

3D Ergonomic Board: Kids Teaching and Learning Proposition

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Abstract

The caprice for the study came from an indigenous designed instructional board for teaching learners in nursery/primary schools (2 - 10 years) and the task whose overall topic is the reminiscence, retention of visuals aid use in the pedagogy. The study is to appraise the opinion of toddlers/teachers about the helpfulness of 3D-visuals (ergonomic board); the clarity of the intended functions of the 3D-visuals in the toddler's lessons instruction and support from the producers in using them; and why visuals (conventional visual aids) in schoolroom instruction are misjudged/misinterpreted; their view about the functions in specific (conventional visuals) for the instruction pedagogy; and other sources of visuals provided other than the lesson's instruction. Four nursery/primary schools participated in the study. Seventy-two (72) toddler's/teachers participated in the study. The study examined using quantitative and qualitative approach for statistical analysis (using pie-chart and histogram). The findings suggested that the aspects of visuals items selected for comment and description are to some extent circumscribed by toddler's learners' linguistic resources. Understandably, the point made by researchers referred that visuals often fail to support learning as effectively as they might because they are not regarded as a full-fledged information mode that requires the same careful processing as verbal text, is borne out by the findings. Recommendation, the accountability is above all on producers of kid's instructional materials: authors, editors, designers and illustrators of the materials. The implication of this is that toddlers' instructional materials should, as in the case of illustrated books include both an overt explanation of the overall philosophy toward visuals and overview of their use.

Keywords

Visual Enhancement, Kid's, Teaching, Pedagogy

1. Introduction

The Nigerian instructional structure has, for some time now, been an underpin-

ning concern to Nigerians and non-Nigerians alike. The concern stresses essentially on the eminence of instruction in the country. This quality has been declining. Various grounds have been attributed to this swift decline. Some people see the challenge as a result of the grossly undiagnosed didactical system; others interpret it as the result of the breakdown of the educational infrastructure, the poor salaries of educationist, the decline of a construing culture, the incessant strikes in the education system, the anti-intellectual attitudes of the past and present regimes or lack of job opportunities for the products of the system [1] [2] [3] [4].

There exists in virtually every facade of Nigeria's didactical system an acute, even disconcerting deficiency of instruction resources and conveniences; and when available they are of exceptionally truncated quality. One word sums up the situation: deterioration. This deterioration is physiognomies by 1) Lack of concrete and innovative support for replacement of outdated resources and conveniences, 2) inability of matching the evolving phases of the kids with their peculiar pedagogies, 3) obstinate lack of appropriate and required infrastructure and 4) general absence of support services from the home-based (traditional) technology and personnel services needed by resource instructors and pupils for optimum production and utilization of resources. In fact, so grave is the situation that in many key conservatoires across the country for paradigm, such basic tools as doodle cannot be found in required measure.

Instruction, accurately conceived and pragmatic, required all kinds of resources: human, financial and physical. Erudite [5] [6] [7] posited that as far as education is concerned the unabridged world is a resource. Humanoid resources range from the pupils and facilitators—the primary resources—to an eclectic variety of professionals strewn throughout the social order. Of the non-human resources, the most critical for efficacious and meaningful instruction is the learning materials. These include: 1) books: newspapers, journals, handouts, study guide, etc.; 2) Visuals: charts, photographs, projectors, slides, transparencies, etc.; 3) audiovisual: slides, tapes, films, television, video, multimedia; 4) static/display: chalkboard, feet board, flannel graphs, flip chart, magnetic board, etc. and 5) electronic: radio, computers, Internet, etc.

Once human and non-human resources are accessible in required measure, they usually have the following effects: enable the facilitator or the instructor and the pupil to have easy and recurrent reproduction of an event or procedure; provide visual access to a headway or technique; provide a common background or experience to a large number of pupils, focus attention on highlights of key points, and above all, generate impact. Notions and strategies on learning resources are never in short supply. Tactlessly, however, the policy has never been enthusiastically and faithfully implemented. Monitoring has been unswervingly poor, erudition efforts low, while the result of scholarship conducted by didactic technologists and professional bodies remains inept and substantially unutilized [8] [9] [10] [11].

It is pedestrian of note however that Federal and State governments have in place a sizable number of interventions that, if appropriately funded and managed, can facilitate the production and use of learning resources to an appreciable level. But regrettably, most of these governmental interventions, furnished of funds, are generally incapacitated. Some have ceased to function.

Hitherto the need for adequate and appropriate learning resources remains central to the feat of education. Dearth of these resources is partly answerable for the situation that prevails today where pupils are indoctrinated right from the start deprived of the capacity to visualize in concrete terms the concepts learnt and as such are unable to do things practically, label relationship between various matters accurately or apply themselves to thought-provoking situations at the required time [12] [13]. Official steps need to be taken by all and sundry to arrest the deterioration of resources and conveniences. This in itself requires massive eruditions, “fabricatology” (design interactions), as a basis for this kind of revival process. There also should be cooperation and coordination between the various facilitating interventions as well as various levels of policy interventions, in order to develop a neat network and resource input mechanism [14] [15].

1.1. Optimization of Affordable Teaching and Learning Materials

There is a general acknowledgment amid erudite that instructional media are an indispensable reason in the realization of the goals of instruction. As teaching and learning materials, instructional media do help multiply the proficiency of the instructor or the facilitator, bring connoisseurs and multi-resources to the pedagogical cycle; provide neutrality both in provocative and delicate subject-matter, simplify and illustrate non-verbal iconic and images, qualitative and multifaceted relationship and specific detail; and show more clearly inaccessible processes, events and vagaries in time and space-all which enable the instructor or the facilitator to extend the vista of experience of the pupil [16]. Instructional media can make available the pupil with a strengthening interest in learning, supply tangible source for intangible thinking and proposition a variety of experiences which instigates self-activity and provide the pupil with opportunity for direct interaction with societal and physical experience, to that extent they have the inclusive effect of making learning more interesting, more tangible and more animated.

In spirit of the intervening value of instructional media in cumulative the efficacy of the didactic process, the tragedy of Nigeria situation is that they are invariably scarce or not affordable. Nigeria is amid the overwhelming nations consequently, the instructors or the facilitators are left with no choice but learn to do with less, improvise, innovate and create. Wherever instructive materials available and affordable instructors or facilitators are counselled to exploit them to achieve specific goals, dynamically tracked during lessons and magnificently achieved by the end of learning process. Where the instructional materials are to be designed by the designer (artist, engineer, fabricator, teacher), due regard should be given to accuracy because in principle, what is to be achieved is to in-

introduce into the pedagogical cycle those facsimilia of things which the pupil would otherwise not have been able to see or deciphered. The more the accuracy in the design, clearer the mental impression created. To exploit the use of the “media sphere” and save cost, materials should be sourced in the neighborhood if conceivable and recycled materials should as much as presumable be durable and convenient to handle. Assorted of the media-sphere materials would necessitate requisite facilities, electricity (solar generated) specifically in the countryside situation. In case of sophisticated equipment such as projected media and computers, and their manuals of maneuver must be prudently studied to optimize [17] [18].

1.2. A Paradigm Shift: 3D Ergonomic Board and Techniques in Teaching and Learning

The crucial prerequisite for Nigeria to shift increasingly and with time from the conformist, tested procedures and techniques to those based on our aboriginal upgraded information technology in the teaching and learning processes has been dynamically stressed eruditely. The shift being awaited involved first of all an ultimate change of focus from mental annexation, the teacher to the students as the center of instruction, and secondly, it involves a progressive adoption of innovative shifted procedures (imitative adapted technology) such as in process, discovery, problem-solving and test site approaches in place of conformist grounded largely on modernist methods. While the unadventurous process implies the transmission of knowledge from teacher to learner in rather unreceptive manner and as a one-way traffic, the awaited approach inclines to provide an interactive engagement between the teacher and learner. The latter being as active as the former, and is, in fact, the center of it all [19].

The indigenous upgraded media sphere (technology) is not only based on, but is in large measure the product of, indigenous technology. Thus, the exploit of indigenous technology in teaching and learning becomes not only imperative but the frontier of knowledge for all nations unavoidably. It makes both teaching and learning easier and more effective, the aboriginal or homegrown technology can be properly harnessed, enhanced and anchored on the computer astronomically. The affordability and delivery of knowledge at such a cheap but fast and extensive rate has crafted a whole new atmosphere for teaching and learning and redefined the entire concept of instruction. Hitherto Nigeria has no choice but to make the giant leap forward into the future [20].

1.3. Ergonomic Board and Pedagogy

The challenges facing instruction in Nigeria are as of varied as they are intimidating. Since the cypher concern of instruction is the shaping of society, it embodies a vision of what society wishes to become overtime. And since vision is a dynamic process, running of instruction which is to transmit that vision from generation to generation must also be dynamic and responsive. To do more with

less necessitates a high level of prudence and cleverness in resource management, and given the muddled situation in the education sector, the greatest task before policy makers is noticeably concomitant to generating the political will and endurance to carry out reforms of education. Such reforms should cover not only finance and governance, but redefinition of the goals of education. Such goals should encompass access, quality, homegrown instructional technology (e.g., indigenous teaching media akin to Ergonomic board), learning achievement, stability for innovation and community involvement [21].

The acquisition of legerdemain to learn by an individual is meticulously concomitated with mental and expressive compartment of the individual. Generally, is implicit that toddler's mental development has direct impact from what humanoid experience has cultured, what is right and superlative could influence the intellectual development of the toddlers and improve it; like the media impact. [22].

Instruction defined as a field of learning that accumulates a body of statistics and certifiable laws regarding the mental and expressive phases of animate life. With concerted courtesy on the process of expressive intellectual and ethical development of the person who is being cultured [23]. This comprehends deliberation of responses of learning situation, methods of learning, ability to learn, transfer learning, problems of individual differences in learning, aptitude tests, measurement, emotional, intellectual and moral development.

In this light, [24] declared that, "The understanding of the child, buttressed and guided by indebted and patient adult, is a true teaching-learning situation" and also "The need for the child to develop handiness, to know when and how to use them, and why". In this context, the child develops mindfulness of those objectives and goes all-out to achieve them to change his behavior accordingly.

Erudite [25] "The pre-operational phase (2 - 7) when the child began to contemplate about his agenda, Piaget calls this representation. Representation is the leeway of evoking by mean of image or graphic totems something that is absent". A child can tie a piece of a twine to a stick pulling it along to symbolically represent a dog out for a walk. The supremacy to represent becomes clear in toddlers at this age of two. The scholar posited that, "Toddlers can play symbolic contests, replicate people and effects". By about three years they twitch to craft of drawings of paraphernalia.

Pre-operational phase comprehends two sub phases called preconceptual (2 - 4) years and intuitive (2 - 7) years cognitive phases. During the pre-conceptual phase, the kid is selfish; he centers on his point of view and cannot "see" any other animation's. He has the predisposition to believe his instantaneous discernments. He cannot unify materials to make contrasts. He oversimplifies a lot, and cannot accomplish obligatory grouping of comparable matters. He can make extrapolations, which are not logical, but unable to perform more than one occupation at a time.

The intuitive cognitive phase twitches when the toddler begins to guise at

more than one physiognomics of an object at a time and also makes contrast along more than one measurement. Intuitive reasoning can be cultivated in two ways. Through learning understandings (*i.e.*, having the physical chattels of an object such as color, texture, weight etc. be pointed out to him or manipulating or playing with a group of nuggets and discovering that no matter how these are arranged, there are always the same number, through playing and co-operating with other toddlers. By this the toddler is made to spot that others have different ideas in this light but remember, that the toddler cannot yet perform with effect mental reversibility of ideas, things, objects and actions. At this phase the toddler's discriminating has grown. Pedagogically such toddlers should be allotted to a pain-taking, patient and net-working, well competent teacher or a facilitator with sound knowledge of psychology.

Ergonomic Board is a design interaction (invented indigenous media board) a functional board for teaching toddlers (nursery-primary school phase). Ergonomic board aimed at teaching enhanced process which sources a change in actions of a discrete toddler as a result of understanding from interaction between the toddler's and the pedagogical cycle. The toddler is selfish; he centers on his point of view and cannot 'see' any other animation's. He has the predisposition to believe his immediate discernments.

Ergonomic boards make available proficiency of instructional media characterized as a "performative triangulation" (audiophile, visuality, textuality) technique of programming teaching and learning transition through the use of sound for transmittable attention, using captivating 2D, 3D visual/iconic signs and magnetic 2D embossed typo-fonts characters to generate toddlers' curiosity to learning.

2. Methodology

The procedure adapted for the study was a quantitative and qualitative approach for collection of data. Three instruments were designed to empower the toddlers/teachers to identify virtually and interactively with the learning objectives which was presented using the three instruction approaches (A) Ergonomic board with 3D Visuals, (B) the conventional using printed illustrations with typo-fonts only, and (C) conventional approach using embossed illustrations with written words, the three instruments of the study were all rendered comprehensibly, all in colures for the proportional analysis for these study. The strides in designing questionnaire involve deciding whom it target, what it should explore, how it will be administered and bearing these dynamics in mind, how it should be designed.

The population sample questionnaire was targeted at four private nursery/primary schools teaching toddlers/teachers in private or commercial schools in Nigeria. The advantage of this choice was that the researcher had far-reaching experience of these teaching backgrounds which helped in the practical organization of the study and guide the design of the questionnaire.

The first stride out in constructing the questionnaire was to deem how best to

gather statistics concomitant to the queries that was formulated. After fixing on the format, an item bank was constructed. Complied item bank and then reformulating and selecting items was served to clarify what information the questionnaire should elicit and how best to go about it. A mixed of exposition formats was used: this was necessitated by the kind of information being sought after, that will make the questionnaire more varied, a factor which was, the researcher hoped will help to engage and maintain the respondent's interest. The individual phase was designed based on the objective to obtain statistics about:

- 1) toddler's/teachers in general about the practicality (usefulness) (3D-visuals) in teaching and learning materials;
- 2) about the clarity of proposed functions of the 3D-visuals in the learning scheme and support from the designers (user's instruction) in using them;
- 3) toddler's/teacher's agitation for 3D-visuals elements other than conventional visuals (with words) in teaching resources;
- 4) toddlers/teachers proffer 3D-visuals other than provided by the conventional visuals (with embossed) learning scheme;
- 5) toddler's/teacher's other sources of visual aids for teaching in the pedagogy.

The questionnaire was administered at four different locations in Maiduguri Metropolis, Nigeria:

- 1) University Staff Nursery/Primary School, University of Maiduguri,
- 2) Sunshine Star Nursery/Primary School, Customs Road, Maiduguri Metropolis,
- 3) Rubi Springfield Nursery Primary School Sawa Estate polo, Maiduguri, and
- 4) Jaffra Nursery/Primary School, Federal Low-Cost Housing, Maiduguri.

In total seventy-two (72) toddlers/teachers participated in the study and gender related differences variable was coded, contrary to the typical practices, 1 for female and 2 for male. A modest snowball sampling technique was adapted for the study.

The questionnaire items were designed to ascertain how many toddlers/teachers subscribed strongly or less to an instructional media, or asserted that the expediency of the media did or did not convey certain interactive change in learning, as well as what predispositions was most typical in the sample, and the extent to which strongly differing predispositions was expressed. Data was analyzed in terms of descriptive statistics (frequencies and percentages). The frequency courts were shown graphically on pie-chart and histograms.

2.1. Data Analysis and Discussion of Result

The analysis of data on the responses to the questionnaire items on the opinion of:

Question 1 Item: 3 - 21

Toddlers/teachers on the usefulness of ergonomic 3D visuals, in respect to teaching nursery schools' pupils.

Question 2 Item: 4 - 23

Toddlers/teachers about the clarity of proposed function of ergonomic 3D

visuals in teaching and learning scheme and support from the producers (users' instruction) in using them.

Question 3 Item: 1 - 20

Toddler's/teacher's agitation for ergonomic 3D visuals, and on why conventional visuals are misjudged/miscomprehended.

Question 4 Item: 25 - 28

Toddlers/teachers proffer ergonomic 3D visuals other than provided by the conventional (with words/embossed visuals) learning instruction

Question 5 Item: 2 - 22

Toddlers/teacher's other sources of visual's aids for teaching and learning in pedagogy.

Question One: Item 3 - 21

Objective 1: respondents (toddler's/teacher's) opinion on the usefulness of ergonomic 3Dvisuals in teaching nursery school pupils

The values for this item have been inverted: *i.e.*, 1 means that the respondents "rejected" suggested that 3D visuals present a distraction from lessons instruction and 6 means they agree with it.

Frequency: 1) 24 (34.3%), 2) 11 (16.8%), 3) 33 (37.2%), 4) 2 (2.90%), and one value is missing. The statement is clearly rejected: then two options that would indicate strongly agree were not chosen by anyone, yielding a range of only three. It is interesting that 24 respondents excitedly rejected it. 11 strongly rejected it, but the majority of the respondents 33 rejected it in as natural as possible an inclination (**Figure 1**).

This gives the impress to suggest a separation amongst the respondents: a third are strong believers in the positive role 3D-visuals, while nearly half only designate that 3D-visuals are not uncomplimentary to toddler's pedagogy. Distribution of this kind is regarded as viewing that the item set apart well between different

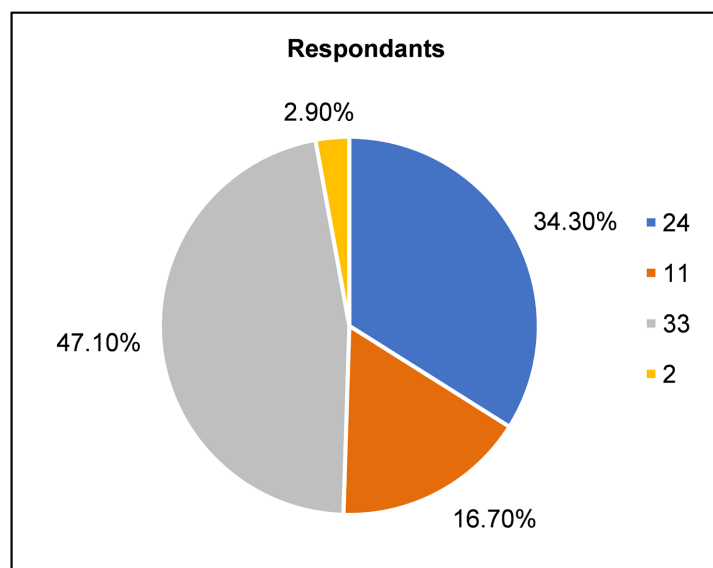


Figure 1. 3-2 Items on 3D-ergonomic usefulness.

mind-set held by the respondents in the sample. The experienced teachers exhibited the same trend markedly with Frequencies of 9 (36%), 11 (11%), 13 (48%) and 1 (3.70%) for response option 1, 2, 3, and 4 in that order (**Figure 2**).

Item 7:

Frequency: 1) 24 (34.8%); 2) 21 (30.4%); 3) 23 (33.3%); 4) 0; 5) 1 (1.4%); 6) 0.2 values missing. The outliers who chose response 5 are respondents who affirmed that 3D-visuals were not indispensable in lesson education for toddlers' learners in the question at the end of the questionnaire. The other teachers (free-lance) in the sample showed clear-cut that 3D-visuals for toddlers should be exploited. The experienced teachers agreed even more strongly: 1) 11 (42.3%), 2) 10 (38.5%), 3) 5 (19.2%); 4), 5), and 6) negative response options, were not chosen by any them (**Figure 3, Figure 4**).

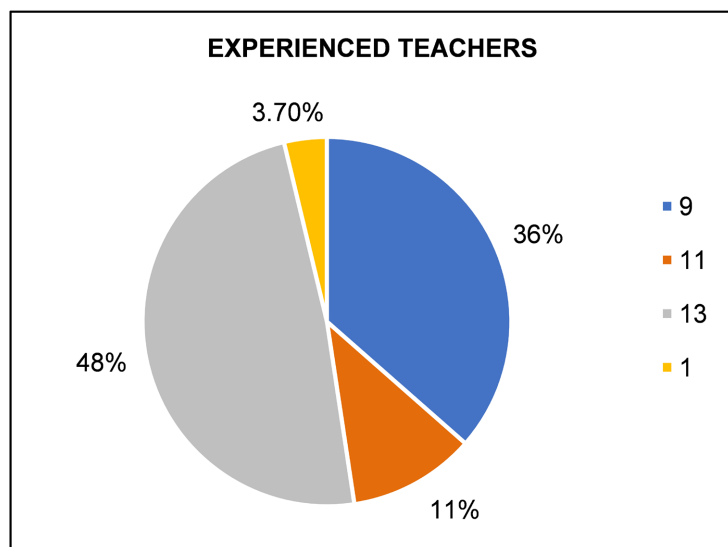


Figure 2. 4-3 Items on Clarity of proposed functions.

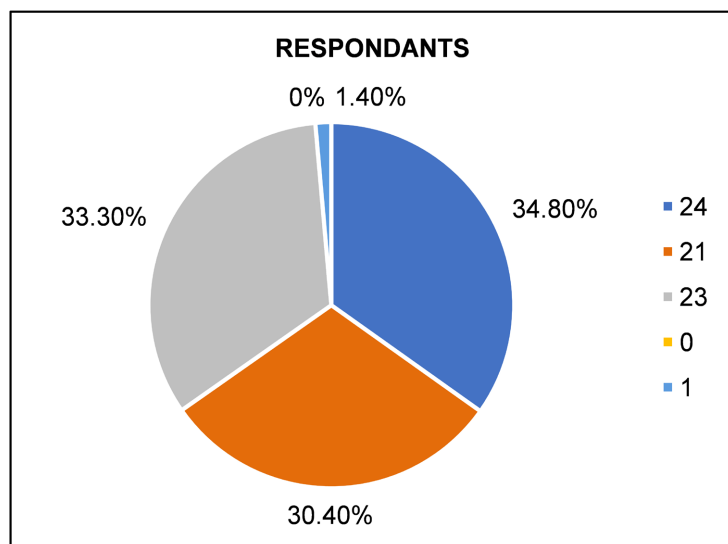


Figure 3. 3D-ergonomic in teaching.

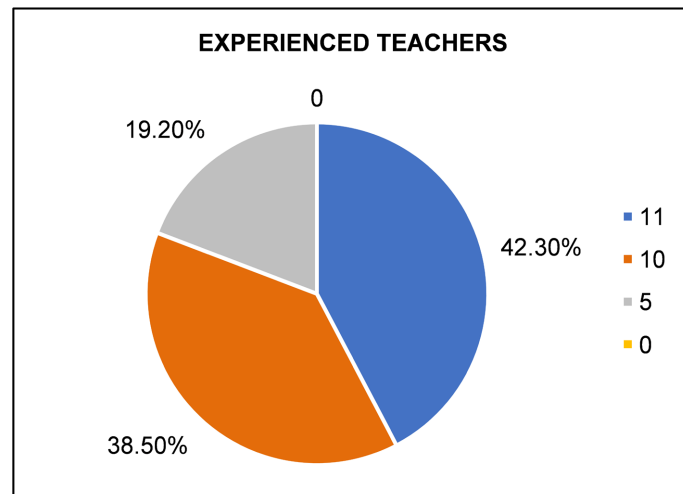


Figure 4. 3D-ergonomic usefulness in learning.

2.2. Annotations on Objective 1

Objective 1: was calculated as a summative scale, which made it promising to theorize the reliability of the statistics elicited by measuring whether the toddler's/teacher's responses were dependable with one another crosswise the six items. Measurements obtained also have inferences for validity of scale: relatively high degree of stability indicating that all the items in the scale measured the same thing [26]. The internal consistency reliability was speculated with Cronbach alpha, tool frequently used in instructional achievement research. [27] Cronbach alpha is used to approximate the proportion of variance that is logical or consistent in set of test scores. It can range 00.0 (Proviso no variance is consistent to 1.00 also being possible. For paradigm, if the Cronbach alpha for set of scores turnout to be 0.90, invariably can be construed that as meaning that the test is 90% reliable, and annex that it is 10% unreliable (100% - 90% - 10%) [28].

Statistically, a Cronbach alpha of above 70 is by and large viewed as indicating reliable internal consistency, given that it indicates a high degree of interrelationship between responses to the different items on the scale. Proviso the Cronbach alpha is lower than 60, the scale will not normally be regarded as cited [29] [30]. The Cronbach alpha for the summative scale in objective 1 is 0.7556, which suggest that the scale was able to measure the teacher's viewpoint about the usefulness of and wherewithal of 3D-visuials in the toddler's lesson (plan) instruction resources consistently, and statistics are reliable. Cronbach alpha for the group of experienced teachers is 0.7236, indicating internal consistency for these measurements as well.

Question Two: Item 4 - 16

Objective 2: respondents (toddler's/teacher's) about the articulateness of the intentioned function of the 3D-visuials in lesson instruction and consolidates from producer's (instructions) in using them.

Frequency: 1) 5 (7.2%); 2) 12 (17.4%); 3) 45 (63.4%); 4) 6 (8.5%); 5) 0; 6) 1 (1.4%). While most of the respondents (toddler's) matched with the report, the

pie-chart shows that the grist hold did so without much conviction, choosing “abracadabra “option. Undeniably, one (toddler) placed a cross between boxes 3 and 4. The experienced teachers as a subgroup had similar response prototype to the group as a whole, with overall tendencies being still more tackled 1) 3.8%; 2) 11.5%; 3) 8.8%; 4) 0; 5) 0; 6) 3.8%. Out of the 26 practiced teachers’ (15.4%) gave a strongly positive response, whereas nearly 81% chose “abracadabra”. With exception of one extreme, no-one from this group recorded a negative response (Figures 5-8).

2.3. Annotation on Objective 2

The Cronbach alpha for summative scale used in objective 2) 0.6034, and so reflects only 44 sensible degrees of internal consistency, hitherto, as noted above, item 6 fitted gawkily into the scale, but was retained at the risk of low reliability because it educed crucial information. And indeed, the statistical analysis gives

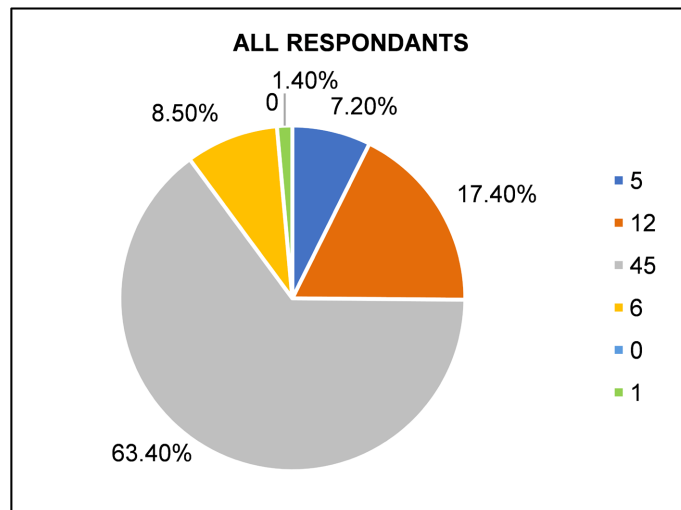


Figure 5. Clarity of purpose of 3D-ergonomic.

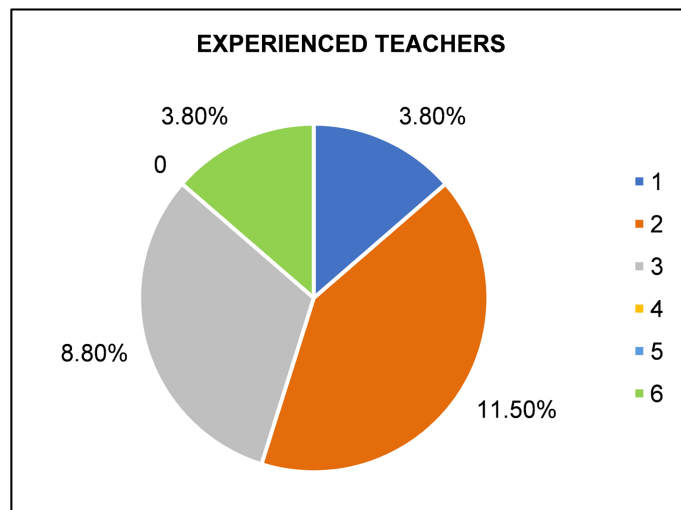


Figure 6. Clarity, support on producer’s instruction.

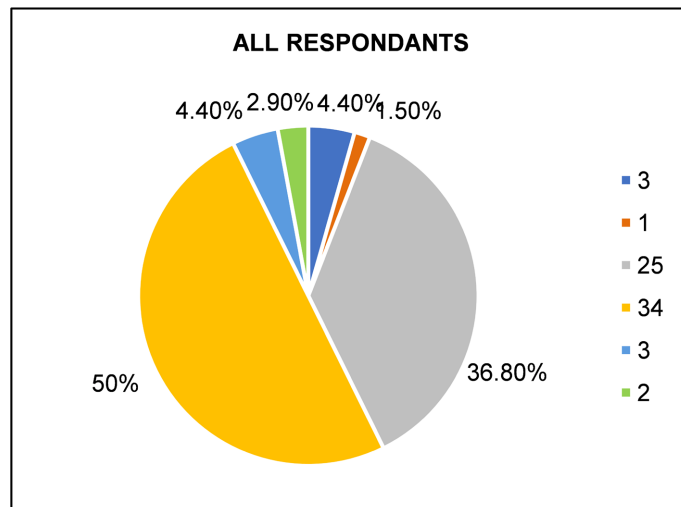


Figure 7. 3D-ergonomic functions.

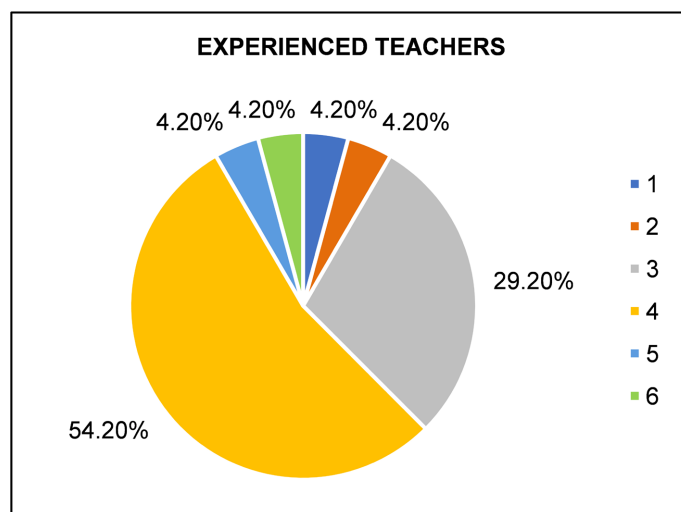


Figure 8. 3D-ergonomic functions.

an idea about that a somewhat higher Cronbach alpha (0.6266) would have been obtained if item 6 had deleted, but also if item 23 had been deleted (0.6452): Thus, these two items created the number of variances. The alpha for the group of experienced teachers' is 0.6457, which indicates greater internal consistency among this group, possibly because they have clear potentials of the materials use. What are the insinuations of the responses to objective 2 ? Although the pie-charts for all the item display very nearly normal distributions and there is no clear dominance of positive and negative responses. If item 6 and 16 are considered together, on balance the respondents seem to feel that the intended teaching functions of the 3D-visuials in the lesson instruction are not fully apparent. Item is a key question, closely concomitant to the learning central question about the sustainability of 3D-visuials in resources for toddler's teaching and learning, while the responses to this item do not reflect discontentment with the lesson instruction (visuials), they suggested that the teachers in the sample are

not strongly convinced that the conventional (visuals) in their lesson instruction have been included on the basis of teaching needs and goals either.

2.4. Question Three Item: 1 - 20

Objective 3: respondents (toddler's/teacher's) agitation for ergonomic 3D visuals, and why conventional visuals are misjudged/miscomprehended.

Frequency: 1) 10 (14.3%); 2) 24 (34.3%); 3) 15 (21.4%); 4) 20 (28.6%); 5) 1 (1.6%); 6) 0. Even though in total 70% of the respondents biased on the side of positivity of the scale, 22 respondents accounted for that they sometimes squinted at the 3D-visuals on the ergonomic board first before the lesson activates. The split-up suggestions by pie-chart, with responses concentrated above all at “media-navigability” and “styles” with a noticeable dip at (option 3), may reflect differences in the respondents’ cognitive styles, or simply their mind-set to visuals: some individuals are less interested in them than and notable of this scale was to explore whether such difference could be separated. The pie-chart suggests that they could. 9 of the 28 experienced teacher’s chose “styles” making this the most recurrent responses in the group, perhaps this reflects on the desire active teachers to get down to business when they plan or begin a tutoring, while their concentrating on the textual resources opening the book would also mean that regard visual aids as decorative, and not central to instructional goals (Figures 9-12).

Annotation on objective 3

Awareness of 3D-visual elements in teaching resources is a multifaceted area to explore, and statistics obtained from a single six items scale can at best only propose proclivity. The items were open to interpretation and even though the responses open to useful insights, the degree of relationship across item was expected to be low from the investiture. The Cronbach alpha for the group across all six items was 0.4754, and so the responses cannot be considered to display internal consistency. It is interesting to note that item 15, the one most directly

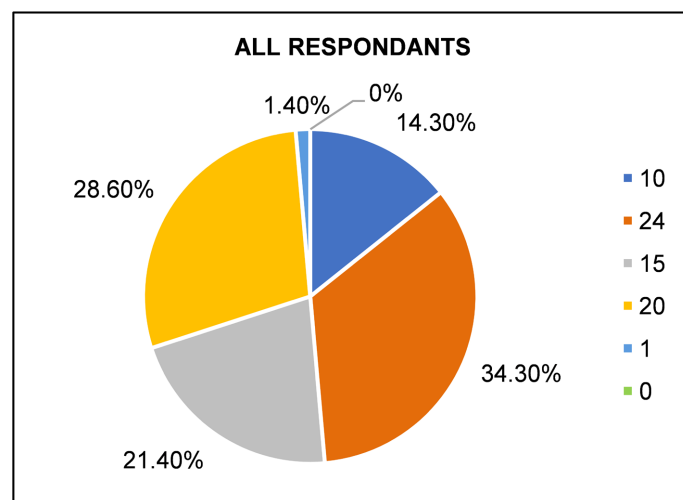


Figure 9. Apprehension for 3D-ergonomic.

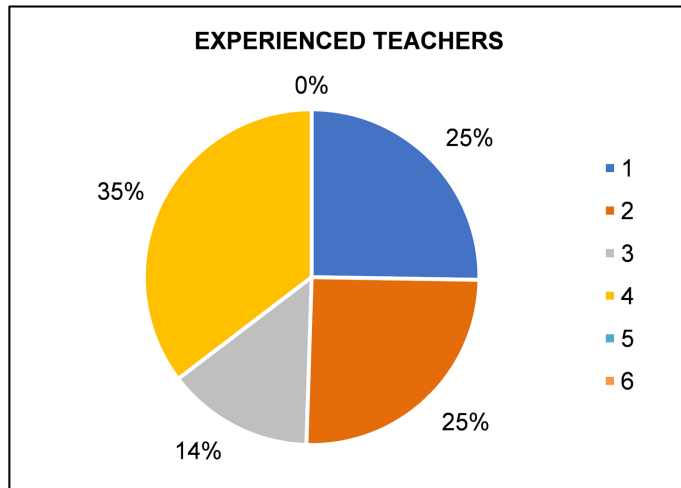


Figure 10. Orthodox are miscomprehended.

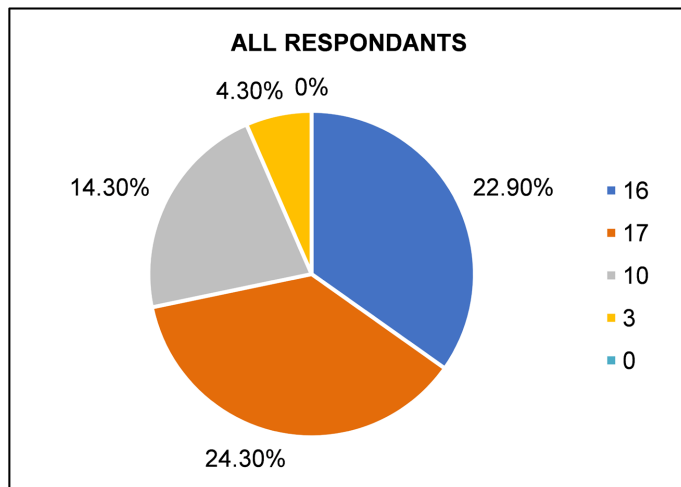


Figure 11. All respondents agitation for 3D'ergonomic and why conventional visuals are miscomprehended.

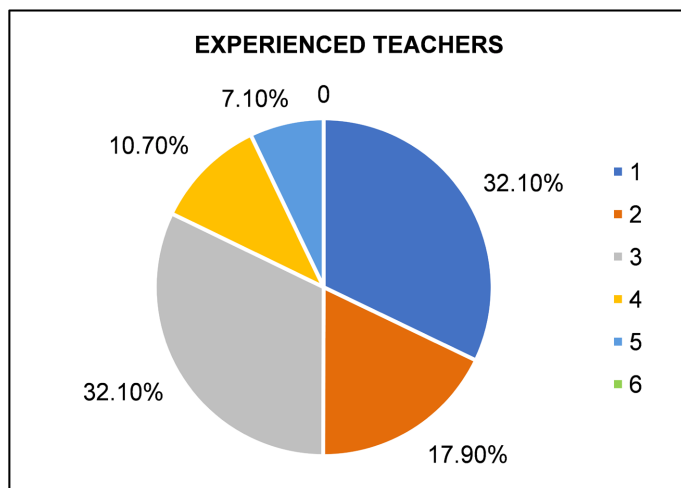


Figure 12. Teachers distress for 3D'ergonomic and why conventional visuals are miscomprehended.

connected to toddler's teaching and learning contemplations, had the unruliest effect on the internal consistency of the scale. Except if this item was disregarded, the Cronbach alpha will still only be 5198. The Cronbach alpha for the group of experienced teachers was 0.6042, which indicates to some extent greater and confirms that the experienced teacher was more reliable in their response pattern for this scale than they as a whole. Overall, the responses to objective 3 suggest that teachers who took part in study are well aware of visuals in the conventional teaching aids, and as the responses to item 15 and 18 indicate, view the visual aids principally in term of their relevance and for toddler's teaching.

2.5. Question 4 Item: 25 - 31

Objective 4: respondents (toddler's/teacher's) proffer ergonomic 3D visuals other than provided by the conventional (supported with words/embossed characters) learning instruction.

Statistically the four items named, added visuals were reported to be used most often for language playoffs: 42.6% of the responses to item 28 were on the left half of the rating scale (almost to "often"). By means of contrast, 39.7% of all responses were on the left half of the rating scale for item 25 (speaking), 26.5% for 26 (writing) and only 14.9% for item 27. The most common response for all the activities was "very often", except in the case of language rules (grammar), for which the response option "often" was chosen noticeably repeatedly. Regarding ten teachers chose "never" in response to item 26 (writing) and teachers noted in the perimeter that there is little free writing in the (lesson plan or instruction for the toddler's the stage targeted by the dimension of lesson instruction. The data suggested that if teachers do use additional, non-lesson book visuals in their classes, it is for language production activities typical of communicative language pedagogical (speaking, writing, playoffs) (Figure 13).

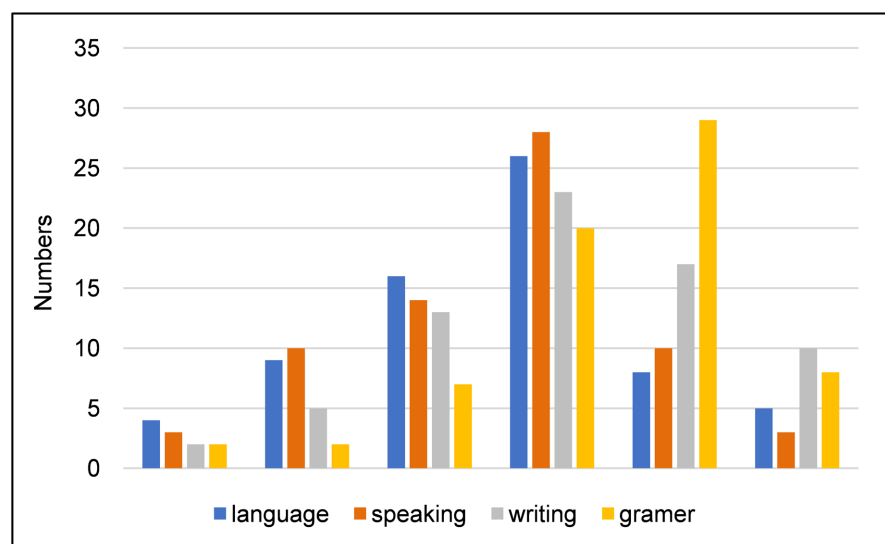


Figure 13. Respondents tender 3D ergonomic, other than provided by conventional instruction.

About 22 respondents noted other purposes for which they brought visuals to class or draw them on the white or black board in response to item 29. Initiating terminology was the purpose alluded to most often, and two respondents emphasized that they frequently use visuals for the purpose. There were four mentioned of the using the visuals for entertainment, hilarity or to create more relaxed ambiance. Two mentioned each were made of the following uses: at first meeting of a new class as introduction or as a basis for class-members to introduce one another, in role-play as a basis for roles or to establish the situation; from aesthetic and affective considerations, to make lesson more colorful and attractive (see histogram). Single mentioned were made of visuals for the following:

- 1) Specific language-teaching functions;
- 2) Educating or augmenting arithmetic production;
- 3) Decoration, entertaining.

As viewed item 30 and 31, 50% of the respondents chose responses on positive side of the scale for item 30 (“almost”). On the other hand, over 30% chose the response “very often” (responses number 3), which is on the right side of the thus in principle negative side of the scale. The statistics for item 31 were: 1) 6 (88%), 2) 13 (19.1%), 3) 15 (22.1%), 4) 22 (32.4%), 5) 10 (14.7%), and 6) 2 (2.9%). As can be seen from the pie-chart for item 31, less than half of the teachers sketch visuals artlessly in the class: only 39.7% chose responses on the positive side of the scale, and the responses navigates “often” (option 5): this was chosen by over 30% of the respondents. On the other hand, only of the 68 teachers who responded said they “never” sketch visuals guilelessly in class. The data for item were: 1) 5 (7.5%), 2) 13 (19.1%), 4) 15 (22.1%), 5) 21 (30.9%), and 6) 5 (7.45%). One value missing (Figure 14, Figure 15).

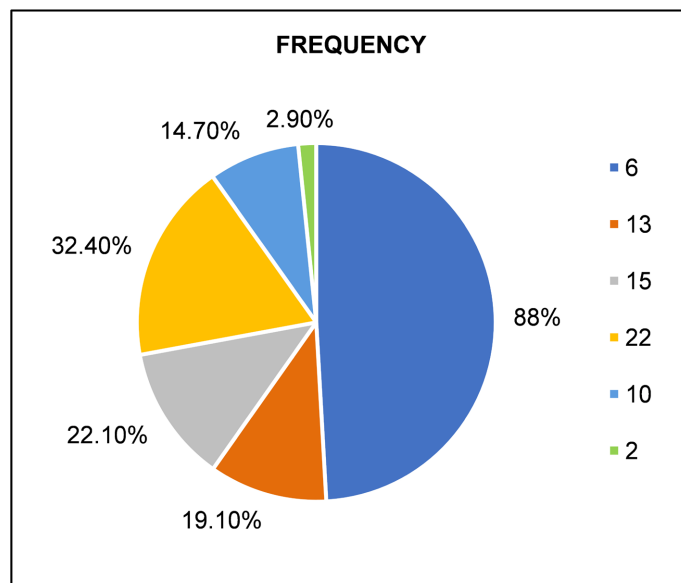


Figure 14. All respondents proffer 3D’ergonomics other than provided by the conventional learning instruction.

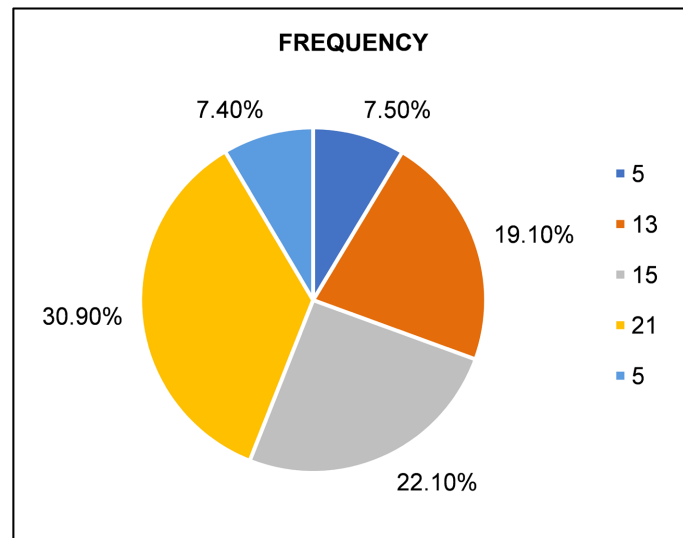


Figure 15. Teachers tender 3D'ergonomics other than provided by the conventional learning instruction.

Annotation on objective 4

The by and large impression from objective 4 is that all their teachers regard the use of visuals as an enhancement established features of their teaching, notwithstanding a central one. As each item in the phase concerned a different aspect of additional visual resources in the pedagogical cycle, they could not be treated as encompassing a collective (summative) scale. Hitherto, the phase as a whole distinguished between teachers who regard visuals as indispensable part of their teaching and those for whom they play a more tangential role. The distinction is visible in the response patterns, since teachers whose modus operandi are less visual-focused are unlikely to collect or create additional visuals, and so chose the options "very rarely" and "never" despite the fact those who regard them as central choose options between "almost" and "very often".

2.6. Question 5 Item: 2 - 32

Objective 5: respondents (toddlers/teacher's) on the functions, other sources of visual's aids for specific teaching and learning in the pedagogy

The questionnaire item for objective 5 are mixed in with the item from objective 1 - 3 but contrasting phases that cannot be treated as a summative scale, because each item addresses a different aspect less instruction. The denoted rating for objective 5 were on the positive side of the rating scale for all the items, which designates that most of the teachers queried feel that visuals have significant supporting functions in teaching toddler's pedagogy. The cultural background function item 13, was considered most imperative. 98.6% of the respondent chose a positive response to this item, and it had the highest mean (1.88) as well as a low standard deviation (0.808), indicating a high rate of compromise. The lowest mean (308) was forming item 18 (lexical structure), and here too there was a high degree of accord (standard deviation 0.865) indicating that vis-

uals was thought only fairly useful for teaching new grammar. Then teachers considered support for interpretation comprehension (item 22) the second most significant function. 94.1% of the respondents responded positively to item, then third most vital supportive function was in area of lexicon (item 5), which had 92% positive responses on the whole. The pictograms (item 2) and graphics used make clear rules (item 24) were viewed as well imperative in terms of total positive responses (81.4% and 81.2% respectively) with respective mean of 2.7% and thus unbiased in predisposition (Figure 16).

Annotation on objective 5

Despite the fact that its primary function was to gather information about sources and types of visuals the teachers use, objective 5 (akin to objective 4) sustained imminent into respondents’ overall thoughts to visuals, in view of the fact that teachers who take the trouble to procure, prepare or create their visuals evidently believe that they play an important role in their teaching. Of the 72 toddler’s/teachers who responded to the item objective 5, 63 itemized that they supplied other visuals to enhance those in their instructional books. Whatsoever attitudes they may articulate in other parts of the questionnaire, these number suggests that the overwhelming majority view visuals as a crucial tool in toddler’s pedagogical cycle, and that collecting or creating instructional devices is an asunder for all, a typical repertoire of strategical instruction of younger cohort. “This (instructional visuals) are integral part of most teaching strategies” [31].

In summing up, no more than two respondents, one of who has just been referenced, acknowledge that the toddlers do not necessitate scores of pictures. On the whole the teachers questioned indicated a strong conviction in the usefulness and beneficial effect of 3D-visuals (ergonomic board) and showed a strong responsiveness and appreciation of its applicability-task in instruction. The information about the visuals they used the domains they found them most effective

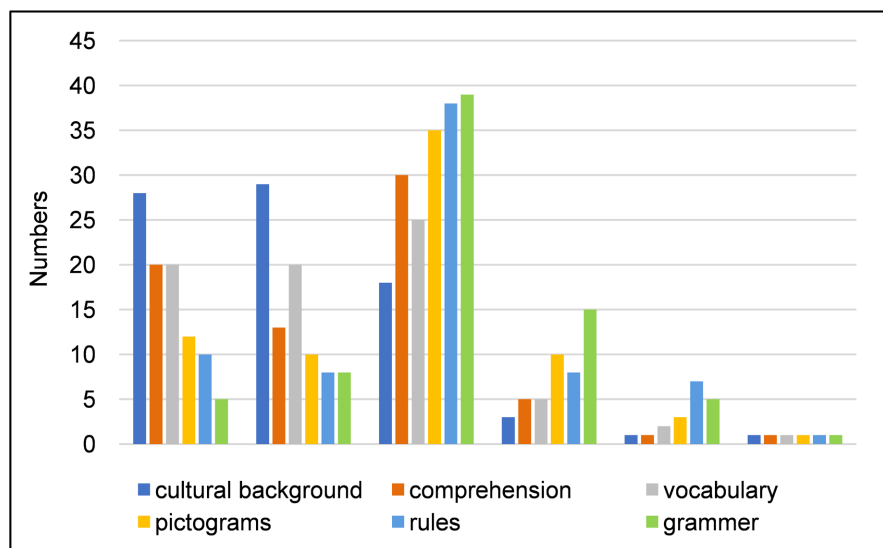


Figure 16. Respondents on the functions, other sources of visual’s aids for teaching in pedagogy.

in and especially the fact that the great majority devoted preparation time in procuring additional visuals resources suggest that instructional visuals form an essential part of teachers' resources. On the other hand, few of them have had specialized instruction in theory of teaching with visuals. The majority of the teachers felt that it was not always clear the visuals in the books were supposed to be used, and specified they would welcome more explicit instruction on how the visuals were intended to support the pedagogical activities.

Visuals have been perceived as having a wide range "sustenance". Like the mnemonic properties of visuals or their role in educe lexical production in communicative language classroom were "sustenance" recognized on the basis of knowledge about lexical learning processes and approaches new "sustenance" were apparent in relation to teachers practice with them in specific areas of language teaching and learning activities. On a more general level, hilarity, sublimation and creating a good ambiance allude to as sustenance of visuals; and indeed, the responses to the statement that visuals are motivating (item 11) were among the most commonly affirmative ones in the whole questionnaire. The agreement on motivational properties of visuals is constant with findings on instructional visuals.

As studious critique from research put forward that, pictures which are integrated in visuals resources for no other purpose than motivation may actually have negative result on the beginners [32] since the learner, finds that they make no tangible contribution to learning, and failed to process them attentively. Accordingly, are motivation and gratification real "sustenance of visuals instruction" or perceived "sustenance unaccompanied". Do the teachers conviction that pictures motivating and entertaining derive from a failure to perceive their "sustenance" as sources of information and support for learning? It seems that many teachers have used unillustrated materials (commercially-produced) and positioned or observes the rising in the learner's motivation when pictures are added? The sensitivities of experienced teachers have to be carefully weighed against findings from artificial studies or construal by psychologist experimentation principles.

3. Conclusion and Recommendation

3D-visuals have, among many other "visual sustenance characteristics" the budding to aid teaching and learning by reducing cognitive load, to provide mnemonic support, conceptualize language input on various level, clarify learning procedures, visualize grammatical structures, facilitates comprehension, stimulates lexical production and, if teachers rather than research psychologists are to be believed, motivate learners and make teaching and learning more pleasurable. The knowledgeable studies presented in this article also identified visuals which sustained misconception, misperception, misunderstandings, and sometimes nothing more than a fleeting, purposeless visual provocation.

If the forecasting of new cognitive world of manifold (3D-ergonomic visuals)

image are right, then teaching toddlers too will rely increasingly in the future on 3D-visuals components that carry a full informational load, and 3D-visuals will come to be regarded as teaching resources by teachers and toddlers. Who uses them as being no less important than speech and textuality? At the moment, however, visuals, though omnipresent, do not have this prominence. The studies presented above suggest that most of the producers of the instruction visuals especially the conventional tactic (visual supported with words/embossed characters) did not have a flawless conception of their instructional “sustainability characteristics” and frequently used them in ways that could not be traced to clear-cut teaching and learning objectives. The teachers probed are enthusiastic about visual and use them intensively, but few have given a solid theoretical and practical grounding on how to use them meritoriously in the pedagogy, The toddlers in the schools were asked to interpret the visuals how they were going to use them in an applicability-task in the pedagogy performed the task efficiently but, as the lack of attention to detail suggested, for the most part cursorily.

It is questionable that a deep-seated change in perceptions of visuals and their “sustenance” in instruction will take place overnight, so rather than wait until a generation that has been raised, the most logical solution is-as has been suggested both explicitly and implicitly in research literature to provide guidance to the processing of visuals in resources themselves.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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