricks around the base of a kiln signify indigenous production of 'burnt brick' variety for construction; 'sky scrappers' at the top left and right of the mural (juxtaposed with overhead water tank) portray Architectural thoughts and wit. The shards of pot, sable of brush, metal scraper, and inscribed Arabic numerals, and so on, all symbolize the paraphernalia of work and products of the Industrial

Design Department. Surveying and Geo-informatics is evoked by the human-operated theodolites stationed at the right side of the mural. Meandering grid-lines run across the mural's length and breadth depicting topography and roads, which are typical features of Urban and Regional Planning. Weighing scales, measuring rules and so on, project the evaluative disciplines of Quantity Surveying and Estate Management; trucks, cranes, wheel barrows, handy devices are complementary of the "dignity of labour"; all reminding of Building services and construction technology. Inscribed English alphabets and figures are illustrative of the instructional language in the school and the University.

The composition of above forms, images and elements is presumably informed by certain design principles, such as: ''Five hat racks'', ''Alignment'', ''Chunking'', ''Good configuration'', ''Signal-to-Noise-Ratio'', and ''Modularity'' (Cooke, 1983; Levin, 1988; Lidwell, Holden and Butler, 2003; Daniel and Sadiq, 2009).

The main purpose of the study was to develop, validate and test an instrument for determining the stakeholders' perception of the effectiveness of above faculty-based ceramic wall mural (Plate 1); and specifically to:

(a) Determine appropriate measurable attributes describing an effective wall mural in line with the standards of ceramic design practices.
(b) Determine the validity of the developed instrument in measuring staff and students' perception of the effectiveness of above ceramic wall mural.
(c) Determine the reliability of the developed instrument measuring stakeholders' perception of the effectiveness of a faculty-based ceramic wall mural.
(d) Determine the difference between the Staff's and the students' perception of the effectiveness of the ceramic wall mural.

Research methodology

The investigation adopted a survey research design which sought the responses of the School of Environmental Technology staff and students regarding the effectiveness of the wall mural, "Teach Fishing…" which they had long been exposed to (Russell-Walling, 2007). A total of 100 randomly sampled school members were requested to respond to a 24-item structured questionnaire eliciting opinion on the level of effectiveness of the mural, using a 5-point rating scale viz.: HE = highly effective; E = effective; UD = undecided; NE = not effective; HNE = highly not effective.

Three intended values of the mural were questioned in terms of effectiveness in: Conveying the concept of self-employment/ entrepreneurship; advertising the academic programmes of SET; enhancing the exterior aesthetics of the host building and the environment. A total of 62 completed questionnaires were returned and analyzed employing descriptive statistics including frequencies and means. Responses were converted to numerical codes (HE = 5; E = 4; UD = 3; NE = 2; HNE = 1).

Validation and Reliability of the Instrument

The Instrument was tested for validity by two experts in the field of Ceramic design, Modibbo Adama University. A twenty-seven item instrument was presented to the experts to guide the validation, of which three items were dropped from the questionnaire on the basis of relevance. One other item was retained after a slight modification. Twenty-four items emerged as the content of the instrument. Test-Retest method was adopted in a trial test to determine the internal consistency of the instrument developed for the study. The instrument was trial-tested with four staff and ten students of School of Technology Education ATBU Bauchi regarding the effectiveness of the wall mural. These respondents were not part of those used for the final study. The second administration of the instrument to the staff and students of the same Institution was carried out after an interval of two weeks. Responses received from the first and second administration of the instrument were analyzed using Cronbach-Alpha and found to be 0.8. Therefore the instrument was considered highly reliable.

Two hypotheses were formulated and tested at 0.05 level of significance using chi-square inferential statistics.

H_{01}: The desired specific objectives of mounting the wall mural are equally achieved.

H_{02}: There is no significant difference between the staff's and the students' perception on the effectiveness of the wall mural.

Results and discussion

Thirty four (34) of the respondents were students, 28 were (academic and non-academic) staff; the respondents were spread between four and nine per discipline, with the exception of Industrial Design that had 18 respondents. A total of 32 of the respondents were males, 20 were females, and 10 did not specify their sex.

The frequencies of perceived effectiveness of the mural in achieving the three desired functional effects are indicated in

Table 1. The weighted mean effectiveness as perceived are: 3.96 (effective), conveying the concept of self-employment/ entrepreneurship or professional practice; 3.95 (effective), advertising the academic programmes of SET; 4.07 (effective), enhancing the exterior aesthetics of the host building and environment. In the aggregate, the mural is perceived effective (3.99); with about 77% perception of the work as being 'highly effective' or 'effective', and 10% perception as 'not effective' or 'highly not-effective'.

Method of Data Analysis

The study had two research questions and two hypotheses that were tested. Mean statistic was used to analyze the responses to research questions one and two. The Chi-squares statistic was used to test the two hypotheses. Information collected was converted to frequency distribution and mean to make a decision on each item of the instrument. In order to determine the acceptance or rejection level of each item on the questionnaire, a decision rule based on real limits of number was used as follows:-

Acceptance, if mean calculated is 2.5 and above.

Rejection, if mean is equal or below 2.49.

Table 1: Response frequency by functional aspects

S/N	Functions	Effectiveness scale										Weighted		
		HE	(×5)	E	(×4)	UD	(×3)	NE	(×2)	HNE	(×1)	mean/effectiveness		
		e_1	w_1	e_2	w_2	e_3	w_3	e_4	w_4	e_5	w_5	Σe;	Σw	$\Sigma w/\Sigma e$
1	Inspirational	167;	*835*	174;	*696*	56;	*168*	39;	*78*	17;	*17*	453;	*1794*	*3.96(E)*
2	Depictive	151;	*755*	168;	*672*	63;	*189*	37;	*74*	12;	*12*	431;	*1702*	*3.95(E)*
3	Graphical	171;	*855*	202;	*808*	61;	*183*	18;	*36*	14;	*14*	466;	*1896*	*4.07(E)*
	Total	**489;**	***2445***	**544;**	***2176***	**180;**	***540***	**94;**	***188***	**43;**	***43***	**1350;**	***5392***	***3.99(E)***

Keynotes to the table 1: where $e_{1\ to\ 5}$ represent the frequency of occurrence at various effectiveness levels; (HE = highly effective; E = effective; UD = undecided; NE = not effective; HNE = highly not effective); $w_{1\,to\,5}$ represent the weighted effectiveness.

Table 2: Perception: Mean functional effectiveness in discipline

S/N	Functions	Disciplines							
		ARC	BTG	ESM	EMT	IND	LSV	QSV	URP
1	Inspirational	4.3(E)	4.3(E)	3.4(UD)	3.6(E)	4.7(HE)	3.7(E)	3.8(E)	4.0(E)
2	Depictive	4.3(E)	4.5(HE)	3.5(E)	3.6(E)	4.1(E)	3.7(E)	3.6(E)	3.9(E)
3	Graphical	4.3(E)	4.0(E)	3.7(E)	4.2(E)	3.7(E)	4.0(E)	4.4(E)	4.1(E)

(ARC = Architecture; BTG = Building Technology; ESM = Estate Management; EMT = Environmental Management Technology; IND= Industrial Design; LSV= Land Surveying; QSV = Quantity Surveying; URP = Urban and Regional Planning)

Hypotheses interpretation

An analysis of the effectiveness perception on disciplinary basis is portrayed in Table 2. In the disciplines, the art work is considered effective in the three functional aspects; with the exception of Building Technology (BTG), Estate management (ESM), and Industrial design (IND). In conveying the concept of self-employment/ entrepreneurship, the work is considered neutral (undecided = 3.4) in ESM, and highly effective in IND. In BTG it is considered highly effective (4.5) in advertising the academic programmes of the School Environmental Technology. The Chi-squares analysis in Table 3 reveals that there is no significant difference between the mean perception of Staff of the School of Environmental Technology and that of their students regarding the graphic attributes and specific objectives of mounting the ceramic wall mural. The first hypothesis is therefore accepted (Ho1). This implies that the desired specific objectives of mounting the wall mural are equally achieved.

Table 3: Chi-square test:

Functional differences

S/N	O_f	E_f	$O_f - E_f$	$(O_f - E_f)^2 \div E_f$
1	167	164.3	2.7	0.0444
2	174	182.8	-8.8	0.4236
3	56	60.5	-4.5	0.3347
4	39	31.6	7.4	1.7329
5	17	14.5	2.5	0.4310
6	151	156.0	-5.0	0.1603
7	168	173.5	-5.5	0.1744
8	63	57.4	5.6	0.5463
9	37	30.0	7.0	1.6333
10	12	13.7	-1.7	0.2100
11	171	168.7	2.3	0.0314
12	202	187.7	14.3	1.0895
13	61	62.1	-1.1	0.0195
14	18	32.4	-14.4	6.4000
15	14	14.8	-0.8	0.0432
$X^2_{cal.} \leqslant [(O_f - E_f)^2 \div E_f]$				**13.2755**
$X^2_{tab.(p=0.05, v=8)}$				**15.51**
Remarks:				**$X^2_{cal} < X^2_{tab}$: Accept null hypothesis**

Table 4: Response frequency by respondents' group

S/N	Respon-dents	Effectiveness scale (HE = highly effective; E = effective; UD = undecided; NE = not effective; HNE = highly not effective)										Weighted mean/effectiveness		
		HE	(×5)	E	(×4)	UD	(×3)	NE	(×2)	HNE (×1)		Σe;	Σw	$\Sigma w/\Sigma e$
		e_1	w_1	e_2	w_2	e_3	w_3	e_4	w_4	e_5	w_5			
1	Students	276;	1380	314;	1256	41;	123	70;	140	29;	29	730;	2928	4.01(E)
2	Staff	213;	1065	230;	920	139;	417	24;	48	14;	14	620;	2464	3.97(E)
	Total	**489;**	**2445**	**544;**	**2176**	**180;**	**540**	**94;**	**188**	**43;**	**43**	**1350;**	**5392**	**3.99(E)**

Table 5: Chi-square test:

Respondents' differences

S/N	O_f	E_f	O_f-E_f	$(O_f - E_f)^2 \div E_f$
1	276	264.1	11.9	0.5362
2	314	293.8	20.2	1.3888
3	41	97.2	-56.2	32.4942
4	70	50.8	19.2	7.2567
5	29	23.2	5.8	1.4500
6	213	224.9	-11.9	0.6297
7	230	250.2	-20.2	1.6309
8	139	82.8	56.2	38.1454
9	24	43.2	-19.2	8.5333
10	14	19.8	-5.8	1.6990
$X^2_{cal.} = \sum [(O_f - E_f)^2 \div E_f]$				**93.7642**
$X^2_{tab.\ (p = 0.05,\ v = 4)}$				**9.488**
Remarks:			$X^2_{cal.} > X^2_{tab}$:	
Reject null hypothesis				

Of = observed frequency; Ef = expected frequency

Table 4 shows the frequency distribution of responses by status or group. The two groups (students and staff) separately and aggregately consider the work effective in the mean. The Chi-squares test result in Table 5 indicates a significant difference between the mean perception of Staff of the School of Environmental Technology and that of their students regarding the effectiveness of the mounted ceramic wall mural. The second hypothesis (Ho2) is therefore rejected. The difference certainly emanates from a combination of factors, one of which could be the differences in disciplinary backgrounds of the respondents. The level of education and experience of respondents may also affect their pattern of responses. Respondents of the same profession and comparable level of education are likely to portray same pattern of perception of a work of the profession. Idowu and Okonkwo (2011) for instance found the same pattern of aesthetic perception between graduating students and graduates of Architecture.

Conclusion and Recommendations

The variations in response by the different stakeholders: students and the graduates that are comprised of staff are partly due to the differences in their academic

backgrounds. The perceived positive reaction of majority of respondents to the art work should however partly resolve the argument for empirical evidence rather than mere anecdote, in deciding the effectiveness of public art installations. Pre-design assessment and post-installation evaluation are imperative, which should take into cognizance raw materials and socio-cultural pattern of the hosting environment.

Thus, a vista of interest in public art installation and ceramic material recycling may be sustained by this type of research among or between staff and students of ceramics (and allied disciplines), inspired by apparent durability and versatility of clay or wastes from clay products.

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