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Full Length Research Paper

Efficacy of visual prompt for basic technology instruction in junior secondary schools: Ability grouping proposition

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ABSTRACT

This erudition investigated the efficacy of two methods of instruction: Visual prompt instruction (VPTM) and Conventional Science instruction (CSTM) on the effects of homogeneous and heterogeneous ability levels' class instruction on learning outcomes in Basic Technology. The sample comprises 60 learners in junior secondary school classes randomly selected from two schools. Five instruments namely the basic technology achievement test (BTAT), wood, metal and plastic concept, knowledge and task and learner's questionnaire on preference for grouping types were used to collect data for the erudition. Two general research questions and five hypotheses were raised, tested and analyzed using measures of central tendency, mean, standard deviation and t-test (descriptive statistics). The results confirm that homogeneous ability level grouping is better quality for supporting learners learning outcomes. The reported alteration in approach and inquisitiveness of the learners is in favor of visual prompt instruction among the homogeneous ability grouping class. Recommendations were made based on the findings: the accountability is above all on pioneering physiognomics' of VPTM inclusion in the prospectus of scientific instruction in Nigeria cum internationally.

Keywords: Approach, stigmatized, performance, homogeneous, heterogeneous**,** gifted learners.

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INTRODUCTION

In education's enduring mission of meeting the needs of the learner, a perceptible shift from the long-standing process of reading, writing, counting and text memorization skills that may have been pertinent for the medieval clerk, should be giving way to skills of analysis and novelty that are considered desirable in today's modern cultures (Ahmed, 2017). The ultimate goal of all instruction activities is to facilitate learning. For learning to occur, a relatively persistent change in behavior must be noticeable in the learner. Erudition has demonstrated that individuals adopt a consistent approach to learning tasks. Potentialities or abilities, per se, do not influence behavior more than the comportment of intellectual functioning or the nature of one's stable individual's particular ways of thinking, or idiosyncratic preferences.

One major academic challenge confronting the learner is the impenetrability encountered in trying to recall learned materials in science lessons. Erudition provides evidence that suggested that learners are affected by their immediate environment, their own emotionality and their sociological and physical requirements (Duncum., 2002; Evagorou et al., 2015; Ahmed, 2017). Perhaps, it may be a result of the gross inability to diagnose the best way students learn, which partially explains why there are increasing poor ratings in their academic performance in the sciences. Another paradigm shift, in education's sustainability mission of meeting the learner needs, was to institute the effect of ability grouping. Ability grouping, simply put, is the practice of dividing students for instruction on the basis of their apparent capacities for

learning. It is the practice of placing students of analogous academic levels within the same group for instruction. Erudition has scuffled for years to find answers to the questions about ability grouping. Who are the beneficiaries of it? Who is harmed by it? Who benefits or is out of action the most? The answers are constantly precise and often dependent on whom you inquire and what learning outcome is reckoned imperative. Several researchers and mentors, such as Kulik (1985), Slavin (1990), Veldman and Standford (1984), Loveless (1998), Faris (2009) and Adodo and Agbayewa (2011) investigate evidence syntheses tackle numbers of imperative issues about ability grouping for academic instruction. Issues such as the impact of adult stances towards grouping, ability grouping measure a sagacious response to academic multiplicity, Erudition on meta-analyses and the role of gifted students as role models for other students, and the impact of grouping on student's behavior and teacher expectations are all vital. As a consequence to others, the practice has harmful dislikes and should be discarded.

Detractors of ability grouping attested that it is just a further form of educationally hitched segregation; for when students are divided on the bases of ability grouping: They are also divided socioeconomically. But proponents of ability grouping affirmed that the practice increases student achievement by consenting the teacher to tailor the pace and content of instruction to student needs. The high-ability students maintain inquisitiveness and motivation in a homogeneous group but they sulked when grouped with the slow learners while opponents of ability grouping argued that ability grouping not only fails to benefit any student as it also straits poor and minority learners to low tracks where they receive a lower quality of instruction than their groups and contributes to a widening of the achievement gap. Erudition revealed that if students are grouped homogenously, there is trepidation that low-ability students will be deprived of opportunities to learn and be unmotivated to learn because of peer, personal and teachers' expectations of poor performance (Lou et al., 1996; Emily et al., 2003; Swiatek, 2001; DeLacy, 2004; Melhouse, 2009; Adodo and Agbaywa, 2011).

Empirical learning on ability grouping particularly its effects on achievement is quite extensive, several meta-analysis and research syntheses have been conducted and a number of correlated literature reports recommended that the effect of ability grouping on student achievement depend on the type of grouping arrangement. Erudition also considered the self-esteem of gifted students in homogenous groups and compared them to those working in the heterogeneous group class. The self-esteem rating of the two groups differs appreciably when compared (Schmidt, 1993; Lou et al., 1996; Melser, 1999; Emily et al., 2003; Adodo and Agbayewa, 2011).

Erudition suggested specific dynamics influencing learners learning outcomes in science including lack of innovative modus operandi, attitude, and lack of inquisitiveness in the subject. In innovative methods of instruction in science, the use of visual literacy as strategies could be said to enhance verbal learning because it is the basic literacy in thought processes that are the foundation for reading and writing (Ahmed, 2017). Shaw and Duan (1990) claimed that attitude is the total of a person's inclination toward a certain type of object, institution or idea, while Gronlund (1976) put forward that attitude embraces all aspects of personality development such as individual interest, motives, values vocational adjustment derived from a vocational pursuit and other major phases of one's daily lives. This means that Gronlund's (1976) and Ahmed (2017) submissions could be inferred from explicit behavior in both academic performances with the subsequent result on the learning difficulty of any learner at any educational level. Poor attitude is an imperative factor causing failure in science subjects and as such, learners in extreme cases develop detestation to the teaching-learning process in the pedagogical cycle (Linn, 1992; Chinwe, 1999).

Knowledge in the 1980s

Over four decades now, ever-clearer insight into the wherewithal of visuals in instructional structure has accumulated on the basis of knowledge that has addressed the effects and potential functions of visuals in learning and teaching. These eruditions have been carried out principally by educational psychologists and have typically addressed 'reading to learn' by school progenies or students. Reading to learn is characterized by Carney and Levin (2002) as the processing which comprises perceiving, understanding and remembering text information. In general, inquiries into learning with visuals have been conceived with the aim of providing practical guidance for the design and more effective use of school textbooks and other paper-based resources. Since the early 1990s, much learning in this area has also been directed at optimizing the use of "mediacology" instruction, and particularly in e-learning. The effects of instructional visuals have been deliberated on in an outsized range of contexts. In hoarded bibliography of literature on static illustrations and animated graphics, erudite Anglin et al. (2002) cataloged 2,235 crucial studious eruditions, reviews, books, conceptual papers, and magazine articles affiliated with pictures and knowledge acquisition. Even after rejecting those which used but did not focus primarily on pictures, or which were methodologically flawed, they identified 168 studies which eligible for inclusion in their review. Just how many individual eruditions have been carried out in the field of instructional graphics and illustration can also be predicted from the number of overview articles and omnibus that have been published since the 1970s.

Amongst the most comprehensive are Levie and Lentz article 'Effect of text illustrations: A review of research' (1982), volume anthology ***The psychology of illustration*** edited by Willows and Houghton (1987), volume one addressing 'Basic Research' and Volume Two 'Instructional Issues'; Mandl and Levin's anthology ***Knowledge acquisition from text and pictures*** (1989); Braden's essay on ***'Visual Literacy****,* (1996); Carney and Levin's article ***'Pictorial illustration still improve students' learning from text'*** (2002), in which they principally review research steered in the 1990s; Moore Burton & Myers' overview of the theoretical and research foundations of multimedia, (2004) and the comprehensive bibliographical review of tactics to the visual by Anglin et al. denoted to earlier, which, like the Moore, Burton and Myers article, is a chapter in Jonassen's ***Handbook of Research on Educational Communication and Technology*** (2nd edition, 2004). The most topical major overview is ***The Cambridge Handbook of Multimedia Learning*** (November 2003), edited by Richard Mayer, who has been one of the central researchers in the field since the 1980s. The vast volume of research designates how encouraging the results of the eruditions have been overall, and the great latent researchers ascribe to instructional visuals. This body of research is not narrowed to academic journals but is drawn on intensively in practical guidelines for producing instructional graphics concomitant to visual prompts, and so has significant expediency on instructional design.

The challenges of this erudition are how best to give heterogeneous groups in science the supplementary help they would need without dampening the inquisitiveness and progress of the homogenous group learners in the pedagogical setting. Although there are numbers of distinct forms of knowledge preferences that each learner adopt in deciphering challenges, thinking and other decision-making activities, one would expect that a well-taught lesson with a variety of conventional science teaching method (dogmata), would elicit a corresponding good academic performance. It is on this premise that this erudition developed a visual-narrative teaching method (Visual Prompt: a typology graphic used to illustrate theory, principles or cause-and-effect relationships) a cartoon format for teaching Basic Technology in junior secondary schools in Nigeria. This is the frontier knowledge this erudition would like to underwrite (see example of Newton's Law illustrated using VPTM approach in Figure 1).

Learners within-class grouping are by ability said to be homogenously grouped, while learners of different abilities break apart or mixed in ability classes are said to be heterogeneously grouped. Adodo and Agbayewa (2011) reported that within-class ability grouping consistently produces larger gains than the mixed ability group and that the positive effects are slightly greater for low achievers than the positive effects are slightly greater for low achievers than average or the above average achievers. As learning and meta-analysis report both

Figure 1. VPTM (Newton's law).

nationally and internationally on these issues a revealed discrepancy in opinion makes learning to this end inconclusive. It is imperative to know which class settings of ability level grouping (homogenous or heterogeneous) will be more effectual for instruction in basic technology learners.

The main purpose, of this erudition, is to conduct a comparative efficacy of the two teaching methods the Visual Prompt Teaching Method (VPTM: an innovative approach to teaching and learning) and the Conventional Science Teaching Method (CSTM: a conformist approach to teaching and learning, see an example of Newtons Law illustrated using CSTM in Figures 2 and 3) on the learners to determine which of the instructions will augment the grouping methods that would produce high effects on the learner's academic performance in Basic Technology. It is also to find out whether the innovative approach and inquisitiveness of the learners to science will be subjective after instruction in the two types of class environments. To guide this learning two (2) questions and five (5) hypotheses were raised.

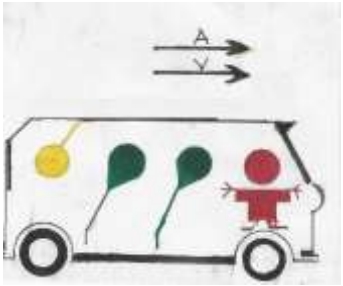

Figure 2. CSTM (Newton's law).

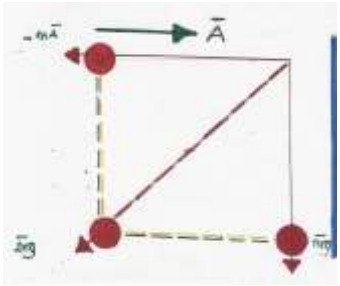

Figure 3. CSTM (Newton's law).

Research questions

1. What were the performances of the learners taught basic technology in the homogeneous and heterogeneous classes before and after treatment?
2. What were the impetuses for the learner's preference in support of either CSTM or VPTM approach to

instruction in the class grouping type?

Research hypotheses

H_{01}: There is no significant difference in the posttest mean scores of learners taught basic technology content using Basic Technology Achievement Test (BTAT) among the ability level of the homogeneous and heterogeneous class:
H_{02}: There is no significant difference in the posttest mean scores of the learners taught basic technology on wood concept, knowledge and tasks using VPTM and CSTM among the ability level of the homogeneous and heterogeneous class
H_{03}: There is no significant difference in the posttest mean scores of the learners taught basic technology on metal concept, knowledge and task using VPTM and CSTM among the ability level of the homogeneous and heterogeneous class
H_{04}: There is no significant difference in the posttest mean scores of the learners taught basic technology no plastic concept, knowledge and task using VPTM and CSTM among the ability level of homogeneous and heterogeneous class
H_{05}: There is no significant difference in the posttest mean scores of the learner's attitude and inquisitiveness for CSTM and VPTM among ability levels of the homogeneous and heterogeneous classes.

METHODOLOGY

The erudition is a pretest-posttest and control quasi-experimental 2*3 factorial design. The two-control group and experimentation. The participants were 30 learners from each of the two "junior secondary school classes" The choice for the two schools A and B was that one of the schools was an orientally private school atmosphere, while B was a public school and both schools had the three ability levels amenabilities. The researcher prearranged the three ability levels: High, average and low using an instrument namely: the Basic Technology Achievement Test (BTAT) which is a compilation of relevant basic technology, the Junior School Certificate Examination (JSCE) and standardized questions from the National Examination Council (NECO). Fifty (50) multiple-choice questions were developed on topics taught during the learning using basic technology curriculum for junior secondary schools. Concept, knowledge and tasks covered were wood, metal and plastic. Learner's questionnaires on the preference instruction for grouping types were used to collect data for the learning. To guarantee the face and construct validity of the instruments, five instruments were subjected to screening by experts in test and measurement: the final drafts were based on their comments and implications. The reliability of the instruments was established through test-retest method. The instruments were administered twice at an interval of two weeks on 30 learners in Demonstration secondary school, Ahmadu Bello University, Zaria, Nigeria. The negotiated choice for Demonstration school pupils was to speculate statistical scores based on its quasi-transnational nationality's configuration. The scores correlated yielded the reliability co-efficient index of 0.80, 0.66, and 0.86 for BTAT, WOOD, METAL and PLASTIC correspondingly.

The procedures were in three stages: Pretest stage which lasted for one-week (1 week) the treatment stage which lasted for six weeks (6 weeks) instructions and posttest stage for one week (1 week) respectively. The learners were made to write the pretest in BTAT, WOOD, METAL and PLASTIC. The instructions covered the following selected topics in "curriculum for basic technology" for six weeks:

(A) Wood: Identification, Classification, Concepts and Knowledge, and Appliances/uses (B) Plastic: Identification, Thermoplastics, Plasticity/uses of thermosetting. (C) Metal: Identification, Classification, Alloys/Types, Non-Ferrous metals/use.

Subsequent to instruction in the different grouping class types (homogeneous and heterogeneous), at the end of the stipulated 6^{th} weeks the two groups were tartan in the posttest in BTAT, WOOD, METAL and PLASTIC. At the end of the sixth-week scores per ability level group in BTAT, WOOD, METAL and PLASTIC were analyzed using mean standard deviation and t-test statistics.

RESULTS AND DISCUSSION

Questions

From Table 1 and Figures 4 to 6 the learner performance scores in homogeneous and heterogeneous ability level group classes materialize to be better than their complement in the heterogeneous group class after instruction.

H_{01}: There is no significant difference in the posttest mean scores of learners taught content in basic technology using BTAT among ability group levels of the homogeneous and heterogeneous before and after instruction.

The hypotheses were formulated to appraise the efficacy of the two teaching methods BTAT on the knowledge pedestal of the learner in basic technology among ability levels of homogeneous and heterogeneous classes.

From Table 1, the BTAT mean scores of the above-average ability group in the homogeneous ability

Table 1. Table of mean and standard deviation of performance scores of learners in the homogeneous and heterogeneous classes before treatment and after treatment.

Heterogeneous group (BTAT)							
	Before treatment				**After treatment**		
	High	**Average**	**Low**		**High**	**Average**	**Low**
Mean	32	27	25.3	Mean	50.3	38.7	28.7
SD	10.793	7.498	7.7034	SD	7.631	5.638	3.832
Homogenous group (BTAT)							
	High	**Average**	**Low**		**High**	**Average**	**Low**
Mean	34.9	33.6	24.3	Mean	74.9	71	64.7
SD	5.67	7.38	6.3	SD	8.048	8.957	14.15

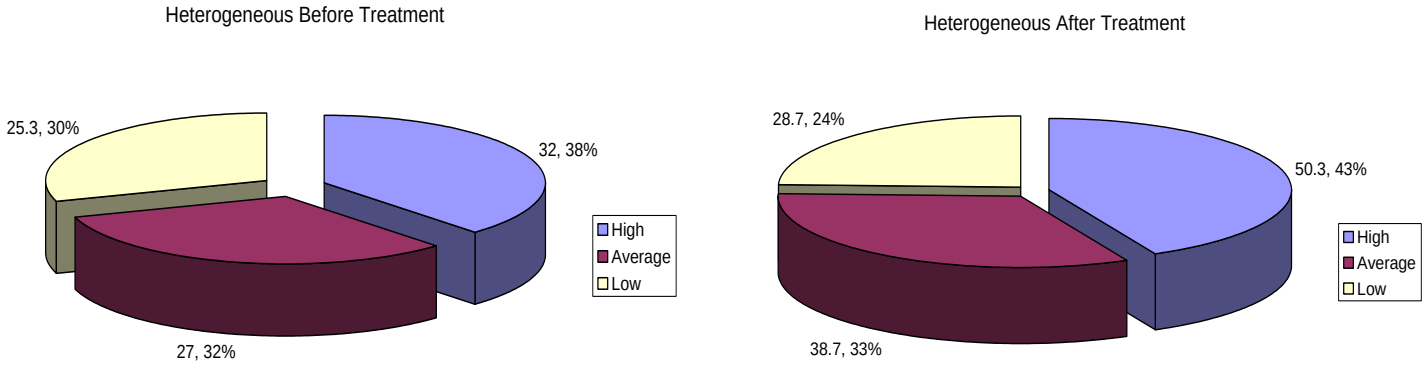

Figure 4. Composite bi-chart showing the pre-test and post-test scores of learners among the groups of the two class settings: Performance of the learners in the heterogeneous ability level class before and after treatment.

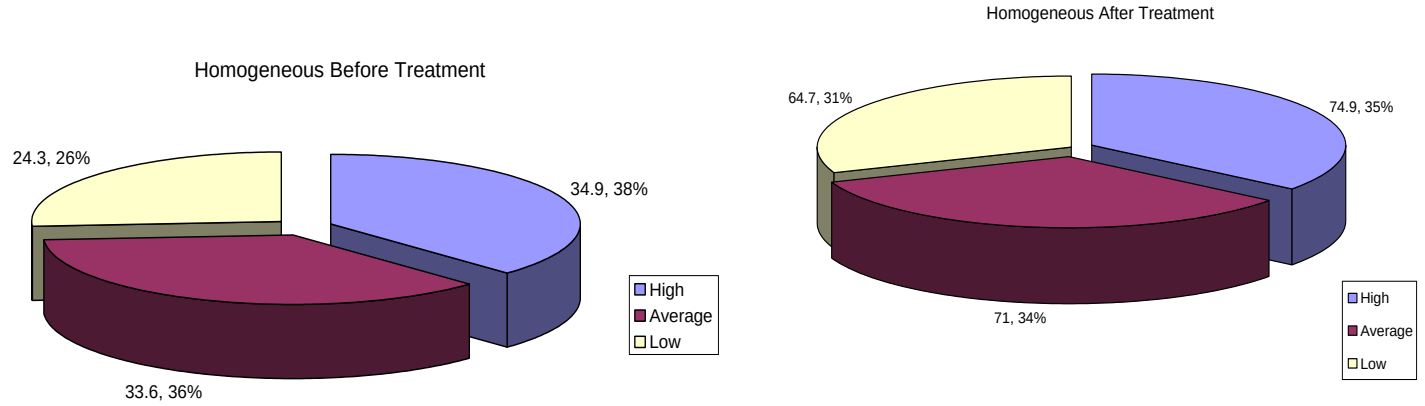

Figure 5. Composite bi-chart showing the pre-test and posttest scores of learners among the groups of two class settings: Performance of learners in the homogeneous ability level class before and after treatment.

grouping class setting was 74.96 and S.D was 8.05 despite the fact that the mean scores of the heterogeneous group was 50.30 and S.D was 7.63. The t-calculated was 4.724 which is significant at 0.05 critical levels. The mean scores of the average level and below the average of the two groups were 71.00 and 64.70, whilst that of the heterogeneous group was 38.70, for the average level and 28.70 for the below-average group level. The t-calculated for the average group of the two-class setting was 9.631, and the t-calculated of below average was 7.44 both were evaluated with the table value respectively, and consequently, the null hypotheses

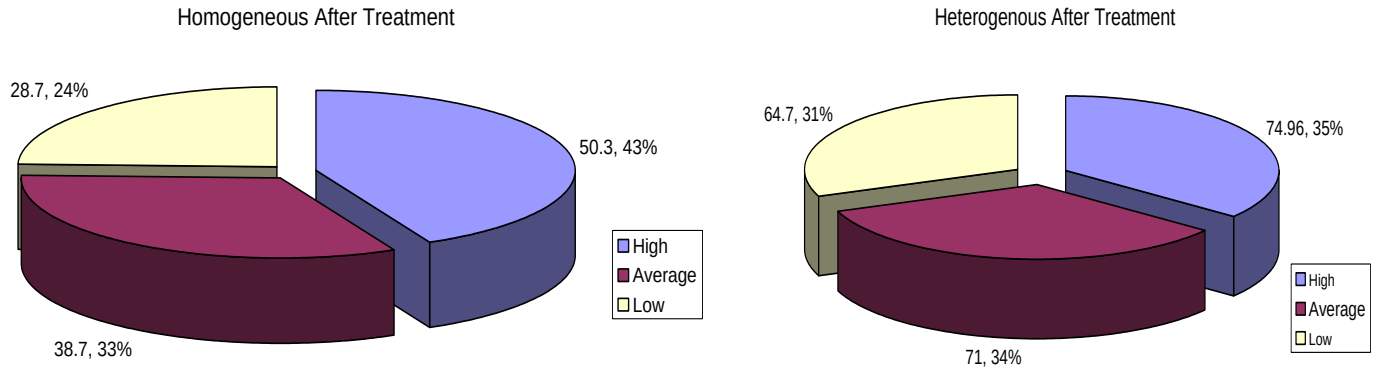

Figure 6. Composite bi-chart showing the pre-test and posttest scores of learners among the groups of two class settings: Comparison of posttest scores of the homogeneous and heterogeneous ability level classes.

Table 2. T-test analysis of learners' scores taught using Basic Technology Achievement Test (BTAT) among the ability level of homogeneous and heterogeneous groups after treatment.

Heterogeneous group			
	After treatment		
	High	**Average**	**Low**
Mean	50.3	38.7	28.7
SD	7.631	5.638	5.832

Heterogeneous group			
	After treatment		
	High	**Average**	**Low**
Mean	74.96	71	64.7
SD	8.045	8.95	14.15

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are thus rejected. (Table 2)

H_{02}: There is no significant difference in the posttest mean scores of learners taught wood concept, knowledge and task in basic technology using CSTM and VPTM among an ability-level group of homogeneous and heterogeneous classes.

The hypotheses were formulated to appraise the efficacy of the two teaching methods CSTM and VPTM on wood concept, knowledge and task applicability among ability levels of homogeneous and heterogeneous classes.

Table 3 shows that the mean score of the homogeneous group is 43.30 and the standard deviation was 6.314. The mean scores of the heterogeneous group were 34.33, and S.D was 8.083, and the t-calculated was 4.788 which is significant at 0.05 alpha levels. The null hypothesis is thus rejected consequently there was a significant difference in the task applicability of the homogeneous group after treatment (Figure 7).

H_{03}: There is no significant difference in posttest scores of the learners taught metal concept, knowledge and task in basic technology using CSTM and VPTM among the ability level of homogeneous and heterogeneous class.

The hypotheses were formulated to appraise the efficacy of the two teaching methods CSTM and VPTM on metal concept, knowledge and task applicability among the ability level of homogeneous and heterogeneous class.

Table 4 shows that the mean score of the homogeneous group is 46 30 and the standard deviation was 6.324. The mean scores of the heterogeneous group were 34 32, and S.D was 8.073, and the t-calculated was 4.698 which is significant at 0.05 alpha levels. The null hypothesis is thus rejected thus there was a significant difference in the task applicability of the homogeneous group after treatment.

H_{04}: There is no significant difference in posttest scores of the learners taught plastic concept, knowledge and task in basic technology using CSTM and VPTM among the ability level of homogeneous and heterogeneous classes.

The hypotheses were formulated to appraise the efficacy

Table 3. T-test analyses of learner's post-test scores taught with CSTM and VPTM in wood concept, knowledge and task in basic technology among ability level of homogeneous and heterogeneous groups.

	Homogenous	Heterogeneous
Mean	43.3	34.33
SD	6.314	8.083

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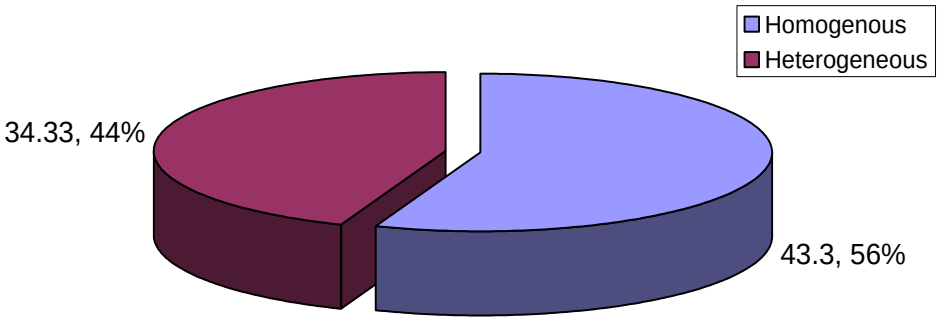

Figure 7. Composite bi-chart showing the pre-test and post-test scores of learners among the groups of two class settings: Comparison of post-test scores of the homogeneous and heterogeneous ability level classes.

Table 4. T-test analyses of the learner's post-test scores taught with CSTM and VPTM in metal concept, knowledge and task in basic technology among ability levels of homogeneous and heterogeneous groups.

Method	N	Mean	SD	df	t T-cal	T-tab	Result P<0.05
Homogeneous	80	48.56	4.413	-	4.778	1.671	Significant
Heterogeneous	30	35.33	5.586	58			

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of the two teaching methods the CSTM and VPTM on plastic concept, knowledge and task applicability among ability levels of homogeneous and heterogeneous classes.

Table 5 shows that the mean score of the homogeneous group is 45.32 and the standard deviation was 6.324. The mean scores of the heterogeneous group were 37.23, and S.D was 5.688 and the t-calculated was 4.857 which is significant at 0.05 critical levels. There is a significant difference consequently the null hypotheses are hereby rejected.

H_{05}: There is no significant difference in the posttest mean scores of the learner's attitudes scores for CSTM and VPTM teaching methods among ability levels of homogeneous and heterogeneous classes.

The hypotheses were formulated to appraise the efficacy of the two teaching methods the CSTM and VPTM approaches to basic technology task applicability among ability levels of homogeneous and heterogeneous groups after instruction.

Table 6 shows that the mean score of the homogeneous group is 43.30 and the standard deviation was 6 314. The mean scores of the heterogeneous group were 34.33, S.D was 8.083, and t-calculated was 4.7688 which is significant at 0.05 alpha level. The null hypothesis is thus rejected hence there was a significant difference in the approach and interest in instruction for the homogeneous group after treatment.

Question 1. What were the motivations for the learner's preferences for either the CSTM or VPTM approach to the instruction of the class grouping type?

An open-ended questionnaire that the learners completed after being prefaced to CSTM and VPTM approach to the instruction after treatment in both the homogenous and heterogeneous groups in which both groups gave further information of learner's group rationale for preferences and non-preferences which are perceptible in their comments. The responses were tabulated as reported in Table 7. The answer to the questionnaire is in support of either visual prompt instruction (VPTM) or conventional

Table 5. T-test analyses of the learner's post-test scores taught with CSTM and VPTM on plastic concept, knowledge and task in basic technology among ability levels of homogeneous and heterogeneous groups.

Method	N	Mean	SD	df	tT-cal	T-tab	Result P<0.05
Homogeneous	50	44.31	6.33				Significant
Heterogeneous	30	34.33	5.585		4.784	1.671	

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Table 6. T-test analysis of the post-test means scores of homogeneous and heterogeneous ability level class attitude/interests in VPTM and CSTM in basic technology instruction.

Method	N	Mean	SD	df	tT-cal	T-tab	Result P<0.05
Homogeneous	30	41.57	4.424		4.056	1.671	Significant
Heterogeneous	30	36.24	5.676	58			

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Table 7. The tabled summary for reasons of the learner's preference for the effects of the instruction Visual Prompt Teaching Method (VPTM) and Conventional Science Teaching Method (CSTM) on grouping situation over the other.

	Homogeneous group	Number	%	Reasons for non-preference	Number	%
1.	I do not feel good, that the whole assignment is our responsibility I can learn on my own	21	67	The more I help the weaker ones when together, the more knowledge I gain and the more I am challenged to learn in advance of them.	9	33.4
2.	Everyone works collaboratively but working with the low-achiever group wastes time and slows down the pace of work.			I feel comfortable and learn less and more.	9	30

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science instruction (CSTM) technique preference among the homogeneous ability group class settings. The non-preference responses of (1) and (2) of the homogeneous group could be attributed to the high achievers in the group. The reasons for the non-preference of the heterogeneous group are In favor of the homogeneous ability level class.

DISCUSSION AND CONCLUSION

The outcome of this erudition illustrated that homogeneous ability grouping is better-quality performances when instructed with VPTM in their different ability level. This supports the affirmations of Swiatek (2001) and Lou et al. (1996) that homogeneous and heterogeneous ability grouping had a differential effect on learners learning. It is also in line with the research-based information on timely topics magazine RBITT reports (2002) maintain that within-class homogeneous ability grouping persistently produces a large gain in learners than break apart or mixed ability grouping. It lay to rest the dispute of Swiatek (2001) and Emily (2003) neither homogeneous nor heterogeneous ability grouping is better-quality support for the academic performance of the learners. The reported approach and inquisitiveness appraisal on social and emotional effects of the instructional approaches (CSTM and VPTM) on the learners is in favor and support of homogeneous group class setting. Learners are less stigmatized in the homogeneous ability-level class. This contradicts learning that ability grouping did not improve teaching or instruction and learning, instead, it encourages detrimental social stratification where learners in high ability class and those in the learning ability class felt that they had nothing in common even outside their segregated pedagogical cycle. It also disagrees with the report of Schmidt (1993) and Melser (1999) who opined that learners of all abilities exhibit greater academic self-confidence and self-esteem in a heterogeneous grouping class, while the slow learners and the underachievers are usually stigmatized, and uncared for in a heterogeneous

grouping class. What this means according to this erudition is that when learners are grouped heterogeneously, there is the possibility that the low achievers and low learners will be denied the opportunity to receive attention, endorsement and accolade sometimes from the teachers, facilitators and from the general postulation that all is well with all members of the class. Learners are also unmotivated to learn because of personal fear of poor performance and the use of incept orthodox approach to instruction and learning. From this learning, the average and low-ability learners benefit academically from homogeneous grouping in basic technology class settings than the heterogeneous group. The learner's attitude or approach and inquisitiveness were enhanced after treatment with the visual prompt teaching method (VPTM) in the homogeneous ability level grouping class. The implication of this is that resources should, as in the case of some visuals resources analyzed, include (CSTM) an overt explanation of the overall philosophy towards visuals and a general overview of their expediency, as well as guidance for teachers and learners with regard to specific visual elements where necessary; this guidance may be provided by the positioning of graphics (VPTM) relative to text or other iconicity's. The frontier knowledge contributed by the expediency of VPTM in the pedagogical cycle is hearteningly grounded on the annotations made by some of the learners on its edification characteristics in terms of knowledge retention and recall, mnemonic and comical translations.

RECOMMENDATIONS

The following recommendations are made based on the outcome of the erudition. VPTM should be introduced in Nigeria cum transnationally in the pedagogical cycle alongside the suited unadventurous method for the reason that it is more resourceful than CSTM. Using the two approaches has the prospective of invalidating the low performance in the heterogeneous ability level settings in (science) basic technology. Furthermore, the practice of homogeneous or ability grouping is recommended "Visual prompt instruction in basic technology class as it will:

I. Enhance learner's performance in "basic technology" it will also consent the teacher to be a facilitator rather than a teacher tailoring the pace and the content of instruction to the learner's ability level and needs
II. It is also easier for the teacher's instructive approach "student-centered teaching" where the teacher is in control of the homogeneous ability level grouping classes.
III. Provide more repetition and reinforcement to the low achievers and an advanced or boosted level of instruction to the high achievers.
IV. Low-achieving learner experiences reassurance and participation when grouped with peers of the comparable or same ability.
V. The high achievers have their inquisitiveness and incentives maintained in the homogeneous group.
VI. The high achievers waste their time when grouped with the slow learners heterogeneously as from the aforesaid responses, the learners seem to value their comfort and ability to participate in the collaborative effort at the level they belong.
VII. Learners can work at a faster or slower pace without being discouraged within the group of the same ability level to which they belong. This is close to an individualized instructional modus operandi.

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